3.2.1 - Grants received from Government and Non-Governmental agencies for research projects, endowments, Chairs during the year (INR in Lakhs)

3.2.1 Details of grants received from Government and Non-governmental agencies for research projects, endowments, Chairs in the institution during the year (INR in lakhs), 3.2.2 Details of teachers having research projects during the year & 3.2.4 Details of Departments having research projects funded by Government and/or Non-government agencies during the year

S.NO	Name of the Principal Investigator/ Co-Investigator (if applicable)	Department of the Principal Investigator/ Co-Investigator	Name of the Funding Agency	Type (Government/Non-Government)	Funds provided (INR in lakhs)	Month and Year of receving the grant	Duration of the Project
1	Dr.B.Sreedevi Dr.D.Rajalakshmi	CSE	State University Research Excellence (SERB SURE) Project Title: High Performance Computing Tool for assessing Alzheimer's Disease with Genomic Science using Deep Learning Architectures	Government	2996479	2022	36 Months
2	Dr.K.Palanikumar Dr.B.Sreedevi	CSE	Stars Proposal Project Title :Analyzing Alzheimer with Memory -Driven Computing and Deep Learning Algorithms using GENOME Server and High	Government	1600000	2022	36 Months
3	Dr.B.Sreedevi	CSE	IGCAR Proposal - Project Title:Development of GUI platform towards Classification and Prediction of Breast Thermograms based on Deep Learning	Government	1600000	2022	2 years
4	Dr.B.Sreedevi Dr.S.Vidhya Dr.D.Rajalakshmi	CSE	SERB POWER Proposal - Project Title:Development of Powerful and Effective Hybrid Model for obtaining High Precision Solid Waste Predictions in Chennai using Optimization Algorithms	Government	2024800	2022	36 Months
5	Dr.BRINDHA DEVI V, SAMPATH R	IT	SERB SURE PROPOSAL : NextGen Learning and Class Room Management Based on ARVR Using Laptop as a Hub	Goverment	2912000	2023	36 MONTHS
6	MR.P.Ashok	CSE	Tamil Nadu State council for Science & Technology	Goverment	7500	2023	6 Months
7	Dr.G.Shanmugausndar	MECH	Tamil Nadu State council for Science & Technology	Goverment	7,500	2023	6 Months
8	Dr.K.PALANIKUMAR & Dr.G.Shanmugausndar	MECH	IEI – workshop Funding for Two days workshop on Smart Manufacturing and Automation using Advanced Robotics	Goverment	30,000	2023	2 Days
9	Dr.B.Sreedevi	CSE	IEI – workshop Funding	Goverment	10,000	2023	1 Day
10	Dr.V. Brindhadevi & Mrs.Sharmila	IT	IEI – National Conference Funding	Goverment	30,000	2023	2 Days
11	Dr.G.Prakash & Mrs.Shanthi	EEE	IEI – workshop Funding	Goverment	10,000	2023	1 Day
12	Dr. Muthamizhan	EEE	AICTE – ATAL -FDP Two Weeks ATAL FDP on "Power Electronics Applications to Renewable Energy Systems, Electric Vehicles, and Intelligent Control"	Goverment	300,000	2023	one week

13	DR SARITHA GANESAN,Valarmathi .G	ECE	STUDY OF EARLY PROGNOSIS OF DENGUE FEVER SURVEILLANCE SYSTEM	Goverment	3,000,000	28.Apr.23	24 Months
14	Dr.G.SARITHA	ECE	Supporting and Empowering Communities to think about child abuse, hygiene and rural development	Goverment	40000	2023	24 Months

Development of Powerful and Effective Hybrid Model for obtaining High Precision Solid Waste Predictions in Chennai using Optimization Algorithms

Reference No. : 162022002302

Saved By : Dr. B SREEDEVI

[SERB Qualified Unique Identification Document: SQUID-1978-BS-7285]

Saved Date : 08-Oct-2022

PROPOSAL DETAILS

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Technical Details :

Scheme :	SERB-POWER Grant		
Research Area :	Electrical Electronics & Computer Engineering (Engineering Sciences)		
Duration :	36 Months	**Contact No :**	+919444245253
Date of Birth :	26-Sep-1978		
Nationality :	INDIAN	**Total Cost (INR) :**	20,24,800

Is PI from National Laboratory/Research Institution ? No

Project Summary :

Solid waste management (SWM) has become a comprehensive delinquent due to urban population evolution and transformation in consumption patterns.Municipal Solid Waste (MSW) comprehends domiciliary, marketable, institutional, street sweeping, construction and annihilation, and cleanliness left-over. Operative assortment and appropriate removal of MSW be contingent profoundly on precise prediction of solid waste generation.MSW prediction cannot be done unswervingly and be contingent on many qualitative and reckonable influences.Machine learning methods are found to be advantageous owing to ambiguity and unsatisfactory data obtainability. Numerous Machine learning methods have been already attempted for predicting Solid Waste, but it achieves low prediction accuracy and it increases computation time for Solid Waste Prediction.

Objectives :

The hybrid methodology combines decomposition technique, optimization technique and deep neural networks by which the prediction is highly accurate.
• In this research, Deep Neural Network Optimized (DNN) with Selfish Herd Optimization (SHO) is proposed for accurate solid waste prediction.
• Then the collected data are pre-processed using hybrid decomposition method that is Morphological filtering and Extended Empirical wavelet transformation to retrieve the missing values.
• Then the pre-processed data is given to Deep Neural Network for classifying the category of solid waste.
• But Deep Neural Network does not reveal any acceptance of optimization techniques for calculating accurate classification of waste.
• Hence Selfish Herd Optimization (SHO) is proposed for optimizing the weights parameters of Deep Neural Network.
• Finally, Deep Neural Network Optimized with Selfish Herd Optimization (SHO) accurately predicts the solid waste as Wet waste, Dry waste, Horticulture waste, and dumping yard.
• Finally, the proposed MFEEWT-SHO-DNN based solid waste prediction framework is compared with existing methods such as Map Reduce based Exponential Smoothing Technology for solid waste prediction (MR-EST-RP), modular artificial neural networks with support vector regression for solid waste prediction (MANN-SVR-RP), and biogeography-based extreme learning machine (BBO-ELM) (BBO-ELM-RP).

Keywords :

Deep Neural Network, wavelet transformation, Flamingo Search Optimization, Morphological filtering, solid waste prediction, Selfish Herd Optimization

Expected Output and Outcome of the proposal :

• Initially the real time solid waste prediction data are taken from Quantity of MCC, Landfill, Gardan Garbage & Coconut Shell Report in Tamilnadu (Chennai) such as Zone- 9 (Nungambakkam), Zone 10 (Kodambakkam) and Zone 13 (Adyar).
• Here, the real time data of the selected locations are applied to the proposed MFEEWT-SHO-DNN for forecasting the solid waste for 2022-2032 years.
• The calculation time for solid waste prediction is decreased by using this hybrid methodology.
• Effective forecasting of a solid waste supervision system depends negatively on the prediction accuracy of solid waste generation.
• Given that urban regions like Chennai are constantly swamped with solid waste, reliable prediction of solid waste generation is necessary for operational assortment and suitable evacuation of MSW.
• Environmentally acceptable disposal facility can be developed by the accurate prediction of solid waste.
• Municipal Solid Waste Management has long been a key challenge for Urban Local Bodies (ULBs) in India (MSWM).
• The majority of Indian cities use an inefficient system of solid waste management (SWM).
• Tools and equipment used are obsolete and insufficient, and manpower is basic.
• The final disposal of garbage involves minimum processing and treatment.
• Unscientific disposal sites that cause air pollution, water poisoning, and soil contamination.
• These issues can be handled by the accurate prediction of solid waste.

Suitability of the proposed work in major national initiatives of the Government:

Swachh Bharat, Smart Cities, Innovate India

Theme of Proposed Work:

Environment, Cyber Physical Systems including AI, IOT and Cyber Security

SNo.	CO-PI Details	
1		**S** vidya.lkshm@gmail.com Associate Professor(Computer Science and Engineering) **Sri Sairam Institute of Technology** Sairam College Rd, Sai Leo Nagar, West Tambaram, Chennai, Tamil Nadu , TAMIL NADU, CHENNAI D.O.B : 21 Dec, 1988
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Other Technical Details

Development of Powerful and Effective Hybrid Model for obtaining High Precision Solid Waste Predictions in Chennai using Optimization Algorithms

1. Origin of the Proposal:

- Solid waste management (SWM) has become a comprehensive delinquent due to urban population evolution and transformation in consumption patterns.
- Municipal Solid Waste (MSW) comprehends domiciliary, marketable, institutional, street sweeping, construction and annihilation, and cleanliness left-over.
- Operative assortment and appropriate removal of MSW be contingent profoundly on precise prediction of solid waste generation.
- MSW prediction cannot be done unswervingly and be contingent on many qualitative and reckonable influences.
- Machine learning methods are found to be advantageous owing to ambiguity and unsatisfactory data obtainability.
- Numerous Machine learning methods have been already attempted for predicting Solid Waste, but it achieves low prediction accuracy and it increases computation time for Solid Waste Prediction.

2. Review of status of Research and Development in the subject

2.1 International Status:

[1] Nguyen, X.C., Nguyen, T.T.H., La, D.D., Kumar, G., Rene, E.R., Nguyen, D.D., Chang, S.W., Chung, W.J., Nguyen, X.H. and Nguyen, V.K., 2021. Development of machine learning based models to forecast solid waste generation in residential areas: A case study from Vietnam. Resources, Conservation and Recycling, 167, p.105381.

- This study's major objective was to assess six ML-based models for predicting the production of municipal solid waste (MSW) from a sample of Vietnam's residential regions.
- Eight factors that include the study area's economy, population, consumption patterns, and waste generation are included in the input data.
- According to the model simulation results, the urban population, average monthly consumption expenditure, and overall retail sales were the factors that had the greatest influence on the formation of MSW.
- The variability of the dataset, such as the absence of information from the country's smaller administrative entities, may be one of this work's drawbacks.

[2] Guo, H.N., Wu, S.B., Tian, Y.J., Zhang, J. and Liu, H.T., 2021. Application of machine learning methods for the prediction of organic solid waste treatment and recycling processes: A review. Bioresource technology, 319, p.124114.

- Organic solid waste is treated and recycled conventionally, however these processes have inherent problems such low efficiency, poor precision, high expense, and severe environmental hazards.
- Machine learning has slowly gained popularity over the past decade as a means of resolving the challenging issues associated with the treatment of organic solid waste.
- Municipal solid waste management was the main topic of research, which was then followed by anaerobic digestion, thermal treatment, composting, and landfilling.
- The artificial neural network is the most popular model that has been successfully used to solve a variety of challenging non-linear organic solid waste-related challenges.

[3] Ayeleru, O.O., Fajimi, L.I., Oboirien, B.O. and Olubambi, P.A., 2021. Forecasting municipal solid waste quantity using artificial neural network and supported vector machine techniques: A case study of Johannesburg, South Africa. Journal of Cleaner Production, 289, p.125671.

- Planning and managing municipal solid waste (MSW) in a sustainable way heavily depends on accurate estimation of the volumes of MSW.
- Artificial neural networks (ANN) and supported vector machines (SVM), two machine learning algorithms, were used to predict how much MSW would be produced in the CoJ.
- The forecast was generated up to 2050 and was based on historical data that was acquired from Statistics South Africa (STATS SA).
- The creation of forecasting models for MSW benefits from machine learning algorithms.

[4] Yang, L., Nguyen, H., Bui, X.N., Nguyen-Thoi, T., Zhou, J. and Huang, J., 2021. Prediction of gas yield generated by energy recovery from municipal solid waste using deep neural network and moth-flame optimization algorithm. Journal of Cleaner Production, 311, p.127672.

- Recent years have seen a considerable increase in environmental pollution problems, particularly SW, because to the rapid population rise and heavy urbanisation.
- Municipal solid waste (MSW) is the one that waste treatment plants are most concerned with.
- MSW is now handled and recycled to recover energy because to advances in science and technology.
- For waste treatment plants, however, the problem of energy recovery and optimization from MSW still presents a barrier.
- As a result, a unique artificial intelligence method was suggested in this work for accurately forecasting the gas yield (GY) produced by energy recovery from MSW.

2.2 National Status:

[1] Golbaz, S., Nabizadeh, R. and Sajadi, H.S., 2019. Comparative study of predicting hospital solid waste generation using multiple linear regression and artificial intelligence. Journal of Environmental Health Science and Engineering, 17(1), pp.41-51.

- Municipal solid waste (MSW) is the one that waste treatment plants are most concerned with.
- MSW is now handled and recycled to recover energy because to advances in science and technology.
- For waste treatment plants, however, the problem of energy recovery and optimization from MSW still presents a barrier.
- As a result, a unique artificial intelligence method was suggested in this work for accurately forecasting the gas yield (GY) produced by energy recovery from MSW.

[2] Abdallah, M., Talib, M.A., Feroz, S., Nasir, Q., Abdalla, H. and Mahfood, B., 2020. Artificial intelligence applications in solid waste management: A systematic research review. Waste Management, 109, pp.231-246.

- Solid waste management (SWM) issues can now be solved using alternative computational methods such as artificial intelligence (AI) capabilities.
- AI has shown effective in handling ambiguity and missing or partial data, learning from experience, and taking on complex challenges.
- Analyzing the use of AI in many SWM areas, such as forecasting waste characteristics, detecting waste bin levels, predicting process parameters, truck routing, and SWM planning.
- The many AI models and approaches utilised in SWM, application domains, reported performance metrics, and the software platforms that these models are implemented on are all thoroughly analyzed in this review.

[3] Kulkarni, B.N. and Anantharama, V., 2020. Repercussions of COVID-19 pandemic on municipal solid waste management: Challenges and opportunities. Science of the Total Environment, 743, p.140693.

- The COVID-19 epidemic has sparked a global crisis and raised social and economic challenges that will eventually affect the environment.
- The current study assesses current municipal solid waste (MSW) management techniques in the context of this natural experiment, with a focus on MSW treatment and disposal facilities.
- The criteria of disease transmission through solid waste handling are identified, as well as the effects of an increase in medical waste on the existing municipal waste treatment and disposal systems.
- The article addresses the future scope of effort to accomplish sustainable waste management

during and after the pandemics and suggests alternative techniques for MSW treatment and disposal.

[4] Vyas, S., Prajapati, P., Shah, A.V. and Varjani, S., 2022. Municipal solid waste management: Dynamics, risk assessment, ecological influence, advancements, constraints and perspectives. Science of The Total Environment, p.152802.

- Along with economic expansion, the world's energy consumption has been rising, placing strain on the availability of renewable energy sources.
- Municipal Solid Waste (MSW) has reportedly made significant improvements to renewable energy sources and a safe environment.
- The dynamics, risk assessment, ecological influence, advancements, restrictions, and perspectives in the field of municipal solid waste management and treatment were thoroughly summarized in this paper.
- Modern data has been presented regarding ecological influence and risk assessment in the treatment and transportation of municipal solid garbage.

2.3 Importance of the proposed project in the context of current status

- The hybrid methodology combines decomposition technique, optimization technique and deep neural networks by which the prediction is highly accurate.
- In this research, Deep Neural Network Optimized (DNN) with Selfish Herd Optimization (SHO) is proposed for accurate solid waste prediction.
- Then the collected data are pre-processed using hybrid decomposition method that is Morphological filtering and Extended Empirical wavelet transformation to retrieve the missing values.
- Then the pre-processed data is given to Deep Neural Network for classifying the category of solid waste.
- But Deep Neural Network does not reveal any acceptance of optimization techniques for calculating accurate classification of waste.
- Hence Selfish Herd Optimization (SHO) is proposed for optimizing the weights parameters of Deep Neural Network.
- Finally, Deep Neural Network Optimized with Selfish Herd Optimization (SHO) accurately predicts the solid waste as Wet waste, Dry waste, Horticulture waste, and dumping yard.
- The proposed method is implemented in Python tool and the efficiency of the proposed MFEEWT-SHO-DNN based solid waste prediction is measured.
- Finally, the proposed MFEEWT-SHO-DNN based solid waste prediction framework is compared with existing methods such as Map Reduce based

Exponential Smoothing Technology for solid waste prediction (MR-EST-RP), modular artificial neural networks with support vector regression for solid waste prediction (MANN-SVR-RP), and biogeography-based extreme learning machine (BBO-ELM) (BBO-ELM-RP).

- The accuracy, precision, specificity, F-score, sensitivity, error rate, and computing time are assessed to assess performance.
- The confusion matrix is used to scale performance indicators.
- The True Positive, True Negative, False Positive, and False Negative values are required to scale the confusion matrix.

2.4 If the project is location specific, basis for selection of location be highlighted:

- Initially the real time solid waste prediction data are taken from Quantity of MCC, Landfill, Gardan Garbage & Coconut Shell Report in Tamilnadu (Chennai) such as Zone- 9 (Nungambakkam), Zone 10 (Kodambakkam) and Zone 13 (Adyar).
- Here, the real time data of the selected locations are applied to the proposed MFEEWT-SHO-DNN for forecasting the solid waste for 2022-2032 years.

3 Work Plan:

3.1 Methodology:

ALGORITHM 1: Multivariate Empirical Mode Decomposition (MEMD)

1. Select an appropriate point series for sampling a $q-1_{sphere}$;

2. Formulate a projection $h_{\theta_s}(d)$*, of N-channel input signals* $a^N(d)(N=4)$ *along the direction vector* b_{θ_s} *for all* s *(series of direction vector completely), providing* $h_{\theta_s}(d)_{s=1}^{S}$ *as projection series;*

3. Search the time instant $d_{\theta_s}(d)_{s=1}^{S}$*, relating to the maxima of projected signal series* $h_{\theta_s}(d)_{s=1}^{S}$;

4. To determine the multivariate envelope curve $en_{\theta_s}(d)_{s=1}^{S}$ *by interpolating* $[d_{\theta_s}(d)a^N(d_{\theta_s}]$;

5. For a series of S *direction vectors, the mean* $Y(d)$ *of the envelope curve is formulated as*

$$Y(d) = \frac{1}{S}\left(\sum_{s=1}^{S} en_{\theta_s}(d)\right);$$

6. *Let* $f^N(d) = a^N(d) - Y(d)$. *If* $f^N(d)$ *satisfies the terminating criterion for a multivariate IMFs then apply the aforementioned process* $a^N(d) - Y(d)$; *or else apply it to* $f^N(d)$.

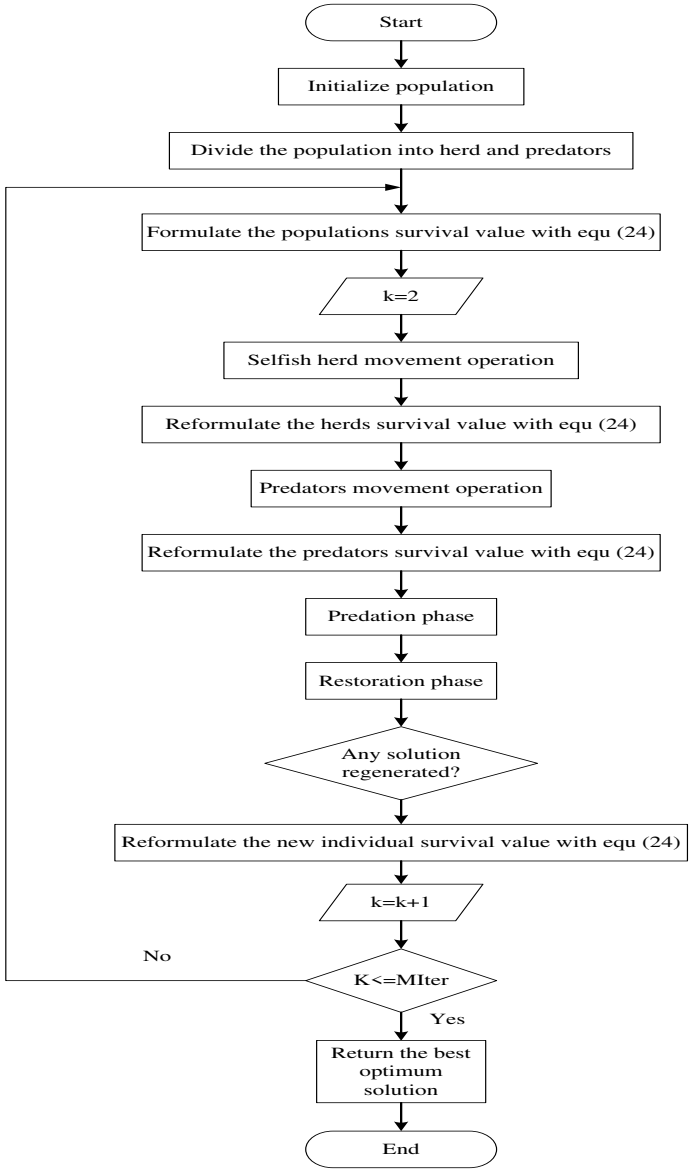
ALGORITHM 2: EEWT by Morphological Filtering

1. *Inputs:1Dist N-point time series* $w(n)$;
2. *To determine the Fourier transform spectrum* $\bar{r}(\omega)$,

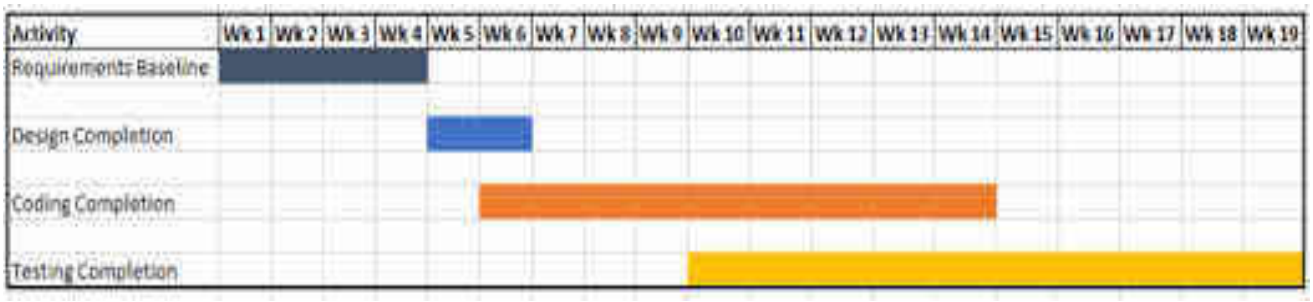
$$\bar{r}(\omega) = Z\left[r(n) = \sum_{k=0}^{n-1} |r(n)| e^{-ktn} \right];$$

3. *Formulate every local maxima of* $\bar{r}(\omega)$, *the significance of structural feature is fixed as* G, $G = y \times Dist$, *Dist is the smallest distance between two consecutive maxima;*
4. *Morphological Filtering, determines the simplified* $\bar{r}(\omega)$;
5. *Formulate every local maxima of* $\bar{r}(\omega)$, *the segmentation limit* ω^k *are termed as the lowest minima of* $\bar{r}(\omega)$;
6. *Empirical wavelet decomposition;*
7. *Output: A set of modes* $H(l), l = 1,2,3,....,x$.

Selfish Herd Optimization (SHO)



3.2 Time Schedule of activities giving milestones through BAR diagram.



3.3 Suggested Plan of action for utilization of research outcome expected from the project.

- The calculation time for solid waste prediction is decreased by using this hybrid methodology.
- Effective forecasting of a solid waste supervision system depends negatively on the prediction accuracy of solid waste generation.
- Given that urban regions like Chennai are constantly swamped with solid waste, reliable prediction of solid waste generation is necessary for operational assortment and suitable evacuation of MSW.

3.4 Environmental impact assessment and risk analysis.

- Environmentally acceptable disposal facility can be developed by the accurate prediction of solid waste.
- Municipal Solid Waste Management has long been a key challenge for Urban Local Bodies (ULBs) in India (MSWM).
- The majority of Indian cities use an inefficient system of solid waste management (SWM).
- Tools and equipment used are obsolete and insufficient, and manpower is basic.
- The final disposal of garbage involves minimum processing and treatment.
- Unscientific disposal sites that cause air pollution, water poisoning, and soil contamination.
- These issues can be handled by the accurate prediction of solid waste.

4 Expertise:

4.1 Expertise available with the investigators in executing the project:

- Sreedevi, B & Rajagopalan, SP, 'Improving Mesenchymal Stem Cell Classification Using Machine Learning Techniques', SCI, Annexure-I, ISSN:1537-744X, Article: ID 405974.

- Vidya, S & Srie Vidhya Janani, E 2021, 'Wind speed multi-step forecasting model using a hybrid decomposition technique and a selfish herd optimizer based deep neural network', Soft Computing,Springer, DOI:https://doi.org/10.1007/s00500-021-05608-5, Impact Factor: 3.050.

- G Uganya, D Rajalakshmi, Yuvaraja Teekaraman, Ramya Kuppusamy, Arun Radhakrishnan, "A Novel Strategy for Waste Prediction Using Machine Learning Algorithm with IoT Based Intelligent Waste Management System", Wireless Communications and Mobile Computing, 10.1155/2022/2063372, pp.1-15, 2022.

4.2 Summary of roles/responsibilities for all Investigators:

S. No.	Name of the Investigators	Roles/Responsibilities
1.	Dr.B.Sreedevi	Implementing Zone-9 Solid waste prediction
2.	Dr.S.Vidya	Implementing Zone-13, Zone-10, Solid waste prediction
3.	Dr.D.Rajalakshmi	Implementing Zone-10 Solid waste prediction

4.3 Key publications published by the Investigators pertaining to the theme of the proposal during the last 5 years

- Vidya, S & Srie Vidhya Janani, E 2020, 'Tabu search algorithm based general regression neural network for long term wind speed predictions', Automatika: Journal for Control, Measurement, Electronics, Computing and Communications, vol. 61, no. 4, pp. 657-669, Impact Factor: 0.764

- Vidya, S & Srie Vidhya Janani, E 2021, 'Wind speed multi-step forecasting model using a hybrid decomposition technique and a selfish herd optimizer based deep neural network', Soft Computing,Springer, DOI:https://doi.org/10.1007/s00500-021-05608-5, Impact Factor: 3.050.

- Paper published in the "Lecture notes and Network systems" in "Risk Prediction of Lung Disease using Deep learning approach", vol.300, Springer, Cham. https://doi.org/10.1007/978-3- 030-84760-9_40, Sep 2021.
- Paper Published in the **"**International Journal of Scientific and Technology Research**"** in "A Review on the Hybrid Approaches for wind speed forecasting", ISSN-2277-8616,Vol-8, Issue 9, Sep-2019.
- B. Sreedevi and P. M. Pachaiammal, "Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms," 2018 International Conference on Communication, Computing and Internet of Things (IC3IoT), 2018, pp. 6-11, doi: 10.1109/IC3IoT.2018.8668205.
- B. Sreedevi, Disaster Management Using Blockchain and Cloud Services, Journal of Green Engineering (JGE) Volume-10, Issue-10, October 2020.

4.4 Bibliography

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Books Published

Internet Programming in Sahara Publications, India with ISBN 9789386636157 – 2017
Book Chapter in "Machine Learning and Applications" on the topic Machine Learning based Credit Card based Fraud Detection(CNN Algorithm)

Book Chapter in Advanced Aspects of Engineering Research Vol. 5 "Study on Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled"

Patents

Mind Controlled Gaming for Differently Abled Indian Provisional (PatentNo201841016343) in the field of Bio Medical Engineering – May 2018

Multi Purpose Surveillance Based On Radar System With Camera Using Embedded Systems(No. 202041031869-July 2020)
VLC TRANSCEIVERS FOR SMART MUSEUMS(Patent No 202141029314)-June 2021

Grants

Dr.B.Sreedevi, 2017, Department of Science and Technology, Government of India granted Rs.100000/- for the project titled "Mind Controlled Gaming for Differently Abled".

AICTE Sponsored STTP for Rs.300000/- in Predictive Modelling And Data Analysis Using Python Based Machine Learning Technique

AICTE Sponsored ATAL FDP for Rs.93000/- in Data Sciences.

Publications

Sreedevi, B & Rajagopalan, SP, 'Improving Mesenchymal Stem Cell Classification Using Machine Learning Techniques', SCI, Annexure-I, ISSN: 1537-744X, Article: ID 405974

Sreedevi. B ,'Disaster Management Using Blockchain and Cloud Services' Journal of Green Engineering (JGE) 10 (10)

Dr.B.Sreedevi, P.Rayavel," Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled',AIP Publications,Scopus Indexed 2019.

Sreedevi. B, Pachhaiammal@Priya M, T.Ragunthar, 'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms', International Journal of Pure and AppliedMathematics,Vol.117,no.21,2017.

Dr.B.Sreedevi, Pachaiammal @Priya. M ,'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ',IEEE Digital Library and Scopus Indexed,Publication Year: 2018, Page(s):6 – 11

Sreedevi, B ,'Analysis of Performance Metrics with Mesenchymal Stem cell Classification and Optimization Algorithms' ,International Journal of Creative Research Thoughts (IJCRT) 5 (4), 2613-2618,2017

Sreedevi, B & Rajagopalan, SP 2015, 'Examine and Extraction of Optimized Stem Cells Using Image Processing', Australian Journal of Basic and Applied Sciences, vol. 9, no. 10, Special 2015, pp. 1-5.

Sreedevi. B, Abheek Kumar Srivastava, Ashwin Venkataraman,' Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm', International Journal of

Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 10, October 2013, ISSN: 2277 128X

B.Sreedevi, Dr.S.P.Rajagopalan,' Analysing Stem Cells Using Transformed Stem Cell Algorithm ', International Journal of Applied Engineering Research (IJAER), Volume 10, Number 75 (2015) .

Pradeep Kumar Sahoo, S. P. Rajagopalan, Sreedevi B, Pachhaiammal@ Priya.M,' Web Content Mining Based Relevant Text Data Extraction', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.186-193.

Pachhaiammal@Priya M, S.P.Rajagopalan, B.Sreedevi and Pradeep Kumar Sahoo,' Analysis methods and mining of brain functional connectivity for detection of brain disorders', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.258-262.

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Citizenship: India

Book Published

- Dr.S.Vidya, "Hybrid Approaches For Wind Speed Forecasting In India", ISBN 978-620-4-73737-9, LAP Lambert Publishing, Germany, 25.1.2022.

Patent

- Published "Iot Based Nozzle And Shell Junction For Feed Water Heater" on 28/1/22.

Papers Published

[1] Vidya, S & Srie Vidhya Janani, E 2020, 'Tabu search algorithm based general regression neural network for long term wind speed predictions', Automatika: Journal for Control, Measurement, Electronics, Computing and Communications, vol. 61, no. 4, pp. 657-669, Impact Factor: 0.764

[2] Vidya, S & Srie Vidhya Janani, E 2021, 'Wind speed multi- step forecasting model using a hybrid decomposition technique and a selfish herd optimizer based deep neural network', Soft Computing, Springer, DOI:https://doi.org/10.1007/s00500- 021-05608-5, Impact Factor: 3.050.

[3] Paper published in the "Lecture notes and Network systems" in "Risk Prediction of Lung Disease using Deep learning approach", vol.300, Springer, Cham. https://doi.org/10.1007/978-3- 030-84760-9_40, Sep 2021.

[4] Paper published in the "International Journal of Recent Technology and Engineering (IJRTE)" in "Software Defect Estimation using Machine Learning Algorithms", vol.10, issue 1, pg.204-208.

[5] Paper Published in the "International Journal of Scientific and Technology Research" in "A Review on the Hybrid Approaches for wind speed forecasting", ISSN-2277- 8616,Vol-8, Issue 9, Sep-2019.

[6] Paper published in the "International Journal of Scientific Research in Computer Science Engineering and Information Technology" in "Cross Domain Sentiment Classification using Natural Language Processing" ISSN:2456-3307,Vol.3, Mar-2018.

[7] Paper published in the "International Journal of Engineering Trends and Applications" in "Product Review Analysis with Filtering Vulgarity and Ranking System based on Transaction Id and OTP" ISSN:2393-9516,Vol.3,Nov-2016.

[8] Paper published in the "International Journal of Advance Information Science and Technology" in "Dynamic XML Dissemination Supporting Twig Pattern Queries" ISSN: 2319- 2618, Vol.17, No.17, Sep-2013,1-4.

[9] Paper published in the "Neuroquantology", Performance Predictor: Predicting the future performance of students by Machine Learning approach,Vol.20, No.10, ISSN:1303-5150.

Dr.D.RAJALAKSHMI
Associate Professor,
Department of Computer Science & Engineering,
Sri Sai Ram Institute of Technology,
West Tambaram, Chennai – 600063

Papers Published

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1.	G. Uganya, D. Rajalakshmi, Yuvaraja Teekaraman , Ramya Kuppusamy , and Arun Radhakrishnan	A Novel Strategy for Waste Prediction Using Machine Learning Algorithm with IoT Based Intelligent Waste Management System	International Journal of Wireless Communications and Mobile Computing	10.1155/2022/2063372	1-15	2022
2.	D.Rajalakshmi, K.Meena	A Hybrid Intrusion Detection System for Mobile Adhoc Networks using FBID Protocol	Scalable Computing and Practice	10.12694/scpe.v21i1.1642	137-145	2020

5 List of Projects submitted/implemented by the Investigators

5.1 Details of Projects submitted to various funding agencies:

S. No	Title	Cost in Lakh	Month of submission	Role as PI/Co-PI	Agency	Status
1	Developing powerful and effective hybrid model for obtaining high precision rainfall predictions using intelligent algorithms in India.	10,96,989	April -2022	PI	SERB	Under evaluation

5.2 Details of Projects under implementation:

S. No	Title	Cost in Lakh	Start Date	End Date	Role as PI/Co-PI	Agency
NIL						

5.3 Details of Projects completed during the last 5 years:

S. No	Title	Cost in Lakh	Start Date	End Date	Role as PI/Co-PI	Agency
1	Processing and Characterization of composite materials including natural fiber reinforced composites	6.0	18/03/2015	31/03/2015	PI	AICTE
2	Staff Development Programme on Artificial Intelligence with AI	7.0	15/09/2011	27/09/2011	PI	AICTE

6 List of facilities being extended by parent institution(s) for the project implementation.

6.1 Infrastructural Facilities

Sr. No.	Infrastructural Facility	Yes/No/ Not required Full or sharing basis
1.	Workshop Facility	yes
2.	Water & Electricity	yes

3.	Laboratory Space/ Furniture	yes
4.	Power Generator	yes
5.	AC Room or AC	yes
6.	Telecommunication including e-mail & fax	yes
7.	Transportation	yes
8.	Administrative/ Secretarial support	yes
9.	Information facilities like Internet/Library	yes
10.	Computational facilities	yes
11.	Animal/Glass House	yes
12.	Any other special facility being provided	yes

6.2 Equipment available with the Institute/ Group/ Department/Other Institutes for the project:

Equipment available with	**Generic Name of Equipment**	**Model, Make & year of purchase**	**Remarks including accessories available and current usage of equipment**
PI & his group	NIL		

7 Name and address of experts/ institution interested in the subject / outcome of the project.

- Dr.P.Deepalakshmi,
  Dean/SOC,
  Kalasalingam Academy of Research and Education,
  Virudhunagar District.
- Dr.R.Murugeshwari,
  Assistant Professor,
  Computer Science and Engineering,
  Vellore Institute of Technology,
  Bhopal.

Institution wise Budget Breakup :

Budget Head	Sri Sairam Institute of Technology	Total
Research Personnel	8,44,800	**8,44,800**
Consumables	1,35,000	**1,35,000**
Travel	1,50,000	**1,50,000**
Equipment	25,000	**25,000**
Contingencies	75,000	**75,000**
Other cost	7,50,000	**7,50,000**
Overhead	45,000	**45,000**
Total	**20,24,800**	**20,24,800**

Institute Name : ***Sri Sairam Institute of Technology***

Year Wise Budget Summary (Amount in INR) :

Budget Head	Year-1	Year-2	Year-3	Total
Research Personnel	4,84,800	1,80,000	1,80,000	**8,44,800**
Consumables	45,000	45,000	45,000	**1,35,000**
Travel	50,000	50,000	50,000	**1,50,000**
Equipments	25,000	0	0	**25,000**
Contingencies	25,000	25,000	25,000	**75,000**
Other cost	2,50,000	2,50,000	2,50,000	**7,50,000**
Overhead	15,000	15,000	15,000	**45,000**
Grand Total	**8,94,800**	**5,65,000**	**5,65,000**	**20,24,800**

Research Personnel Budget Detail (Amount in INR) :

Designation	Year-1	Year-2	Year-3	Total
Research Associate-I *This project requires well-trained, research associate who has completed Ph.D. and a technical assistant with Master Degree as qualification since this project deals with high priority area that is solid waste prediction and to develop and complete this project with utmost care and on-time delivery of the project*	4,84,800	1,80,000	1,80,000	**8,44,800**

Consumable Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
photocopying, printing, pencils, pens, pads of paper, markers, postage, computer supplies, Desktop, Printer, Server	45,000	45,000	45,000	**1,35,000**

Travel Budget Detail (Amount in INR) :

Justification (Inland Travel)	Year-1	Year-2	Year-3	Total
Inland travel is necessary for the PI, Co-PI and the project assistant to attend workshops, present in conferences and develop open database therefore it could be useful for research community in India	50,000	50,000	50,000	**1,50,000**

Equipment Budget Detail (Amount in INR) :

Generic Name ,Model No. , (Make)/ Justification	Quantity	Spare time	Estimated Cost
Power BI (Power BI) *contingency which are unexpected costs away from the budget is much needed for smooth completion of the project. here a contingency of 5 % is calculated per year of total cost and is equated for three years*	1	5 %	**25,000**

Contingency Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
contingency which are unexpected costs away from the budget is much needed for smooth completion of the project. here a contingency of 5 % is calculated per year of total cost and is equated for three years	25,000	25,000	25,000	**75,000**

Overhead Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
Maintenance	15,000	15,000	15,000	**45,000**

Other Budget Detail (Amount in INR) :

Description/Justification	Year-1	Year-2	Year-3	Total
Other Budget detail since the institution is providing space, electricity and other facility to do the project, the institutional overheads are to be considered at 15 % of annual cost	2,50,000	2,50,000	2,50,000	**7,50,000**

Dr B.Sreedevi

Professor & HOD, Department of Computer Science and Engineering
Sri Sairam Institute Technology Anna University
Chennai India 600045
Mobile: +91 9444245253 email: hodcse@sairamit.edu.in
Citizenship: India

Research Interests

My research interests revolve around the problem of Medical Image Processing and, more recently, Stem Cells. Much of my recent work focuses on image segmentation isolation and prediction using Machine learning algorithms. I've compared various Machine Learning Algorithms and proposed a model for predicting Accuracy. My interest in multiscale, parts-based shape representations, and their common abstraction as hierarchical graphs, has motivated my research in inexact graph indexing and matching – key problems in object recognition, another broad focus of my research. My research has also explored many problems related to object recognition, including object tracking, vision-based navigation, content based image retrieval, language-vision integration, and image/model abstraction.

Education

- Ph.D., Computer Science and Engineering Anna University, Chennai, India, Aug 2017 - Sub-specialization: Machine Learning and Image Processing
- Master of Technology in Computer Science and Engineering, SRM University Chennai, India, April 2007
- Bachelor of Engineering in Computer Science and Engineering, University of Madras April 1999

Professional Experience

- **Head of the Department & Professor**, Department of Computer Science and Engineering, Sri Sai Ram Institute of Technology, Anna University. June 2010 to Present
- **Assistant Professor** Department of Computer Science and Engineering Rajalakshmi Engineering College, Thandalam, Chennai, India. July 2019 to May 2010
- **Lecturer** Department of Computer Science and Engineering, SRM University, Chennai, India. Jan 2001 to March 2007

Technical Skills

- Programming in C, Python, Java with JDBC, PHP
- Web Technologies: HTML, CSS, AJAX, Java Script, XML and Web Services
- Extensive knowledge of RDBMS like Oracle and MYSQL.
- Familiarity in OS like Fedora, Windows and Linux.
- Work Experience in IDE like Net beans and Eclipse.
- Application of Data Mining Algorithms with WEKA tool.

Achievements

- Development of Visible Light Communication for Smart Museums, Bangkok University, Centre of Research in Optoelectronics, Bangkok, Thailand-May 2019
- Longest Continuous Student Branch Counsellor 2019
- Academic Excellence Award 2018
- Best faculty advisor Award by Institution of Engineers (India) 2019
- "Uttama Acharya Puraskar"-A National Award for Impact Creators-Lions Club of Vijayawada

Certifications

Certified EMC Academic Associate in Data Science and Big Data Analytics by DELL EMC2 during March 2018.

NPTEL-IIT certification in Data Mining, Database Management Systems, Python for Machine Learning and Internet of Things.

Certified from AICTE NITTTR for Module 8-Institutional Management nd Administrative Procedures

Certified ATL tinkerpreneur Mentor by AICTE

Professional Affiliations

Inventive Research Organization (IRO)	Feb 2017-Present
International Association of Engineers (IAENG)	Dec 2017-Present
Computer Society of India –Student Branch Counsellor	May 2011 – Present
Indian Society for Technical Education (ISTE)	May 2014 – Present
Institution of Engineers (India)(IEI)	Nov 2018- Present
National Digital Library (NDL)	May 2016 – Present
The Society of Innovative Educationalist and Research (FSIERP)	Mar 2019-Present

Books Published

- Internet Programming in Sahara Publications, India with ISBN 9789386636157 – 2017
- Book Chapter in "Machine Learning and Applications" on the topic Machine Learning based Credit Card based Fraud Detection(CNN Algorithm)

- Book Chapter in Advanced Aspects of Engineering Research Vol. 5 "Study on Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled"

Patents

- Mind Controlled Gaming for Differently Abled Indian Provisional (**Patent No201841016343)** in the field of Bio Medical Engineering – May 2018

- Multi Purpose Surveillance Based On Radar System With Camera Using Embedded Systems(No. 202041031869-July 2020)
- VLC TRANSCEIVERS FOR SMART MUSEUMS(Patent No 202141029314)-June 2021

Grants

- Dr.B.Sreedevi, 2017, Department of Science and Technology, Government of India granted Rs.100000/- for the project titled “Mind Controlled Gaming for Differently Abled”.

- AICTE Sponsored STTP for Rs.300000/- in Predictive Modelling And Data Analysis Using Python Based Machine Learning Technique

- AICTE Sponsored ATAL FDP for Rs.93000/- in Data Sciences.

Publications

- **Sreedevi, B & Rajagopalan, SP, ‘Improving Mesenchymal Stem Cell Classification Using Machine Learning Techniques’, SCI, Annexure-I, ISSN: 1537-744X, Article: ID 405974**

- **Sreedevi. B ,’Disaster Management Using Blockchain and Cloud Services’ Journal of Green Engineering (JGE) 10 (10)**

- Dr.B.Sreedevi, P.Rayavel,” Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled’,AIP Publications,Scopus Indexed 2019.

- Sreedevi. B, Pachhaiammal@Priya M, T.Ragunthar, ‘Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms’, International Journal of Pure and Applied Mathematics,Vol.117,no.21,2017.

- **Dr.B.Sreedevi, Pachaiammal @Priya. M ,’Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ‘,IEEE Digital Library and Scopus Indexed,Publication Year: 2018, Page(s):6 – 11**

- Sreedevi, B ,’Analysis of Performance Metrics with Mesenchymal Stem cell Classification and Optimization Algorithms’ ,International Journal of Creative Research Thoughts (IJCRT) 5 (4), 2613-2618,2017

- Sreedevi, B & Rajagopalan, SP 2015, ‘Examine and Extraction of Optimized Stem Cells Using Image Processing’, Australian Journal of Basic and Applied Sciences, vol. 9, no. 10, Special 2015, pp. 1-5.

- Sreedevi. B, Abheek Kumar Srivastava, Ashwin Venkataraman,’ Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm’, International Journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 10, October 2013, ISSN: 2277 128X

- B.Sreedevi, Dr.S.P.Rajagopalan,' Analysing Stem Cells Using Transformed Stem Cell Algorithm ', International Journal of Applied Engineering Research (IJAER), Volume 10, Number 75 (2015) .

- Pradeep Kumar Sahoo, S. P. Rajagopalan, Sreedevi B, Pachhaiammal@ Priya.M,' Web Content Mining Based Relevant Text Data Extraction', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.186-193.

- Pachhaiammal@Priya M, S.P.Rajagopalan, B.Sreedevi and Pradeep Kumar Sahoo,' Analysis methods and mining of brain functional connectivity for detection of brain disorders', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.258-262.

International & National Conferences

- **Dr.B.Sreedevi, 'Decentralized Application for managing the Disaster with Block chain, Cloud &IOT',International Conference on Computer and Information Sciences at University of PETRONAS, Malaysia during JULY 13-15,2021.**

- Dr.B.Sreedevi, P.Rayavel Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled', NATIONAL CONFERENCE ON MATHEMATICAL TECHNIQUES AND ITS APPLICATIONS (NCMTA – 2019) AT SRM UNIVERSITY FROM 11-12 JANUARY 2019.

- Dr.B.Sreedevi, Pachaiammal @Priya. M ,'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ',International Conference on Communication, Computing & Internet of Things, held at Sri Sai Ram Engineering College, Chennai, India from 15-17 February 2018.

- Dr.B.Sreedevi,P.Rayavel, National Conference on Mathematical Techniques and its Applications(NCMTA) held at SRM University, Chennai, India from 11-12 January 2019.

- B.Sreedevi, Dr.S.P.Rajagopalan, 'Analysing Stem Cells Using Transformed Stem Cell Algorithm 'International Conference On Computing And Information Technology (ICCIT '15)

- Sreedevi, B, Abeek Kumar Srivastava & Ashwin Venkataraman 2013,'Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm', Proceedings of the International Conference on Recent Trends in Computing(ICRTC 2013) ,4th & 5th October 2013, pp. 32-27.

- Sreedevi, B & Rajagopalan, SP 2015, 'Analysing Stem Cells Using Transformed Stem Cell Algorithm', Proceedings of the International Conference on Computing and Information Technology (ICCIT'15), 13th &14th August 2015, pp. 96-100.

- Sreedevi, B & Rajagopalan, SP 2015, 'Examine and Extraction of Optimized Stem Cells Using Image Processing', Proceedings of the National Conference on Recent Enhancement In Advanced Computing Technologies - 'React'15' On 27th March, 2015.

- B.Sreedevi, E.Madhumitha, M.Kalaiselvi,'Automatic Classification Of Intracardiac Tumor And Thrombi In Echocardiogram Using Adaptive Co-Segmentation', Proceedings of the National Conference on Recent Enhancement In Advanced Computing Technologies - 'React'16'

Workshop & Conferences

- Coordinator for TEDX-SriSairamIT and Hackathon Events.
- Organized first International Conference on Computing and Information Technology (ICCIT'15) during 2015.
- Organized a Staff development programme on "Soft Computing with AI" sponsored by AICTE for Rs.700000/- during 2011.
- Organized National Conferences on "Information & Communication Engineering Systems"-NICE '11, NICE'17 and NICE'18.
- International Seminar on "Recent Trends in Computer Technology" by Dr.Emerson Raja Joseph, Multimedia University, Malaysia during 2014.
- National Event on" CSI Golden Tech Bridge Programme" by Computer Society of India during 2014.
- FDP on Python Programming by ICTACT of Tamilnadu during 2018.
- Attended a seminar on "Stem Cell and Regenerative Medicine" during Nov 2016 at Anna University
- Delivered a session in FDP on "Internet Programming" at Loyola ICAM Institute of Technology, Chennai
- Attended STTP in Pondicherry Engineering College during 2016 on "Recent trends in optimization techniques".
- Attended FDP on "Hadoop" conducted by ICTACT at Sri Sai Ram Institute of Technology during 2016.

PROFORMA FOR BIO-DATA (to be uploaded)

1. Name and full correspondence address

Dr.S.Vidya,
Associate Professor,
Department of Computer Science and Engineering,
Sri Sairam Institute of Technology,
Chennai-44.

2. Email(s) and contact number(s) vidya.cse@sairamit.edu.in, 7358218015

3. Institution

Sri Sairam Institute of Technology

4. Date of Birth 21/12/1988

5. Gender (M/F/T) F

6. Category Gen/SC/ST/OBC Gen

7. Whether differently abled (Yes/No) No

8. Academic Qualification (Undergraduate Onwards)

	Degree	Year	Subject	University/Institution	% of marks
1.	B.E.	2010	CSE	ANNA	85
2.	M.E.	2014	CSE	ANNA	8.78
3.	Ph.d.	2021	CSE	ANNA	9.25

9. Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.

Ph.D thesis title: Hybrid approaches for long term and short term wind speed forecasting in India.
Guide Name: Dr.E.SrieVidhyaJanani
Assistant Professor & HOD,
Madurai Regional Campus,
Anna University,
Madurai.
Year of award: 10-11-21

10. Work experience (in chronological order).

S.No.	Positions held	Name of the Institute	From	To	Pay Scale
1	Associate Professor	Sri Sairam Institute of Technology	1-10-22	Till now	As per norms
2	Assistant Professor -I	Sri Sairam Institute of Technology	9-9-21	30-9-22	As per norms
3	Assistant Professor -III	Kalasalingam Institute of Technololgy	1-6-2017	27-8-21	As per norms
4	Assistant Professor -III	St.Joseph's Institute of Technology	16-6-2014	31-3-2017	As per norms
5	Programmer Analyst	Cognizant Technology Solutions (CTS)	30-8-2010	6-4-2012	As per norms

11. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

S.No	Name of Award	Awarding Agency	Year
1	Best Young Faculty award	Novel Research Academy	2021-22
2	"Travelers Star Program Award"	Cognizant Technology Solutions (CTS)	2011
3	Ilantamilarignar award	Bharathiar Maanavar Tamil Mandram	2001

12. Publications *(List of papers published in SCI Journals, in year wise descending order).*

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1	Vidya, S & Srie Vidhya Janani, E	'Tabu search algorithm based general regression neural network for long term wind speed predictions',	Automatika: Journal for Control, Measurement, Electronics, Computing and Communications,	61	657-669	2020
2	Vidya, S & Srie Vidhya Janani, E 2021,	'Wind speed multi-step forecasting model using a hybrid decomposition technique and a selfish herd optimizer based deep neural network',	Soft Computing, Springer,	25	6237-6270	2021

13. Detail of patents.

S.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status
1	IOT BASED NOZZLE AND SHELL JUNCTION FOR FEED WATER	1)Dr.J.JAYAPRIYA 2)P.CHANDRASEKAR 3)Dr. C.RAMESH BABU DURAI 4)J THIRUNAVUKKARASU	202141059532 A	28/01/22	India	Published - Awaiting Request for Examinatio n

	HEATER	5)Dr. S. VIDYA 6)MERLIN LINDA G 7)Dr. BASANTA KUMAR PALAI, 8)MALATHI G 9)KAVINILAVU A 10)B.UMAMAHESWARI,				

14. Books/Reports/Chapters/General articles etc.

S.No	Title	Author's Name	Publisher	Year of Publication
1	Hybrid Approaches for Wind Speed Forecasting in India	Dr.S.Vidya	LAP LAMBERT Academic Publishing	2022-01-25 ISBN-13: 978-620-4-73737-9

15. Any other Information (maximum 500 words)

- Reviewer of Journal "Bulletin of Electrical Engineering and Informatics" (BEEI) from January 2020.
- Member of IEEE and CSI.
- Secured 27th rank in M.E. among 4098 candidates.
- Awarded as "Best student of the Week" and hoisted the National Flag in X std.

PROFORMA FOR BIO-DATA (to be uploaded)

1. Name and full correspondence address: **Dr.D.RAJALAKSHMI**
Associate Professor,
Department of Computer Science & Engineering,
Sri Sai Ram Institute of Technology,
West Tambaram, Chennai - 600063

2. Email(s) and contact number(s) : rajalakshmi.cse@sairamit.edu.in, +919942258071

3. Institution : Sri Sai Ram Institute of Technology, Chennai

4. Date of Birth : 28-05-1984

5. Gender (M/F/T) : Female

6. Category Gen/SC/ST/OBC : OBC

7. Whether differently abled (Yes/No) : No

8. Academic Qualification (Undergraduate Onwards)

	Degree	Year	Subject	University/Institution	% of marks
1.	B.Tech	2005	Information Technology	Anna University	74.4%
2.	M.E	2010	Computer Science & Engineering	Anna University	80.56%
3.	Ph.D	2022	CSE	Veltech Rangarajan Dr.Sagunthala R&D Institute of Technology	-

9. Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.

Thesis Title: A Secured Intrusion Detection for Identifying Malicious Nodes In MANET Using Hybrid Fuzzy Based Protocol

Guide's Name: Dr.N.R.Rajalakshmi , Dr.K.Meena

Institute/Organization/University: Veltech Rangarajan Dr.Sagunthala R&D Institute of Technology

Year of Award: 2022

10. Work experience (in chronological order).

S.No.	Positions held	Name of the Institute	From	To	Pay Scale
1.	Associate Professor	Sri Sai Ram Institute of Technology	01-09-2022	Till Date	As Per Norms
2.	Assistant Professor	Sri Sai Ram Institute of Technology	14-06-2014	31-08-2022	As Per Norms
3.	Assistant Professor	Shri Angalamman College of Engineering & Technology	01-06-2010	27-05-2014	As Per Norms
4.	Lecturer	Shri Angalamman College of Engineering & Technology	22-07-2005	31-08-2008	As Per Norms

11. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

S.No	Name of Award	Awarding Agency	Year
1.	Certified Trainer for CCNA	CISCO	2021
2.	Best Faculty Award	Sri Sai Ram Institute of Technology	2020
3.	Best Women Faculty	DKIR Foundation	2019

12. Publications *(List of papers published in SCI Journals, in year wise descending order).*

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1.	G. Uganya, D. Rajalakshmi, Yuvaraja Teekaraman , Ramya Kuppusamy , and Arun Radhakrishnan	A Novel Strategy for Waste Prediction Using Machine Learning Algorithm with IoT Based Intelligent Waste Management System	International Journal of Wireless Communications and Mobile Computing	10.1155/2022/2063372	1-15	2022
2.	D.Rajalakshmi, K.Meena	A Hybrid Intrusion Detection System for Mobile Adhoc Networks using FBID Protocol	Scalable Computing and Practice	10.12694/scpe.v21i1.1642	137-145	2020

13. Detail of patents.

S.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status
1.	IoT based Smart Material for EV Segment using Wire Electrical Discharge Machining Thereof	J.Jayapriya, J.Thirunavukkarasu, D.Rajalakshmi, S.Rajeswari, R.Prabavathi, A.Kavinilavu	202241006784 A	11-02-2022	India	Published

14. Books/Reports/Chapters/General articles etc.

S.No	Title	Author's Name	Publisher	Year of Publication
1.	An improved Faster and Novel Methodology for Diabetes Ulcer Classification Based on Customized CNN	Rajalakshmi D, Tharunya R	IEEE Xplore	2022
2.	Decision Trees to detect Malware in a Cloud Computing Environment	Vijayaraj, Sumathi,M.Rajkamal ,M.,Kamaleshwar,D.T. Rajalakshmi, D.	IEEE Xplore	2022
3.	A Novel LC-DEH Algorithm to Enhance Efficiency and Security for Reliable Data Transmission in Blockchain	Uganya G, Radhika Baskar, Balasaraswathi M, Vijayaraj N, Rajalakshmi D	CRC Press	2022

	with IoT-Based Healthcare Systems			
4.	An Efficient Selfishness Control mechanism for Mobile Adhoc Networks	Rajalakshmi D, Meena K	Research Innovations and Applications of AI, IoT and Cognitive Technologies, IGI Global Publisher of Timely Knowledge	2021
5.	IR image disruptor with Embedded Code Tracker	Rajalakshmi D, Anitha N	IEEE Xplore	2021
6.	Investigation and Analysis of Path Evaluation for Sustainable Communication using VANET	Rajalakshmi D,Meena K, Vijayaraj N, Uganya G	Springer: Lecture Notes on Data Engineering and Communications Technologies	2021
7.	A Novel based Fuzzy Cognitive Maps Protocol for Intrusion Discovery in Manets	Rajalakshmi D, Meena K	International Journal of Recent Technology and Engineering	2019
8.	An Efficient technique of Intrusion Detection for large number of malicious nodes in MANET using a tree classifier	Rajalakshmi D, Meena K	International Journal of Simulation Systems, Science & technology	2018
9.	A Survey of Intrusion detection with higher malicious misbehavior detection in MANET	Rajalakshmi D, Meena K	International Journal of Civil Engineering and Technology	2017
10.	Enhanced Scenario-Based Experiments to overcome Byzantine Attacks in Manet	G.Murugaboopathi, Rajalakshmi D, Jayanthan R	Journal of Theoretical and Applied Information Technology	2014
11.	Interactive Analyses in Marine Fisheries using Passive Optical Remote Sensing Techniques	G.Murugaboopathi, Rajalakshmi D, Jayanthan R	Biosciences Biotechnology Research Asia	2014
12.	Vision Approach of Human detection and Tracking using Focus Tracing Analysis	Sanoj C.S, Vijayaraj N, Rajalakshmi D	IEEE Xplore	2013
13.	Issues and Challenges of Scheduling and Protection Algorithms for Proficient Parallel Data Processing in Cloud	Vijayaraj N, Rajalakshmi D, Sanoj C.S	IEEE Xplore	2013
14.	Design and Optimization of Printed Dipole Antenna for Wireless Sensor Communication at 2.4GHz	Rajalakshmi D, Sanoj C.S, Vijayaraj N	IEEE Xplore	2013
15.	Ranking Sector Oriented Sense with Geographic Protocol	Rajalakshmi D, Sanoj C.S, Vijayaraj N	Springer: Lecture Notes in Electrical Engineering	2013
16.	DYCRASEN: A Dynamic Cryptographic Asymmetric Key Management for Sensor Network using Hash Function	Saravanan D. Rajalakshmi D, Maheswari D	International Journal of Computer Applications	2011

15. Any other Information (maximum 500 words)

Published a book titled “Grid and Cloud Computing” ISBN: 978-93- 80430-50- 8 in CBA Publisher in October 2017.

All India Council for Technical Education

(A Statutory body under Ministry of Education, Govt. of India)

Nelson Mandela Marg,Vasant Kunj, New Delhi-110070 Website: www.aicte-india.org

APPROVAL PROCESS 2022-23

Extension of Approval (EoA)

F.No. Southern/1-10968620556/2022/EOA

Date: 03-Jul-2022

To,

The Principal Secretary
(Higher Education) Govt. of Tamil Nadu,
N. K. M. Bld. 6th Floor Secretariat,
Chennai-600009

Sub: Extension of Approval for the Academic Year 2022-23

Ref: Application of the Institution for Extension of Approval for the Academic Year 2022-23

Sir/Madam,

In terms of the provisions under the All India Council for Technical Education (Grant of Approvals for Technical Institutions) Regulations, 2022 Notified on 4th February, 2022 and amended on 24th February 2022 and norms standards, procedures and conditions prescribed by the Council from time to time, I am directed to convey the approval to

Permanent Id	1-2501960	**Application Id**	1-10968620556
Name of the Institution	SRI SAI RAM INSTITUTE OF TECHNOLOGY	**Name of the Society/Trust**	SAPTHAGIRI EDUCATIONAL TRUST
Institution Address	SAI LED NAGAR, DHARKAST ROAD, WEST TAMBARAM, CHENNAI,600 044, CHENNAI, KANCHIPURAM, Tamil Nadu, 600044	**Society/Trust Address**	NO. 31, MADLEY ROAD, T. NAGAR, CHENNAI, CHENNAI,CHENNAI,Tamil Nadu,600017
Institution Type	Private-Self Financing	**Region**	Southern
Year of Establishment	2008		

To conduct following Courses with the Intake indicated below for the Academic Year 2022-23

Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2021-22	Intake Approved for 2022-23	NRI Approval Status	FN / Gulf quota/ OCI/ Approval Status
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ARTIFICIAL INTELLIGENCE AND DATA SCIENCE	Anna University, Chennai	60	120	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER AND COMMUNICATION ENGINEERING	Anna University, Chennai	60	60	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING	Anna University, Chennai	180	180	NA	NA

Level	Program	Course	Affiliating Body (University /Body)	Intake Approved for 2021-22	Intake Approved for 2022-23	NRI Approval Status	FN / Gulf quota/ OCI/ Approval Status
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	COMPUTER SCIENCE AND ENGINEERING (CYBER SECURITY)	Anna University, Chennai	0	60##	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ELECTRICAL AND ELECTRONICS ENGINEERING	Anna University, Chennai	60	60	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	ELECTRONICS AND COMMUNICATIONS ENGINEERING	Anna University, Chennai	120	120	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	INFORMATION TECHNOLOGY	Anna University, Chennai	120	180$$	NA	NA
UNDER GRADUATE	ENGINEERING AND TECHNOLOGY	MECHANICAL ENGINEERING	Anna University, Chennai	60	60	NA	NA
POST GRADUATE	MANAGEMENT	MBA	Anna University, Chennai	60	60	NA	NA
POST GRADUATE	ENGINEERING AND TECHNOLOGY	BIG DATA ANALYTICS	Anna University, Chennai	18	18	NA	NA
POST GRADUATE	ENGINEERING AND TECHNOLOGY	INDUSTRIAL SAFETY AND ENGINEERING	Anna University, Chennai	18	18	NA	NA

Approved New Course(s)
$$ New Course(s)/Increase in Intake should be offered in Emerging Area

$$ New Course(s)/Increase in Intake should be offered in Emerging Area

It is mandatory to comply with all the essential requirements as given in APH 2022-23 (Appendix 6)

Important Instructions

1. The State Government/ UT/ Directorate of Technical Education/ Directorate of Medical Education shall ensure that 10% of reservation for Economically Weaker Section (EWS) as per the reservation policy for admission, operational from the Academic year 2019-20 is implemented without affecting the reservation percentages of SC/ ST/ OBC (NCL)/ General. However, this would not be applicable in the case of Minority institutions referred to the Clause (1) of Article 30 of Constitution of India. Such institution shall be permitted to increase in annual permitted strength over a maximum period of two years.

2. The Institution offering courses earlier in the Regular Shift, First Shift, Second Shift/Part Time are now amalgamated as total intake and shall have to fulfil all facilities such as Infrastructure, Faculty and other requirements as per the norms specified in the Approval Process Handbook 2022-23 for the Total Approved Intake. Further, the Institutions Deemed to be Universities/ Institutions having Accreditation/ Autonomy status shall have to maintain the Faculty: Student ratio as specified in the Approval Process Handbook. All such Institutions/ Universities shall have to create the necessary Faculty, Infrastructure and other facilities WITHIN 2 YEARS to fulfil the norms based on the Affidavit submitted to AICTE beginning with the Academic Year 2022-23.

3. Strict compliance of Anti-Ragging Regulation, Establishment of Committee for SC/ ST, Establishment of Internal Complaint Committee (ICC), Establishment of Online Grievance Redressal Mechanism, Barrier Free Built Environment for disabled and elderly persons, Fire and Safety Certificate should be maintained as Approval Process Handbook and provisions made in AICTE Regulation notified from time to time.

4. In case of any differences in content in this Computer generated Extension of Approval Letter, the content/information as approved by the Executive Council / General Council as available on the record of AICTE shall be final and binding.

Pharmacy Institute: In compliance with the order dated 05.03.2020 passed by the Hon'ble Supreme Court of India in Transferred Petitions (CIVIL) No 67-101 of 2014, for the existing institutions offering courses in Pharmacy Programme, approval of Pharmacy Council of India (PCI) is mandatory and AICTE approval is NOT required. The requirements for running the Programme (Diploma / UG / PG) such as Land & Build-up Area, Student-faculty ratio, Intake etc. will be as per the respective regulatory body (PCI).
In case of any inconsistency in the course name and intake for EoA issued by AICTE and the approval by PCI, the approval of PCI shall prevail.

Architecture Institute: In compliance with the order dated 08.11.2019 passed by the Hon'ble Supreme Court of Indian CA No.364/ 2005, for the existing Institutions offering Courses in Architecture Programme, approval by the Council of Architecture (CoA) is mandatory and AICTE approval is NOT required. The requirements for running the Programme (Diploma / UG / PG) such as Land & Build-up Area, Student-faculty ratio, Intake etc. will be as per respective regulatory body (CoA). In case of any inconsistency in the course name and intake for EoA issued by AICTE and the approval by CoA, the approval of CoA shall prevail.

Deemed to be University: Institutions Deemed to be Universities (Running Technical Education Programmes), it is mandatory to have AICTE approval from the Academic Year 2018-19 in compliance of the Hon'ble Supreme Court Order dated 03-11-2017 passed in CA No.17869- 17870 /2017.

Prof.Rajive Kumar
Member Secretary, AICTE

Copy to:

1. **The Director Of Technical Education**, Tamil Nadu**

2. **The Registrar**,**
   Anna University, Chennai

3. **The Principal / Director,**
   SRI SAI RAM INSTITUTE OF TECHNOLOGY
   Sai Leo Nagar, Dharkast Road,
   West Tambaram,
   Chennai 600 044.
   Chennai ,Kanchipuram,
   Tamil Nadu,600044

4. **The Secretary / Chairman,**
   NO, 31, MADLEY ROAD, T. NAGAR, CHENNAI.
   CHENNAI,CHENNAI
   Tamil Nadu,600017

5. **The Regional Officer,**
All India Council for Technical Education
Shastri Bhawan 26, Haddows Road
Chennai - 600 006. Tamil Nadu

6. **Guard File(AICTE)**

Note: Validity of the Course details may be verified at http://www.aicte-india.org/

** Individual Approval letter copy will not be communicated through Post/Email. However, consolidated list of Approved Institutions(bulk) will be shared through official Email Address to the concerned Authorities mentioned above.

This is a computer generated Statement. No signature Required

Certificate from the Investigator

Project Title: Development of Powerful and Effective Hybrid Model for obtaining High Precision Solid Waste Predictions in Chennai using Optimization Algorithms

It is certified that

1. The same project proposal has not been submitted elsewhere for financial support.
2. We undertake that spare time on equipment procured in the project will be made available to other users.
3. We agree to submit a certificate from Institutional Biosafety Committee, if the project involves the utilization of genetically engineered organisms. We also declare that while conducting experiments, the Biosafety Guidelines of Department of Biotechnology, Department of Health Research, GOI would be followed in to.
4. We agree to submit ethical clearance certificate from the concerned ethical committee, if the project involves field trails/experiments/exchange of specimens, human & animal materials etc.
5. The research work proposed in the scheme/project does not in any way duplicate the work already done or being carried out elsewhere on the subject.
6. We agree to abide by the terms and conditions of SERB grant.

Name and signature of Principal Investigator: Dr. B. SREEDEVI
Date: 15/10/22
Place: CHENNAI

Dr. B. SREEDEVI
HEAD OF THE DEPARTMENT
COMPUTER SCIENCE AND ENGINEERING
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI - 600 044.

Name and signature of Co-PI: Dr. S. Vidya
Date: 15/10/22
Place: CHENNAI

Name and signature of Co-PI: Dr. D. Rajalakshmi
Date: 15/10/22
Place: CHENNAI

Endorsement from the Head of the Institution of PI

This is to certify that

Institute welcomes participation of Dr.B.Sreedevi, Prof &HOD/CSE as the Principal Investigator and Dr.S.Vidya, ASP/CSE, Dr.D.Rajalakshmi ASP/CSE as the Co-Investigators forthe project titled **"Development of Powerful and Effective Hybrid Model for obtaining High Precision Solid Waste Predictions in Chennai using Optimization Algorithms"** and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigators will assume the responsibility of the fruitful completion of the project with the approval of SERB.

1. The PI Dr.B.Sreedevi is a permanent or regular employee of this Institute.
2. The project starts from the date on which the University/Institute/ Organization/College receives the grant from SCIENCE&ENGINEERING RESEARCH BOARD(SERB), New Delhi.
3. The investigators will be governed by the rules and regulations of University/Institute/Organization/College and will be under the administrative control of the University/Institute/Organization/College for the duration of the project.
4. The grant-in-aid by the SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi will be used to meet the expenditure on the project and for the period for which the project has been sanctioned as mentioned in the sanction order.
5. No administrative or other liability will be attached to SCIENCE & ENGINEERING RESEARCH BOARD(SERB),New Delhi at the end of the project.
6. The University/Institute/Organization/College will provide basic infrastructure and other required facilities to the investigator for undertaking the research project.
7. The University/ Institute/Organization/College will take into its books all assets created in the above project and its disposal would be at the discretion of SCIENCE & ENGINEERING RESEARCH BOARD(SERB),New Delhi.
8. The University/Institute/Organization/College assumes to undertake the financial and other management responsibilities of the project.

Seal of
University/Institute/Organization/College

Date: 15/10/2022

Signature

Dr.K.PALANI KUMAR
Principal of College PRINCIPAL
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044

Sai SAI RAM INSTITUTE OF TECHNOLOGY
Managed by Sairam Educational Trust, Chennai - 44
Accredited by NBA and NAAC A++ | An ISO 9001:2015 Certified and ISO/IEC 27001 applied institution
Sai Leo Nagar, West Tambaram, Chennai. Tel : 044 - 2251 2111 www.sairamit.edu.in
Founder Chairman : M.P. Lt. Lev Muthu

Endorsement from the Head of the Institution of Co-PI

This is to certify that:

Institute welcomes participation of Dr.B.Sreedevi, Prof & HOD/CSE as the Principal Investigator and Dr.S.Vidya, ASP/CSE, Dr.D.Rajalakshmi ASP/CSE as the Co-Investigators for the project titled **"Development of Powerful and Effective Hybrid Model for obtaining High Precision Solid Waste Predictions in Chennai using Optimization Algorithms"** and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigators will assume the responsibility of the fruitful completion of the project with the approval of SERB.

1. The Co-PIs, Dr.S.Vidya, Dr.D.Rajalakshmi are a permanent or regular employee of this Institute.
2. The project starts from the date on which the University/Institute/ Organization/College receives the grant from SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi.
3. The investigator will be governed by the rules and regulations of University/ Institute/Organization/College and will be under administrative control of the University/ Institute/Organization/College for the duration of the project.
4. The grant-in-aid by the SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi will be used to meet the expenditure on the project and for the period for which the project has been sanctioned as mentioned in the sanction order.
5. No administrative or other liability will be attached to SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi at the end of the project.
6. The University/Institute/Organization/College will provide basic infrastructure and other required facilities to the investigator for undertaking the research project.
7. The University/ Institute/Organization/College will take into its books all assets created in the above project and its disposal would be at the discretion of SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi.
8. The University/ Institute/Organization/College assumes to undertake the financial and other management responsibilities of the project.

Seal of

University/ Institute/Organization/College

Date: 15/6/22

Signature

Dr.K.PALANI KUMAR
PRINCIPAL
Principal/Sai Ram Institute of Technology
SAI LEO NAGAR, CHENNAI-600 044.

Undertaking by the Principal Investigator

To

The Secretary
SERB, New Delhi

Sir

I Dr.B.Sreedevi hereby certify that the research proposal titled "**Development of Powerful and Effective Hybrid Model for obtaining High Precision Solid Waste Predictions in Chennai using Optimization Algorithms** submitted for possible funding by SERB, New Delhi is my original idea and has not been copied /taken verbatim from anyone or from any other sources. I further certify that this proposal has been checked for plagiarism through a plagiarism detection tool i.e Turnitin approved by the Institute and the contents are original and not copied/taken from any one or many other sources. I am aware of the UGCs Regulations on prevention of Plagiarism i.e. University Grant Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulation, 2018. I also declare that there are no plagiarism charges established or pending against me in the last five years. If the funding agency notices any plagiarism or any other discrepancies in the above proposal of mine, I would abide by whatsoever action taken against me by SERB, as deemed necessary.

15/10/21

Signature of PI with dateName / Designation

Dr. B. SREEDEVI
HEAD OF THE DEPARTMENT
COMPUTER SCIENCE AND ENGINEERING
SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI - 600 044.

High Performance Computing Tool for assessing Alzheimer's Disease with Genomic Science using Deep Learning Architectures

Reference No. : 132022008844

Saved By : Dr. B SREEDEVI

[SERB Qualified Unique Identification Document: SQUID-1978-BS-7285]

Saved Date : 07-Oct-2022

PROPOSAL DETAILS

Dr. B SREEDEVI
hodcse@sairamit.edu.in
Professor (Computer Science and Engineering)

Sri Sairam Institute of Technology
Sairam college rd, sai leo nagar, west tambaram, chennai, tamil nadu , Chennai, Tamil nadu-600044
[College (Private)]

Technical Details :

Scheme : State University Research Excellence (SERB SURE)

Research Area : Electrical Electronics & Computer Engineering (Engineering Sciences)

Duration : 36 Months **Contact No :** +919444245253

Date of Birth : 26-Sep-1978

Nationality : INDIAN **Total Cost (INR) :** 29,96,479

Project Summary :

Alzheimer's disease tends to produce immense family, societal, and economic burdens for contemporary society. Current medical approaches remain minimal despite major advancements, therefore alternative therapeutic approaches are desperately needed. With the new affordability of high-performance computing techniques and advent of deep learning architectures over the past decade, it is now possible to perform genomics research at the population level. Focusing on high priority areas, Genomics science is on track to accelerate its data boom as scientists produce petascale and eventually lead to exascale data sizes. In total, it took almost two days for conventional genomic testing methods to process 30 million "reads," including the analysis and assembly of 30 million snippets and the preservation of those using the FASTQ format. This process took 22 minutes, using a dataset of 127 million reads on its current hardware. The proposed method plans to employ Kallisto on the High Performance Computing based GENOME Server using Memory-Driven Computing and Deep Learning Algorithms to analyze the very same data within 13 seconds. High Performance Computing Tool for assessing Alzheimer’s Disease with Genomic Science using Deep Learning Architectures will be developed as a patient-centric tool to facilitate personalized treatment strategy during Alzheimer care that can be used in real-time by patients, doctors, caregivers by providing automated reports to monitor any progress thereby aggrandizing treatment for Alzheimer.

Objectives :

• To develop an automated health information application for Alzheimer treatment that can be assessed in real-time for both patients, doctors and caretakers.
• To employ Kallisto using High Performance Genome Server with Memory-Driven Computing and Deep learning algorithms, thereby processing the data within 13 seconds to identify Alzheimer's gene (APOE e4 gene) which is one of the important genetic risk factor.
• To integrate High-Performance Computing (HPC) infrastructures with Deep Learning (DL) techniques to support doctor’s treatment that require the analysis of large and complex datasets and thus, new and more efficient ways of diagnosis, monitoring and treatment of Alzheimer disease are devised.
• To enable doctors and researchers to identify biomarkers that divide into patient with better and worse prognoses, thereby responding better to different drugs or treatment. .
• To modify k-mer access and memory management using librarian file system (LFS) instead of traditional storage
• To develop of Deep learning architecture to apprehend a tremendous amount of genome data and find nuanced patterns within it

Keywords :
HPC, Deep Learning, Precision Medicine, Genomics Science, Alzheimer

Expected Output and Outcome of the proposal :

Project will be proven to work in its final form under expected conditions, the proposed project will modify the k-mer access and memory management using librarian file system (LFS) for faster processing speed using pseudo-alignment application . The HPC-based Deep Learning project is intended to revitalize genome analysis with genomic datasets. As a software deployment for patients particularly during Alzheimer's care, an intelligent assistive tool health information application (AlzeCare) will be created that can be used in real time for all patients, doctors , caregivers and self-administered assessments to check any progress during treatment, along with an ease-to-interpret summary to build a personalized plan for patients during treatment. The application plan to tie-up with hospitals treating Alzheimer and as a treatment package during Alzheimer care. The usefulness of the application is proven to Ministry of Health and Family Welfare under the Government of India (https://mohfw.gov.in/) for deploying the application in government hospitals as recommended by the Ministry.

Any other relevant information:

Upon completion of project, its usefulness will be proven and meaningful insights would be provided to research community especially in India

Suitability of the proposed work in major national initiatives of the Government:

Make in India, Innovate India

Theme of Proposed Work:

Health, Manufacturing

Collaboration Details for last 5 Years :

Planned Collaboration for the proposed work with any foreign scientist/ institution ? **Yes**

S.No.	Name	Type of Collaboration
1	Karel L Sterckx, PhD Director BU-CROCCS Bangkok University, School of Engineering Center of Research in Optoelectronics, Communications and Computational Systems (BU-CROCCS), Phahonyothin Road, Pathum Thani 12120, THAILAND Thailand	Collection of Data Set

PROPOSAL SUBMITTED TO (SERB-SURE)

Project Title: High Performance Computing Tool for assessing Alzheimer's Disease with Genomic Science using Deep Learning Architectures

Dr.B.Sreedevi
Dr.D.Rajalakshmi

1. Origin

As genomic analysis becomes more mainstream, sequencing DNA base pairs is critical to identifying mutations that can cause disease. Alzheimer's disease tends to produce immense family, societal, and economic burdens for contemporary society. Current medical approaches remain minimal despite major advancements, therefore alternative therapeutic approaches are desperately needed. With the new affordability of high-performance computing techniques and storage power over the past decade, it is now possible to perform genomics at the population level. "Large national genomics projects are developing all over the world, such as the "UK Biobank," the "All of Us scheme" in the US, Singapore's "Genome Asia," "Genomics Thailand,". With Precision Medicine, the hope is to provide individualized prevention, diagnosis, and care by exploiting genetic history information from a person. According to World Health Organization, around 50 million people suffer from Alzheimer, and every year, nearly 10 million new cases are included in particularly developing countries such as India. In India, more than 4 million people suffer from some form of Alzheimer. Alzheimer is not a disease, instead it is considered as a syndrome generally as progressive or chronic in nature. Alzheimer is not a normal process of ageing; it is caused due to variety of brain illness and affects the ability to carry out everyday activities. High Performance Computing (HPC) can drive the diagnosis and treatment of the disease forward. In the late 2000s, the advancement of Next-Generation Sequencing (NGS) technology led to a drastic decline in DNA sequencing costs. The introduction of NGS, combined with the developments in HPC storage and computational technology at the time provided the ideal storm for a genomics data deluge.

2 . Review of status of Research and Development in the subject

2.1 International status:

I. The Big Data for Advancing Alzheimer Research project proposed by Health Ministers of G8 countries emphasizing on importance of integrating Big Data in Alzheimer research which led to enhanced Alzheimer research and development of technology which assists in determining the factors that contribute to Alzheimer such as early detection of Alzheimer in elders, recommending effective support for Alzheimer care as well as proposing new analysis methods. In this perspective, Chen et al (2018) proposed a Alzheimer related medicine database with the capabilities of supercomputers in which data mining concepts were employed to create comorbid associations between Alzheimer and various kinds of Illnesses.

II. On April 2016, one of the founding partners of the JRU, ELIXIR-IT and CINECA, launched a pilot project called ELIXIR-IT HPC@CINECA, aimed at offering an entry-level but still significant HPC resource package (core hours, 1 TB of permanent storage expandable based on project needs) for research projects submitted by Italian and European researchers in the life sciences. Three years since its inception, it can measure the effect of this program, which can now be regarded as effective experimental program with over 60 project applications submitted, an approval rate of around 90% and many publications made possible by the allocated HPC capital.

III. After the advent of Zero effort technologies which can gather, analysis and incorporating advanced computing techniques such as high performance computing, machine learning, sensor fusion, decision-making and planning, assistive systems were made effective and seamlessly integrated into patient's lives. Robillard et al (2018) proposed an effective as deep learning based assistive technology with emotion and motivation as its main parameters for improving cognitive working of Alzheimer patients.

2.2 National status

I. Ramanathan Sathianathan et at (2018) presented a detailed report on Alzheimer's disease and its impact, prevention, as well as problem experienced by India. The authors highlighted that lack of effective information application which can provide insight into true trend of the disease and determine the symptoms in early stage and its associated risk factors, paucity of basic as well as advance researches on Alzheimer, poor awareness, and less availability of social benefit.

II. Bhagyashree et al (2018) presented machine learning methods which can be integrated into Alzheimer's analysis and mainly focused on exploratory study from south India. The authors highlighted several benefits obtained in introducing machine learning concepts into Alzheimer analysis.

References:

1. Chen PH, Lee DD, Yang MH. Data mining the comorbid associations between Alzheimer and various kinds of illnesses using a medicine database. Computer Electrical Engineering. 2018; 70: 12–20

2. Robillard JM, Hoey J. Emotion and Motivation in Cognitive Assistive Technologies for Alzheimer. Computer. 2018; 51(3): 24–34.

3. Sathianathan R, Kantipudi SJ. The Alzheimer epidemic: Impact, prevention, and challenges for India. Indian J Psychiatry 2018;60:165-7

4. Castrignanò, T., Gioiosa, S., Flati, T. et al. ELIXIR-IT HPC@CINECA: high performance computing resources for the bioinformatics community. BMC Bioinformatics 21, 352 (2020). https://doi.org/10.1186/s12859-020-03565-8

5. Bhagyashree SI, Nagaraj K, Prince M, Fall CH, Krishna M. Diagnosis of Alzheimer by Machine learning methods in Epidemiological studies: a pilot exploratory study from south India. Social Psychiatry Epidemiology. 2018 Jan; 53(1): 77–86.

2.3 Importance of the proposed project in the context of currentstatus

I. An automated health information application for Alzheimer treatment which can be assessed in real-time for both patients, doctors and caretakers.

II. The proposed work intend to employ Kallisto using High Performance Genome Server with Memory-Driven Computing applications and Deep learning algorithms, thereby processing the data within 13 seconds.

III. In particular, the project will combine High-Performance Computing (HPC) infrastructures with Deep Learning (DL) techniques to support doctor's treatment that require the analysis of large and complex datasets and thus, new and more efficient ways of diagnosis, monitoring and treatment of Alzheimer disease.

Organization of work elements

- Mixed methods of both quantitative and qualitative data in a series of studies will be followed for a better understanding of Alzheimer research problem. Intervention-specific questionnaire items will be included in a follow-up questionnaire to gain personal health record and detailed medical history of the patient, and then combined into statistical evaluation for implementation
- Relevance: Semi-structured interviews for patients with Alzheimer, doctors and caretakers (families) to meet the objectives of proposed project which are consistent with beneficiary's requirement
- Efficiency: Long-term field observations will be carried out to study the cognitive function of patients with Alzheimer to enhance the efficiency of the proposed project
- Coverage: By deploying an intelligent AlzeCare as light weight application so that it can be deployed in any smart phones to reach every Indian population groups with Alzheimer

3. Work Plan:

3.1 Methodology:

In genomics science, High Performance Computing allows researchers to grasp a vast amount of knowledge and uncover complex trends within it. It is beyond the limits of standard analysis to do so. The availability of high-performance computing has become a central method of allowing efficient utilization biological high-performance sequencing (HTS) data, which takes a fair amount of time to collect useful biological knowledge. An analysis of the importance of genetics includes a neurodegenerative disease such as Alzheimer. Researchers survey an enormous number of human genomes to do so and compile those genomes together into recognizable entities. This needs considerable computing resources. It takes 180 uncompressed gigabytes to reassemble one genome into a genetic representation of an organism, while computing specifications on that genome add 500 GB and an additional 100 GB is needed for long-term storage. This helps clinicians and researchers to distinguish biomarkers that are split into persons with positive and negative prognoses, while adapting better to various medications or therapies. In order to define treatment targets, the proposed work incorporate radiology, imaging, blood, and genomics results. That is the development cycle in the proposed work. The application of deep learning to genomic datasets is a fascinating field that is quickly evolving and is intended to revolutionize the study of genomes. More than 3 billion base pairs compose the human genome. The mechanistic understanding of genome biology has been expanded to an unprecedented degree by recent technical advancements. The scope and sheer quantity of knowledge found in DNA and chromatin, however, remain roadblocks to full understanding of all genome functions and interactions. Connecting genotype to phenotype, forecasting regulatory activity, and classifying forms of mutation are all fields in which new knowledge can be obtained from harnessing the enormous genomic data from a large number of individuals. When traditional approaches are used, however, operating in this broad data space is difficult. Therefore in genome science, new and ground-breaking methods are required to enrich the knowledge of fundamental biology and the ties to disease and the need to understand how a cell functions in order to know how Alzheimer's disease works by acquiring DNA sequencing. Computer scientists have to reassemble snippets of data obtained from a single entity to transform the sequencing from mathematics to knowledge. The genetic data snippets are matched to a reference genome, a complete genome that functions as a guide. This is a computationally costly method, however, the proposed work entails pseudo-alignment method called Kallisto, built at Caltech, to make it as time-effective as possible. It took about two days for previous instruments to process 30 million "reads," which requires evaluating and assembling 30 million snippets and preserving those who use the FASTQ format. This process took 22 minutes, using a dataset of 127 million reads on its current hardware. The same data was analyzed in 13 seconds when used with Kallisto and executed it on Genome Server and used Memory-Driven Computation resources.

In order to accomplish this upgrade, k-mer access and memory management would be incorporated using the librarian file system (LFS). As a result, it could process the data on nodes to reach the index in parallel, transferring the FASTQ files to LFS that separate applications could operate on the same datasets and further it would also discuss what could be exchanged between several instances. The concept of memory mapping is used for data to transfer to any available processing node without waiting period, unlike linear file reading. Then the reads are split into shorter k-mer and the graph generated as a hash table is read. Finally, by taking advantage of the large memory pool available, a hard-coded load factor of 95 percent in the hash table is minimized. Deep learning, a variant of machine learning that uses neural networks to automatically extract novel features from input data, is one exciting and promising technique now being applied in the genomics field. A matrix of real values is usually the input into a neural network. The input can be a DNA sequence in genomics, in which nucleotides A, C, T and G are encoded as [1,0,0,0], [0,1,0,0], [0,0,1,0] and [0,0,0,1].

Brief SRS (Software Requirement Specification)

- High performance storage system incorporated with the HPC system(Required)
- Support for HPC mass storage system access (Required)
- Multi-core nodes located on the HPC interconnect (Optional)
- General Purpose GPU nodes residing on the HPC interconnection (Optional)
- Visualization, analysis of data and post-processing nodes that reside on the HPC interconnection (Required)

3.2 Time schedule of activities giving milestones through BAR Diagram

Activities	Months					
	1-10	11-20	21-30	31-40	41-50	51-60
Staff Recruitment						
Literature Survey						
Establishing Computing Facility						
Cognitive & Psychological parameter analysis related to Alzheimer disease						
Pre Data Collection of Genome data of patients						
Development of pseudo-alignment application using HPC and Library File system						
Development of Deep Learning Architecture for analysis of large and complex biomedical datasets and thus, new and more efficient ways of diagnosis, monitoring and treatmentof Alzheimer.						
Development of semantic annotator						
Automation of information application (AlzeCare) by applying deep learning techniques						
Testing the usefulness of AlzeCare app in real-time with participants						
Incorporating further advancements into AlzeCare system based on the real-time information gained from testing AlzeCare appon participants						
Validation, Debugging & Report generation						

3.3 Suggested Plan of action for utilization of research outcome expected from the Project

Mixed methods of both quantitative and qualitative data in a series of studies will be followed for a better understanding of Alzheimer research problem. Intervention-specific questionnaire items will be included in a follow-up questionnaire to gain personal health record and detailed medical history of the patient, and then combined into statistical evaluation for implementation

Relevance: Semi-structured interviews for patients with Alzheimer, doctors and caretakers (families) to meet the objectives of proposed project which are consistent with beneficiary's requirement

Efficiency: Long-term field observations will be carried out to study the cognitive function ofpatients with Alzheimer to enhance the efficiency of the proposed project

Coverage: By deploying an intelligent AlzeCare as light weight application so that it can be deployed in any smart phones to reach every Indian population groups with Alzheimer

Project will be proven to work in its final form under expected conditions, the proposed project will modify the k-mer access and memory management using librarian file system (LFS) for faster processing speed using pseudo-alignment application . The HPC-based Deep Learning project is intended to revitalize genome analysis with genomic datasets. As a software deployment for patients particularly during Alzheimer's care, an intelligent assistive tool health information application (AlzeCare) will be created that can be used in real time for all patients, doctors , caregivers and self-administered assessments to check any progress during treatment, along with an ease-to-interpret summary to build a personalized plan for patients during treatment. The application plan to tie-up with hospitals treating Alzheimer and as a treatment package during Alzheimer care. The usefulness of the application is proven to Ministry of Health and Family Welfare under the Government of India (https://mohfw.gov.in/) for deploying the application in

government hospitals as recommended by the Ministry.

3.4 Environment impact Assessment and risk analysis

The availability of high-performance computing has become a central method of allowing efficient utilization biological high-performance sequencing (HTS) data, which takes a fair amount of time to collect useful biological knowledge. An analysis of the importance of genetics includes a neurodegenerative disease such as Alzheimer. Researchers survey an enormous number of human genomes to do so and compile those genomes together into recognizable entities. This needs considerable computing resources. It takes 180 uncompressed gigabytes to reassemble one genome into a genetic representation of an organism, while computing specifications on that genome add 500 GB and an additional 100 GB is needed for long-term storage. This helps clinicians and researchers to distinguish biomarkers that are split into persons with positive and negative prognoses, while adapting better to various medications or therapies. In order to define treatment targets, the proposed work incorporate radiology, imaging, blood, and genomics results. That is the development cycle in the proposed work. The application of deep learning to genomic datasets is a fascinating field that is quickly evolving and is intended to revolutionize the study of genomes.

4. Expertise:

4.1 Expertise available with investigators in executing the Project:

Name of the Investigators
Dr.B.Sreedevi
Dr.D.Rajalakshmi

4.2 Summary of roles / responsibilities for all Investigators:

Name of the Investigators	Roles/Responsibilities
Dr.B.Sreedevi	Data Collection & Implementing Tool for assessing Alzheimer's Disease with Genomic Science
Dr.D.Rajalakshmi	Implementing Tool for assessing Alzheimer's Disease using Deep learning Architectures & evaluating the metrics

4.3 Key Publications published by the Investigators pertaining to the theme of the proposal during the last 5 years

- B. Sreedevi and P. M. Pachaiammal, "Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms," 2018 International Conference on Communication, Computing and Internet of Things (IC3IoT), 2018, pp. 6-11, doi:10.1109/IC3IoT.2018.8668205.
- B. Sreedevi, Disaster Management Using Blockchain and Cloud Services, Journal of GreenEngineering (JGE) Volume-10, Issue-10, October 2020.
- D.Rajalakshmi, A Novel Strategy for Waste Prediction Using Machine Learning Algorithm with IoT Based Intelligent Waste Management System, International Journal of Wireless Communications and Mobile Computing, 10.1155/2022/2063372, 2022
- D.Rajalakshmi ,A Novel LC-DEH Algorithm to Enhance Efficiency and Security for Reliable Data Transmission in Blockchain with IoT-Based Healthcare Systems, CRC Press, 2022

4.4 Bibliography

Dr B.Sreedevi

Professor & HOD, Department of Computer Science and EngineeringSri
Sairam Institute Technology Anna University
Chennai India 600045
Mobile: +91 9444245253 email: hodcse@sairamit.edu.in
Citizenship: India

Research Interests

My research interests revolve around the problem of Medical Image Processing and, more recently, Stem Cells. Much of my recent work focuses on image segmentation isolation and prediction using Machine learning algorithms. I've compared various Machine Learning Algorithms and proposed a model for predicting Accuracy. My interest in multiscale, parts-based shape representations, and their common abstraction as hierarchical graphs, has motivated my research in inexact graph indexing and matching – key problems in object recognition, another broad focus of my research. My research has also explored many problems related to object recognition, including object tracking, vision-based navigation, content based image retrieval, language-vision integration, and image/model abstraction.

Education

- Ph.D., Computer Science and Engineering Anna University, Chennai, India,Aug 2017 - Sub-specialization: Machine Learning and Image Processing
- Master of Technology in Computer Science and Engineering, SRM University Chennai, India, April 2007
- Bachelor of Engineering in Computer Science and Engineering, University of Madras April 1999

Professional Experience

- **Head of the Department & Professor**, Department of Computer Science and Engineering, Sri Sai Ram Institute of Technology, Anna University. June 2010 to Present

- **Assistant Professor** Department of Computer Science and Engineering Rajalakshmi Engineering College, Thandalam, Chennai, India. July 2019 to May 2010

- **Lecturer** Department of Computer Science and Engineering, SRM University, Chennai, India. Jan 2001 to March 2007

Technical Skills

- Programming in C, Python, Java with JDBC, PHP
- Web Technologies: HTML, CSS, AJAX, Java Script, XML and Web Services
- Extensive knowledge of RDBMS like Oracle and MYSQL.
- Familiarity in OS like Fedora, Windows and Linux.
- Work Experience in IDE like Net beans and Eclipse.
- Application of Data Mining Algorithms with WEKA tool.

Achievements

- **Development of Visible Light Communication for Smart Museums, Bangkok University, Centre of Research in Optoelectronics, Bangkok, Thailand-May 2019**
- Longest Continuous Student Branch Counsellor 2019
- **Academic Excellence Award 2018**
- Best faculty advisor Award by Institution of Engineers (India) 2019
- "Uttama Acharya Puraskar"-A National Award for Impact Creators-Lions Clubof Vijayawada

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Certified EMC Academic Associate in Data Science and Big Data Analytics by DELLEMC2 during March 2018.

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Certified ATL tinkerpreneur Mentor by AICTE

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International Association of Engineers (IAENG)	Dec 2017-Present Computer
Society of India –Student Branch Counsellor	May 2011 – PresentIndian

Society for Technical Education (ISTE) May 2014 – Present
Institution of Engineers (India)(IEI) Nov 2018- Present
National Digital Library (NDL) May 2016 – PresentThe
Society of Innovative Educationalist and Research (FSIERP) Mar 2019-Present

Books Published

- Internet Programming in Sahara Publications, India with ISBN 9789386636157 – 2017
- Book Chapter in "Machine Learning and Applications" on the topic Machine Learning based Credit Card based Fraud Detection(CNN Algorithm)
- Book Chapter in Advanced Aspects of Engineering Research Vol. 5 "Study on Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled"

Patents

- **Mind Controlled Gaming for Differently Abled Indian Provisional (Patent No201841016343) in the field of Bio Medical Engineering – May 2018**
- Multi Purpose Surveillance Based On Radar System With Camera Using Embedded Systems(No. 202041031869-July 2020)
- VLC TRANSCEIVERS FOR SMART MUSEUMS(Patent No 202141029314)-June 2021

Grants

- Dr.B.Sreedevi, 2017, Department of Science and Technology, Government of India granted Rs.100000/- for the project titled "Mind Controlled Gaming for Differently Abled".
- AICTE Sponsored STTP for Rs.300000/- in Predictive Modelling And Data Analysis Using Python Based Machine Learning Technique
- AICTE Sponsored ATAL FDP for Rs.93000/- in Data Sciences.

Publications

- **Sreedevi, B & Rajagopalan, SP, 'Improving Mesenchymal Stem Cell Classification Using Machine Learning Techniques', SCI, Annexure-I, ISSN: 1537-744X, Article: ID 405974**
- **Sreedevi. B ,'Disaster Management Using Blockchain and Cloud Services' Journal of Green Engineering (JGE) 10 (10)**

- Dr.B.Sreedevi, P.Rayavel," Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled',AIP Publications,Scopus Indexed 2019.

- Sreedevi. B, Pachhaiammal@Priya M, T.Ragunthar, 'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms', International Journal of Pure and AppliedMathematics,Vol.117,no.21,2017.

- **Dr.B.Sreedevi, Pachaiammal @Priya. M ,'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ',IEEE Digital Library and Scopus Indexed,Publication Year: 2018, Page(s):6 – 11**

- Sreedevi, B ,'Analysis of Performance Metrics with Mesenchymal Stem cell Classification and Optimization Algorithms' ,International Journal of Creative Research Thoughts (IJCRT) 5 (4), 2613-2618,2017

- Sreedevi, B & Rajagopalan, SP 2015, 'Examine and Extraction of Optimized Stem Cells Using Image Processing', Australian Journal of Basic and Applied Sciences, vol. 9, no. 10, Special 2015, pp. 1-5.

- Sreedevi. B, Abheek Kumar Srivastava, Ashwin Venkataraman,' Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm', International Journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 10, October 2013, ISSN: 2277 128X
- B.Sreedevi, Dr.S.P.Rajagopalan,' Analysing Stem Cells Using Transformed Stem Cell Algorithm ', International Journal of Applied Engineering Research (IJAER), Volume 10, Number 75 (2015) .

- Pradeep Kumar Sahoo, S. P. Rajagopalan, Sreedevi B, Pachhaiammal@ Priya.M,' Web Content Mining Based Relevant Text Data Extraction', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.186-193.

- Pachhaiammal@Priya M, S.P.Rajagopalan, B.Sreedevi and Pradeep Kumar Sahoo,' Analysis methods and mining of brain functional connectivity for detection of brain disorders', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.258-262.

International & National Conferences

- **Dr.B.Sreedevi, 'Decentralized Application for managing the Disaster with Block chain, Cloud &IOT',International Conference on Computer and Information Sciences at University of PETRONAS, Malaysia during JULY13-15,2021.**

- Dr.B.Sreedevi, P.Rayavel Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled', NATIONAL CONFERENCE ON MATHEMATICAL TECHNIQUES AND ITS APPLICATIONS (NCMTA – 2019) AT SRM UNIVERSITY FROM 11-12 JANUARY 2019.

- Dr.B.Sreedevi, Pachaiammal @Priya. M ,'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ',International Conference on Communication, Computing & Internet of Things, held at Sri Sai Ram Engineering College, Chennai, India from 15-17 February 2018.

- Dr.B.Sreedevi,P.Rayavel, National Conference on Mathematical Techniquesand its Applications(NCMTA) held at SRM University, Chennai, India from 11-12 January 2019.

- B.Sreedevi, Dr.S.P.Rajagopalan, 'Analysing Stem Cells Using Transformed Stem Cell Algorithm 'International Conference On Computing And Information Technology (ICCIT '15)

- Sreedevi, B, Abeek Kumar Srivastava & Ashwin Venkataraman 2013,'Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm', Proceedings of the International Conference on Recent Trends in Computing(ICRTC 2013) ,4th & 5th October 2013, pp. 32-27.

- Sreedevi, B & Rajagopalan, SP 2015, 'Analysing Stem Cells Using Transformed Stem Cell Algorithm', Proceedings of the International Conference on Computing and Information Technology (ICCIT'15), 13th &14th August 2015, pp. 96-100.

- Sreedevi, B & Rajagopalan, SP 2015, 'Examine and Extraction of Optimized Stem Cells Using Image Processing', Proceedings of the National Conference on Recent Enhancement In Advanced Computing Technologies - 'React'15' On 27th March, 2015.
- B.Sreedevi, E.Madhumitha, M.Kalaiselvi,'Automatic Classification Of Intracardiac Tumor And Thrombi In Echocardiogram Using Adaptive Co- Segmentation', Proceedings of the National Conference on Recent Enhancement In Advanced Computing Technologies - 'React'16'

Workshop & Conferences

- Coordinator for TEDX-SriSairamIT and Hackathon Events.
- Organized first International Conference on Computing and InformationTechnology (ICCIT'15) during 2015.

- Organized a Staff development programme on "Soft Computing with AI"sponsored by AICTE for Rs.700000/- during 2011.

- Organized National Conferences on "Information & Communication Engineering Systems"-NICE '11, NICE'17 and NICE'18.

- International Seminar on "Recent Trends in Computer Technology" byDr.Emerson Raja Joseph, Multimedia University, Malaysia during 2014.

- National Event on" CSI Golden Tech Bridge Programme" by Computer Societyof India during 2014.

- FDP on Python Programming by ICTACT of Tamilnadu during 2018.
- Attended a seminar on “Stem Cell and Regenerative Medicine” during Nov2016 at Anna University
- Delivered a session in FDP on “Internet Programming” at Loyola ICAM Instituteof Technology, Chennai
- Attended STTP in Pondicherry Engineering College during 2016 on “Recent trends in optimization techniques”.
- Attended FDP on “Hadoop” conducted by ICTACT at Sri Sai Ram Institute of Technology during 2016.

Dr.D.RAJALAKSHMI
Associate Professor,
Department of Computer Science & Engineering,
Sri Sai Ram Institute of Technology,
West Tambaram, Chennai - 600063

1. Email(s) and contact number(s) : rajalakshmi.cse@sairamit.edu.in, +919942258071
2. Institution : Sri Sai Ram Institute of Technology, Chennai
3. Date of Birth : 28-05-1984
4. Gender (M/F/T) : Female
5. Category Gen/SC/ST/OBC : OBC
6. Whether differently abled (Yes/No) : No
7. Academic Qualification (Undergraduate Onwards)

	Degree	Year	Subject	University/Institution	% of marks
1.	B.Tech	2005	Information Technology	Anna University	74.4%
2.	M.E	2010	Computer Science & Engineering	Anna University	80.56%

3.	Ph.D	2022	CSE	Veltech Rangarajan Dr.Sagunthala R&D Institute of Technology	-

8. Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.

Thesis Title: A Secured Intrusion Detection for Identifying Malicious Nodes In MANET Using Hybrid

Fuzzy Based Protocol

Guide's Name: Dr.N.R.Rajalakshmi , Dr.K.Meena

Institute/Organization/University: Veltech Rangarajan Dr.Sagunthala R&D Institute of Technology

Year of Award: 2022

9. Work experience (in chronological order).

S.No.	Positions held	Name of the Institute	From	To	Pay Scale
1.	Associate Professor	Sri Sai Ram Institute of Technology	01-09-2022	Till Date	As Per Norms
2.	Assistant Professor	Sri Sai Ram Institute of Technology	14-06-2014	31-08-2022	As Per Norms
3.	Assistant Professor	Shri Angalamman College of Engineering & Technology	01-06-2010	27-05-2014	As Per Norms
4.	Lecturer	Shri Angalamman College of Engineering & Technology	22-07-2005	31-08-2008	As Per Norms

10. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant.

S.No	Name of Award	Awarding Agency	Year
1.	Certified Trainer for CCNA	CISCO	2021
2.	Best Faculty Award	Sri Sai Ram Institute of Technology	2020
3.	Best Women Faculty	DKIR Foundation	2019

11. Publications *(List of papers published in SCI Journals, in year wise descending order).*

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1.	G. Uganya, D. Rajalakshmi, Yuvaraja Teekaraman , Ramya Kuppusamy , and Arun Radhakrishnan	A Novel Strategy for Waste Prediction Using Machine Learning Algorithm with IoT Based Intelligent Waste Management System	International Journal of Wireless Communications and Mobile Computing	10.1155/2022/2063372	1-15	2022
2.	D.Rajalakshmi, K.Meena	A Hybrid Intrusion Detection System	Scalable Computing and Practice	10.12694/scpe.v21i1.1642	137-145	2020

		for Mobile Adhoc Networks using FBID Protocol				

12. Detail of patents.

S.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status
1.	IoT based Smart Material for EV Segment using Wire Electrical Discharge Machining Thereof	J.Jayapriya, J.Thirunavukkarasu, D.Rajalakshmi, S.Rajeswari, R.Prabavathi, A.Kavinilavu	202241006784 A	11-02-2022	India	Published

13. Books/Reports/Chapters/General articles etc.

S.No	Title	Author's Name	Publisher	Year of Publication
1.	An improved Faster and Novel Methodology for Diabetes Ulcer Classification Based on Customized CNN	Rajalakshmi D, Tharunya R	IEEE Xplore	2022
2.	Decision Trees to detect Malware in a Cloud Computing Environment	Vijayaraj, Sumathi,M.Rajkamal ,M.,Kamaleshwar,D.T. Rajalakshmi, D.	IEEE Xplore	2022
3.	A Novel LC-DEH Algorithm to Enhance Efficiency and Security for Reliable Data Transmission in Blockchain with IoT-Based Healthcare Systems	Uganya G, Radhika Baskar, Balasaraswathi M, Vijayaraj N, Rajalakshmi D	CRC Press	2022
4.	An Efficient Selfishness Control mechanism for Mobile Adhoc Networks	Rajalakshmi D, Meena K	Research Innovations and Applications of AI, IoT and Cognitive Technologies, IGI Global Publisher of Timely Knowledge	2021
5.	IR image disruptor with Embedded Code Tracker	Rajalakshmi D, Anitha N	IEEE Xplore	2021
6.	Investigation and Analysis of Path Evaluation for Sustainable Communication using VANET	Rajalakshmi D,Meena K, Vijayaraj N, Uganya G	Springer: Lecture Notes on Data Engineering and Communications Technologies	2021
7.	A Novel based Fuzzy Cognitive Maps Protocol for Intrusion Discovery in Manets	Rajalakshmi D, Meena K	International Journal of Recent Technology and Engineering	2019
8.	An Efficient technique of Intrusion Detection for large number of malicious nodes in MANET using a tree classifier	Rajalakshmi D, Meena K	International Journal of Simulation Systems, Science & technology	2018
9.	A Survey of Intrusion detection with higher malicious misbehavior detection in MANET	Rajalakshmi D, Meena K	International Journal of Civil Engineering and Technology	2017
10.	Enhanced Scenario-Based Experiments to overcome Byzantine Attacks in Manet	G.Murugaboopathi, Rajalakshmi D, Jayanthan R	Journal of Theoretical and Applied Information Technology	2014
11.	Interactive Analyses in Marine Fisheries using Passive Optical Remote	G.Murugaboopathi, Rajalakshmi D, Jayanthan R	Biosciences Biotechnology Research Asia	2014

	Sensing Techniques			
12.	Vision Approach of Human detection and Tracking using Focus Tracing Analysis	Sanoj C.S, Vijayaraj N, Rajalakshmi D	IEEE Xplore	2013
13.	Issues and Challenges of Scheduling and Protection Algorithms for Proficient Parallel Data Processing in Cloud	Vijayaraj N, Rajalakshmi D, Sanoj C.S	IEEE Xplore	2013
14.	Design and Optimization of Printed Dipole Antenna for Wireless Sensor Communication at 2.4GHz	Rajalakshmi D, Sanoj C.S, Vijayaraj N	IEEE Xplore	2013
15.	Ranking Sector Oriented Sense with Geographic Protocol	Rajalakshmi D, Sanoj C.S, Vijayaraj N	Springer: Lecture Notes in Electrical Engineering	2013
16.	DYCRASEN: A Dynamic Cryptographic Asymmetric Key Management for Sensor Network using Hash Function	Saravanan D. Rajalakshmi D, Maheswari D	International Journal of Computer Applications	2011

14. Any other Information (maximum 500 words)

Published a book titled "Grid and Cloud Computing" ISBN: 978-93- 80430-50- 8 in CBA Publisher in October 2017.

5. List of Projects Submitted / implemented by the Investigators:

5.1 Details of Projects submitted to various funding agencies:

Sl.No	Title	Cost in Lakh	Month of Submission	Role as PI/Co-PI	Agency	Status
1.	Rural Digital Marketing	49 Lakh	November 2021	PI	UBA	Under Review
2.	Developing Powerful and effective hybrid model for obtaining high precision wind speed predictions using intelligent algorithms in India	1 Lakh	December 2021	PI	DST	Under Review
3.	An Intelligent Assistive Cognitive	1 Lakh	April 2022	Co-PI	SERB	Under Review

	Development tool using high performance computing to continuously assess Alzheimer's disease progression & intervention					

5.2 Details of Projects under implementation

Sl.No	Title	Cost in Lakh	Duration	Role as PI/Co-PI	Agency
Nil					

5.3 Details of Projects completed during the last 5 years:

Sl.No	Title	Cost in Lakh	Duration	Role as PI/Co-PI	Agency
1.	Processing and Characterization of composite materials including natural fiber reinforced composites	6 Lakhs	18-3-2015 to 31-3-2015	PI	AICTE
2.	Staff Development Programme on Artificial Intelligence with AI	7 Lakhs	15-9-2011 to 27-9-2011	PI	AICTE

6. List of facilities being extended by parent institution(s) for the project implementation:

6.1 Infrastructure Facilities

Sr.No	Infrastructural Facility	Yes/No/ Not required Full or Sharing basis
1	Workshop Facility	Yes
2	Water & Electricity	Yes
3	Laboratory Space /Furniture	Yes
4	Power Generator	Yes
5	AC Room or AC	Yes

6	Telecommunication including e-mail & fax	Yes
7	Transportation	Yes
8	Administrative/ Secretarial Support	Yes
9	Information facilities like internet/library	Yes
10	Computational Facilities	Yes
11	Animal/Glass House	Yes
12	Any other special facility being provided	Yes

6.2 Equipment available with the Institute/ Group/ Department/Other Institutes for the project:

Equipment available with	Generic Name of Equipment	Model, Make & year of purchase	Remarks including accessories available and current usage of equipment
Nil			

7. Name and address of experts/ institution interested in the subject / outcome of the project.

1. Dr.P.Deepalakshmi,
   Dean/SOC,
   Kalasalingam Academy of Research and Education,
   Virudhunagar District.
2. Dr.N.Vijayaraj,
   Associate Professor,
   Computer Science and Engineering,
   Veltech Rangarajan Dr.Sagunthala R&D Institute of Technology,
   Chennai.

Institution wise Budget Breakup :

Budget Head	Sri Sairam Institute of Technology	Total
Research Personnel	8,44,800	**8,44,800**
Consumables	1,35,000	**1,35,000**
Travel	30,000	**30,000**
Equipment	1,55,959	**1,55,959**
Contingencies	75,000	**75,000**
Other cost	60,000	**60,000**
Overhead	16,95,720	**16,95,720**
Total	**29,96,479**	**29,96,479**

Institute Name : *Sri Sairam Institute of Technology*

Year Wise Budget Summary (Amount in INR) :

Budget Head	Year-1	Year-2	Year-3	Total
Research Personnel	4,84,800	1,80,000	1,80,000	**8,44,800**
Consumables	45,000	45,000	45,000	**1,35,000**
Travel	10,000	10,000	10,000	**30,000**
Equipments	1,55,959	0	0	**1,55,959**
Contingencies	25,000	25,000	25,000	**75,000**
Other cost	20,000	20,000	20,000	**60,000**
Overhead	5,65,240	5,65,240	5,65,240	**16,95,720**
Grand Total	**13,05,999**	**8,45,240**	**8,45,240**	**29,96,479**

Research Personnel Budget Detail (Amount in INR) :

Designation	Year-1	Year-2	Year-3	Total
Research Associate-I *This project requires well-trained, research associate who has completed Ph.D. and a technical assistant with Master Degree as qualification since this project deals with high priority area i.e. precision medicine and HPC to develop and complete this project with utmost care and on-time delivery of the project*	4,84,800	1,80,000	1,80,000	**8,44,800**

Consumable Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
Installation of High Performance Computing Software and libraries	45,000	45,000	45,000	**1,35,000**

Travel Budget Detail (Amount in INR) :

Justification (Inland Travel)	Year-1	Year-2	Year-3	Total
inland travel is necessary for the PI, Co-PI and the project assistant to attend workshops, present in conferences and develop open database therefore it could be useful for research community in India	10,000	10,000	10,000	**30,000**

Equipment Budget Detail (Amount in INR) :

Generic Name ,Model No. , (Make)/ Justification	Quantity	Spare time	Estimated Cost
HP Z440 1 EW88PA SSD Quadro M2000 (Workstation E5-1607v4 8GB K620 Win 10 Pro 64bit) *Leveraging GPUs to accelerate this proposal's objective can vastly decrease runtime and costs compared to CPU-based approaches. The mentioned equipment is used for performing professional computer-aided design (CAD), computer generated imagery (CGI), scientific calculations for genome sequencing and deep learning architectures.*	1	30 %	**1,55,959**

Contingency Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
contingency which are unexpected costs away from the budget is much needed for smooth completion of the project. here a contingency of 5 % is calculated per year of total cost and is equated for three years	25,000	25,000	25,000	**75,000**

Overhead Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
since the institution is providing space, electricity and other facility to do the project, the institutional overheads are to be considered at 15 % of annual cost	2,82,620	2,82,620	2,82,620	**8,47,860**

Other Budget Detail (Amount in INR) :

Description/Justification	Year-1	Year-2	Year-3	Total
Maintenance Cost Maintenance Cost for three years	20,000	20,000	20,000	**60,000**

Dr B.Sreedevi

Professor & HOD, Department of Computer Science and Engineering
Sri Sairam Institute Technology Anna University
Chennai India 600045
Mobile: +91 9444245253 email: hodcse@sairamit.edu.in
Citizenship: India

Research Interests

My research interests revolve around the problem of Medical Image Processing and, more recently, Stem Cells. Much of my recent work focuses on image segmentation isolation and prediction using Machine learning algorithms. I've compared various Machine Learning Algorithms and proposed a model for predicting Accuracy. My interest in multiscale, parts-based shape representations, and their common abstraction as hierarchical graphs, has motivated my research in inexact graph indexing and matching – key problems in object recognition, another broad focus of my research. My research has also explored many problems related to object recognition, including object tracking, vision-based navigation, content based image retrieval, language-vision integration, and image/model abstraction.

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- Bachelor of Engineering in Computer Science and Engineering, University of Madras April 1999

Professional Experience

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- **Assistant Professor** Department of Computer Science and Engineering Rajalakshmi Engineering College, Thandalam, Chennai, India. July 2019 to May 2010
- **Lecturer** Department of Computer Science and Engineering, SRM University, Chennai, India. Jan 2001 to March 2007

Technical Skills

- Programming in C, Python, Java with JDBC, PHP
- Web Technologies: HTML, CSS, AJAX, Java Script, XML and Web Services
- Extensive knowledge of RDBMS like Oracle and MYSQL.
- Familiarity in OS like Fedora, Windows and Linux.
- Work Experience in IDE like Net beans and Eclipse.
- Application of Data Mining Algorithms with WEKA tool.

Achievements

- Development of Visible Light Communication for Smart Museums, Bangkok University, Centre of Research in Optoelectronics, Bangkok, Thailand-May 2019
- Longest Continuous Student Branch Counsellor 2019
- Academic Excellence Award 2018
- Best faculty advisor Award by Institution of Engineers (India) 2019
- "Uttama Acharya Puraskar"-A National Award for Impact Creators-Lions Club of Vijayawada

Certifications

Certified EMC Academic Associate in Data Science and Big Data Analytics by DELL EMC2 during March 2018.

NPTEL-IIT certification in Data Mining, Database Management Systems, Python for Machine Learning and Internet of Things.

Certified from AICTE NITTTR for Module 8-Institutional Management nd Administrative Procedures

Certified ATL tinkerpreneur Mentor by AICTE

Professional Affiliations

Inventive Research Organization (IRO)	Feb 2017-Present
International Association of Engineers (IAENG)	Dec 2017-Present
Computer Society of India –Student Branch Counsellor	May 2011 – Present
Indian Society for Technical Education (ISTE)	May 2014 – Present
Institution of Engineers (India)(IEI)	Nov 2018- Present
National Digital Library (NDL)	May 2016 – Present
The Society of Innovative Educationalist and Research (FSIERP)	Mar 2019-Present

Books Published

- Internet Programming in Sahara Publications, India with ISBN 9789386636157 – 2017
- Book Chapter in "Machine Learning and Applications" on the topic Machine Learning based Credit Card based Fraud Detection(CNN Algorithm)

- Book Chapter in Advanced Aspects of Engineering Research Vol. 5 "Study on Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled"

Patents

- Mind Controlled Gaming for Differently Abled Indian Provisional (**Patent No201841016343)** in the field of Bio Medical Engineering – May 2018

- Multi Purpose Surveillance Based On Radar System With Camera Using Embedded Systems(No. 202041031869-July 2020)
- VLC TRANSCEIVERS FOR SMART MUSEUMS(Patent No 202141029314)-June 2021

Grants

- Dr.B.Sreedevi, 2017, Department of Science and Technology, Government of India granted Rs.100000/- for the project titled “Mind Controlled Gaming for Differently Abled”.

- AICTE Sponsored STTP for Rs.300000/- in Predictive Modelling And Data Analysis Using Python Based Machine Learning Technique

- AICTE Sponsored ATAL FDP for Rs.93000/- in Data Sciences.

Publications

- **Sreedevi, B & Rajagopalan, SP, ‘Improving Mesenchymal Stem Cell Classification Using Machine Learning Techniques’, SCI, Annexure-I, ISSN: 1537-744X, Article: ID 405974**

- **Sreedevi. B ,’Disaster Management Using Blockchain and Cloud Services’ Journal of Green Engineering (JGE) 10 (10)**

- Dr.B.Sreedevi, P.Rayavel,” Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled’,AIP Publications,Scopus Indexed 2019.

- Sreedevi. B, Pachhaiammal@Priya M, T.Ragunthar, ‘Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms’, International Journal of Pure and Applied Mathematics,Vol.117,no.21,2017.

- **Dr.B.Sreedevi, Pachaiammal @Priya. M ,’Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ‘,IEEE Digital Library and Scopus Indexed,Publication Year: 2018, Page(s):6 – 11**

- Sreedevi, B ,’Analysis of Performance Metrics with Mesenchymal Stem cell Classification and Optimization Algorithms’ ,International Journal of Creative Research Thoughts (IJCRT) 5 (4), 2613-2618,2017

- Sreedevi, B & Rajagopalan, SP 2015, ‘Examine and Extraction of Optimized Stem Cells Using Image Processing’, Australian Journal of Basic and Applied Sciences, vol. 9, no. 10, Special 2015, pp. 1-5.

- Sreedevi. B, Abheek Kumar Srivastava, Ashwin Venkataraman,’ Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm’, International Journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 10, October 2013, ISSN: 2277 128X

- B.Sreedevi, Dr.S.P.Rajagopalan,' Analysing Stem Cells Using Transformed Stem Cell Algorithm ', International Journal of Applied Engineering Research (IJAER), Volume 10, Number 75 (2015) .

- Pradeep Kumar Sahoo, S. P. Rajagopalan, Sreedevi B, Pachhaiammal@ Priya.M,' Web Content Mining Based Relevant Text Data Extraction', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.186-193.

- Pachhaiammal@Priya M, S.P.Rajagopalan, B.Sreedevi and Pradeep Kumar Sahoo,' Analysis methods and mining of brain functional connectivity for detection of brain disorders', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.258-262.

International & National Conferences

- **Dr.B.Sreedevi, 'Decentralized Application for managing the Disaster with Block chain, Cloud &IOT',International Conference on Computer and Information Sciences at University of PETRONAS, Malaysia during JULY 13-15,2021.**

- Dr.B.Sreedevi, P.Rayavel Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled', NATIONAL CONFERENCE ON MATHEMATICAL TECHNIQUES AND ITS APPLICATIONS (NCMTA – 2019) AT SRM UNIVERSITY FROM 11-12 JANUARY 2019.

- Dr.B.Sreedevi, Pachaiammal @Priya. M ,'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ',International Conference on Communication, Computing & Internet of Things, held at Sri Sai Ram Engineering College, Chennai, India from 15-17 February 2018.

- Dr.B.Sreedevi,P.Rayavel, National Conference on Mathematical Techniques and its Applications(NCMTA) held at SRM University, Chennai, India from 11-12 January 2019.

- B.Sreedevi, Dr.S.P.Rajagopalan, 'Analysing Stem Cells Using Transformed Stem Cell Algorithm 'International Conference On Computing And Information Technology (ICCIT '15)

- Sreedevi, B, Abeek Kumar Srivastava & Ashwin Venkataraman 2013,'Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm', Proceedings of the International Conference on Recent Trends in Computing(ICRTC 2013) ,4th & 5th October 2013, pp. 32-27.

- Sreedevi, B & Rajagopalan, SP 2015, 'Analysing Stem Cells Using Transformed Stem Cell Algorithm', Proceedings of the International Conference on Computing and Information Technology (ICCIT'15), 13th &14th August 2015, pp. 96-100.

- Sreedevi, B & Rajagopalan, SP 2015, 'Examine and Extraction of Optimized Stem Cells Using Image Processing', Proceedings of the National Conference on Recent Enhancement In Advanced Computing Technologies - 'React'15' On 27th March, 2015.

- B.Sreedevi, E.Madhumitha, M.Kalaiselvi,'Automatic Classification Of Intracardiac Tumor And Thrombi In Echocardiogram Using Adaptive Co-Segmentation', Proceedings of the National Conference on Recent Enhancement In Advanced Computing Technologies - 'React'16'

Workshop & Conferences

- Coordinator for TEDX-SriSairamIT and Hackathon Events.
- Organized first International Conference on Computing and Information Technology (ICCIT'15) during 2015.
- Organized a Staff development programme on "Soft Computing with AI" sponsored by AICTE for Rs.700000/- during 2011.
- Organized National Conferences on "Information & Communication Engineering Systems"-NICE '11, NICE'17 and NICE'18.
- International Seminar on "Recent Trends in Computer Technology" by Dr.Emerson Raja Joseph, Multimedia University, Malaysia during 2014.
- National Event on" CSI Golden Tech Bridge Programme" by Computer Society of India during 2014.
- FDP on Python Programming by ICTACT of Tamilnadu during 2018.
- Attended a seminar on "Stem Cell and Regenerative Medicine" during Nov 2016 at Anna University
- Delivered a session in FDP on "Internet Programming" at Loyola ICAM Institute of Technology, Chennai
- Attended STTP in Pondicherry Engineering College during 2016 on "Recent trends in optimization techniques".
- Attended FDP on "Hadoop" conducted by ICTACT at Sri Sai Ram Institute of Technology during 2016.

Certificate from the Investigators (PI & all Co-PIs)

Project Title: High Performance Computing Tool for assessing Alzheimer's Disease with Genomic Science using Deep Learning Architectures

It is certified that

1. The same project proposal has not been submitted elsewhere for financial support or is currently under progress with financial support from any funding agency.
2. The research work proposed in the scheme/project is not duplicate or significantly overlap with the work already done or being carried out elsewhere on the same topic.
3. We undertake that equipment procured in the project will be notified through SERB website and be made available to other users in spare time whenever possible.
4. We certify that the proposal in part or full is free from plagiarism and conforms to all ethical norms of SERB.
5. We agree to submit a certificate from Institutional Biosafety Committee, if the project involves the utilization of genetically engineered organisms. We/I also declare that while conducting experiments, the Biosafety Guidelines of Department of Biotechnology, Department of Health Research, Ministry of Environment Forest and Climate Change, GOI would be completely followed.
6. We agree to submit ethical clearance certificate from the concerned ethical committee, if the project involves field trials/experiments/exchange of specimens, human and animal materials etc.
7. We agree to abide by the terms and conditions of SERB grant including (a) submission of progress report, utilization certificate and statement of expenditure as per SERB norm, and (b) utilization of fund (purchase, travel, staff, etc.).
8. Intellectual property (IP) generated in this project will be shared and governed by the existing norm of the host Institute/University without violating the SERB norms.

Signature:
Name and Designation: Dr.B.Sreedevi, Professor & Head of Department of Computer Science & Engineering,
Sri Sairam Institute of Technology
Date: 7/10/2022
Place:Chennai

Signature:
Name and Designation: Dr.D.Rajalakshmi,Associate Professor, Department of Computer Science & Engineering,
Sri Sairam Institute of Technology
Date: 7/10/2022
Place: Chennai

Undertaking by the Principal Investigator

To

The Secretary

SERB, New Delhi

Sir

I Dr.B.Sreedevi hereby certify that the research proposal titled High Performance Computing Tool for Assessing Alzheimer's disease with Genomic Science using Deep learning Architectures submitted for Possible funding by SERB, New Delhi is my original idea and has not been copied /taken verbatim from anyone or from any other sources. I further certify that this proposal has been checked for plagiarism through a plagiarism detection tool i.e.TURNITIN approved by the Institute and the contents or original and not copied/taken from any one or many other sources. I am aware of the UGCs Regulations on prevention of Plagiarism i.e. University Grant Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulations, 2018. I also declare that there or no plagiarism charges established or pending against me in the last five years. If the funding agency notices any plagiarism or any other discrepancies in the above proposal of mine, I would abide by whatsoever action taken against me by SERB, as deemed necessary.

Signature of PI with Date

Name/Designation

Dr. B. SREEDEVI
HEAD OF THE DEPARTMENT
COMPUTER SCIENCE AND ENGINEERING
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI - 600 044

Endorsement from the Head of the Institution of PI

This is to certify that:

1. Institute welcomes participation of Name :Dr.B.Sreedevi, Designation :Professor as the Principal Investigator (PI) and Dr.D.Rajalakshmi as the Co- Investigator(s) for the project titled High Performance Computing Tool for assessing Alzheimer's Disease with Genomic Science using Deep Learning Architectures and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume the responsibility of the fruitful completion of the project with the approval of SERB.

2. The PI, Dr.B.Sreedevi is a permanent or regular employee of this Institute/University/Organization and has 25 years of regular service left before superannuation.

3. The applicant, Dr.B.Sreedevi, will assume full responsibility of implementing the project as the PI as per the proposed objective, deliverables, and timeline. He/she will also take the primary responsibility of submitting the progress report, utilization certificate and statement of expenditure as stipulated by Science & Engineering Research Board (SERB).

4. The project starts from the date on which the University/Institute/ Organization/College receives the grant from SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi.

5. The grant-in-aid by the SERB will be used to meet the expenditure on the project and for the period for which the project has been sanctioned as indicated in the sanction letter/ order.

6. No administrative or other liability will be attached to SCIENCE & ENGINEERING RESEARCH BOARD (SERB) after the tenure of the project.

7. The University/ Institute will provide basic infrastructure and other required facilities to the PI and investigators for undertaking the research objectives.

8. University/Institute will provide the necessary support (administrative and financial) to run the Centre for at least another Five (5) years after the completion of project tenure (SERB support) towards fulfilling the goal.

9. The University/ Institute will take into its books all assets received under this sanction and its disposal would be at the discretion of the SERB.

10. University/ Institute agrees to undertake the financial and other management responsibilities of the project as per SERB guidelines.

11. The University/ Institute shall settle the financial accounts to the SERB as per the prescribed guidelines within the three months from the date of termination of the Project.

Seal of
Host Institute

Date: 7/10/2022

Signature
Head of the Institute
Dr.K.PALANI KUMAR
PRINCIPAL
SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044.

TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
DOTE CAMPUS, CHENNAI - 600 025

STUDENT PROJECT SCHEME 2022-2023
UTILISATION CERTIFICATE

(TWO COPIES)

1. Name of the guide and address : **Mr. P. ASHOK M.E(Ph.D)**
Assistant Professor,
Department of Computer Science and Engineering,
Sri Sai Ram Institute of Technology,
Chennai -44.

2. Name of the student(s) : SURENDER .D
SHRIVARSHAN .G
ANNAMALAI .P

3. Title of the project : Prevention of Fraudulent Activities in the Banking Sectors by using Blockchain and Machine Learning

4. Project code : **CSE-1562**

It is certified that a sum of **Rs.7500 (Rs. Seven thousand five hundred Only)** Sanctioned by the council for carrying out above mentioned student project has been utilized for the purpose for which it was sanctioned and sum of **Rs NIL** remaining unutilized is refunded.

Signature of the guide

Signature of the HOD

Signature of the
REGISTRAR/PRINCIPAL/DEAN
With SEAL

Dr.K.PALANI KUMAR
PRINCIPAL
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044.

Detailed proposal

Analyzing Alzheimer with Memory -Driven Computing and Deep Learning Algorithms using GENOME Server and High Performance Computing

1. **Definition of the research problem and scientific significance of the proposed work***[200 words]*

   I. An automated health information application for Alzheimer treatment which can be assessed in real-time for both patients, doctors and caretakers.

   II. The proposed work intend to employ Kallisto using High Performance Genome Server with Memory-Driven Computing applications and Deep learning algorithms, thereby processing the data within 13 seconds.

   III. In particular, the project will combine High-Performance Computing (HPC) infrastructures with Deep Learning (DL) techniques to support doctor's treatment that require the analysis of large and complex datasets and thus, new and more efficient ways of diagnosis, monitoring and treatment of Alzheimer disease.

2. **Current national and international status of the proposed research problem with appropriate references***[1000 words, excluding list of references to be added at the end of this section]*

2.1 International status:

I. The Big Data for Advancing Alzheimer Research project proposed by Health Ministers of G8 countries emphasizing on importance of integrating Big Data in Alzheimer research which led to enhanced Alzheimer research and development of technology which assists in determining the factors that contribute to Alzheimer such as early detection of Alzheimer in elders, recommending effective support for Alzheimer care as well as proposing new analysis methods. In this perspective, Chen et al (2018) proposed a Alzheimer related medicine database with the capabilities of supercomputers in which data mining concepts were employed to create comorbid associations between Alzheimer and various kinds of Illnesses.

II. On April 2016, one of the founding partners of the JRU, ELIXIR-IT and CINECA, launched a pilot project called ELIXIR-IT HPC@CINECA, aimed at offering an entry-level but still significant HPC resource package (core hours, 1 TB of permanent storage expandable based on project needs) for research projects submitted by Italian and European researchers in the life sciences. Three years since its inception, it can measure the effect of this program, which can now be regarded as effective experimental program with over 60 project applications submitted, an approval rate of around 90% and many publications made possible by the allocated HPC capital.

III. After the advent of Zero effort technologies which can gather, analysis and incorporating advanced computing techniques such as high performance computing, machine learning, sensor fusion, decision-making and planning, assistive systems were made effective and seamlessly integrated into patient's lives. Robillard et al (2018) proposed an effective as deep learning based assistive technology with emotion and motivation as its main parameters for improving cognitive working of Alzheimer patients.

2.2 National status

I. Ramanathan Sathianathan et at (2018) presented a detailed report on Alzheimer's disease and its impact, prevention, as well as problem experienced by India. The authors highlighted that lack of effective information application which can provide insight into true trend of the disease and determine the symptoms in early stage and its associated risk factors, paucity of basic as well as advance researches on Alzheimer, poor awareness, and less availability of social benefit.

II. Bhagyashree et al (2018) presented machine learning methods which can be integrated into Alzheimer's analysis and mainly focused on exploratory study from south India. The authors highlighted several benefits obtained in introducing machine learning concepts into Alzheimer analysis.

3. Workplan to achieve the proposed objectives

*[Limit to 5 pages excluding the list of references;Add relevant subsections as 3.1, 3.2, … etc., to elaborate methodology, data, expected outcomes, etc.; Figures or tables can be used if required;Keep a subsection for "**Milestones and timelines**"to indicate the phasing of the workplan for the three-year project period;Keep a list of references as the last subsection.]*

3.1 Methodology:

In genomics science, High Performance Computing allows researchers to grasp a vast amount of knowledge and uncover complex trends within it. It is beyond the limits of standard analysis to do so. The availability of high-performance computing has become a central method of allowing efficient utilization biological high-performance sequencing (HTS) data, which takes a fair amount of time to collect useful biological knowledge. An analysis of the importance of genetics includes a neurodegenerative disease such as Alzheimer. Researchers survey an enormous number of human genomes to do so and compile those genomes together into recognizable entities. This needs considerable computing resources. It takes 180 uncompressed gigabytes to reassemble one genome into a genetic representation of an organism, while computing specifications on that genome add 500 GB and an additional 100 GB is needed for long-term storage. This helps clinicians and researchers to distinguish biomarkers that are split into persons with positive and negative prognoses, while adapting better to various medications or therapies. In order to define treatment targets, the proposed work incorporate radiology, imaging, blood, and genomics results. That is the development cycle in the proposed work. The application of deep learning to genomic datasets is a fascinating field that is quickly evolving and is intended to revolutionize the study of genomes. More than 3 billion base pairs compose the human genome. The mechanistic understanding of genome biology has been expanded to an unprecedented

degree by recent technical advancements. The scope and sheer quantity of knowledge found in DNA and chromatin, however, remain roadblocks to full understanding of all genome functions and interactions. Connecting genotype to phenotype, forecasting regulatory activity, and classifying forms of mutation are all fields in which new knowledge can be obtained from harnessing the enormous genomic data from a large number of individuals. When traditional approaches are used, however, operating in this broad data space is difficult. Therefore in genome science, new and ground-breaking methods are required to enrich the knowledge of fundamental biology and the ties to disease and the need to understand how a cell functions in order to know how Alzheimer's disease works by acquiring DNA sequencing. Computer scientists have to reassemble snippets of data obtained from a single entity to transform the sequencing from mathematics to knowledge. The genetic data snippets are matched to a reference genome, a complete genome that functions as a guide. This is a computationally costly method, however, the proposed work entails pseudo-alignment method called Kallisto, built at Caltech, to make it as time-effective as possible. It took about two days for previous instruments to process 30 million "reads," which requires evaluating and assembling 30 million snippets and preserving those who use the FASTQ format. This process took 22 minutes, using a dataset of 127 million reads on its current hardware. The same data was analyzed in 13 seconds when used with Kallisto and executed it on Genome Server and used Memory-Driven Computation resources.

r to accomplish this upgrade, k-mer access and memory management would be incorporated using the librarian file system (LFS). As a result, it could process the data on nodes to reach the index in parallel, transferring the FASTQ files to LFS that separate applications could operate on the same datasets and further it would also discuss what could be exchanged between several instances. The concept of memory mapping is used for data to transfer to any available processing node without waiting period, unlike linear file reading. Then the reads are split into shorter k-mer and the graph generated as a hash table is read. Finally, by taking advantage of the large memory pool available, a hard-coded load factor of 95 percent in the hash table is minimized. Deep learning, a variant of machine learning that uses neural networks to automatically extract novel features from input data, is one exciting and promising technique now being applied in the genomics field. A matrix of real values is usually the input into a neural network. The input can be a DNA sequence in genomics, in which nucleotides A, C, T and G are encoded as [1,0,0,0], [0,1,0,0], [0,0,1,0] and [0,0,0,1].

Brief SRS (Software Requirement Specification)

High performance storage system incorporated with the HPC system (Required)

Support for HPC mass storage system access (Required)

Multi-core nodes located on the HPC interconnect (Optional)

General Purpose GPU nodes residing on the HPC interconnection (Optional)

Visualization, analysis of data and post-processing nodes that reside on the HPC interconnection (Required)

3.2 Time schedule of activities giving milestones through BAR Diagram

Activities	Months					
	1-6	7-11	12-13	14-15	16-17	18-19
Staff Recruitment						
Literature Survey						
Establishing Computing Facility						
Cognitive & Psychological parameter analysis related to Alzheimer disease						
Pre Data Collection of Genome data of patients						
Development of pseudo-alignment application using HPC and Library File system						
Development of Deep Learning Architecture for analysis of large and complex biomedical datasets and thus, new and more efficient ways of diagnosis, monitoring and treatment of Alzheimer.						
Development of semantic annotator and						
Automation of information application (AlzeCare) by applying deep learning techniques						
Testing the usefulness of AlzeCare app in real-time with participants						
Incorporating further advancements into AlzeCare system based on the real-time information gained from testing AlzeCare app on participants						
Validation, Debugging & Report generation						

3.3 Suggested Plan of action for utilization of research outcome expected from the Project

Mixed methods of both quantitative and qualitative data in a series of studies will be followed for a better understanding of Alzheimer research problem. Intervention-specific questionnaire items will be included in a follow-up questionnaire to gain personal health record and detailed medical history of the patient, and then combined into statistical evaluation for implementation

Relevance: Semi-structured interviews for patients with Alzheimer, doctors and caretakers (families) to meet the objectives of proposed project which are consistent with beneficiary's requirement

Efficiency: Long-term field observations will be carried out to study the cognitive function ofpatients with Alzheimer to enhance the efficiency of the proposed project

Coverage: By deploying an intelligent AlzeCare as light weight application so that it can be deployed in any smart phones to reach every Indian population groups with Alzheimer

Project will be proven to work in its final form under expected conditions, the proposed project will modify the k-mer access and memory management using librarian file system (LFS) for faster processing speed using pseudo-alignment application . The HPC-based Deep Learning project is intended to revitalize genome analysis with genomic datasets. As a software deployment for patients particularly during Alzheimer's care, an intelligent assistive tool health information application (AlzeCare) will be created that can be used in real time for all patients, doctors ,caregivers and self-administered assessments to check any progress during treatment, along with an ease-to-interpret summary to build a personalized plan for patients during treatment. The application plan to tie-up with hospitals treating Alzheimer and as a treatment package during Alzheimer care. The usefulness of the application is proven to Ministry of Health and Family Welfare under the Government of India (https://mohfw.gov.in/) for deploying the application in government hospitals as recommended by the Ministry.

4. Translational potential and relevance of the proposed work to India *[Max 200 words]*

Project will be proven to work in its final form under expected conditions, the proposed project will modify the k-mer access and memory management using librarian file system (LFS) for faster processing speed using pseudo-alignment application . The HPC- based Deep Learning project is intended to revitalize genome analysis with genomic datasets. As a software deployment for patients particularly during Alzheimer's care, an intelligent assistive tool health information application (AlzeCare) will be created that can be used in real time for all patients, doctors , caregivers and self-administered assessments to check any progress during treatment, along with an ease-to-interpret summary to build a personalized plan for patients during treatment. The application plan to tie-up with hospitals treating Alzheimer and as a treatment package during Alzheimer care. The usefulness of the application is proven to Ministry of Health and Family Welfare under the Government of India (https://mohfw.gov.in/) for deploying the application in government hospitals as recommended by the Ministry.

5. Roles and responsibilities of PI and Co-PI(s), prior expertise, and relevant publications

A. Roles and responsibilities of PI and Co-PI(s) and prior expertise

Name of PI/CoPI	Role and responsibilities	Prior expertise (if any)
Dr.K.Palanikumar	Development of Deep Learning Architecture for analysis of large and complex biomedical datasets and thus, new and more efficient ways of diagnosis, monitoring and treatment of Alzheimer. Validation, Debugging & Report	Artificial Intelligence and Fuzzy Systems

	generation	
Dr.B.Sreedevi	Data Collection & Implementing Tool for assessing Alzheimer's Disease with Genomic Science	Machine Learning and Image Processing
Dr.G.Shanmugasundar	Implementing Tool for assessing Alzheimer's Disease using Deep learning Architectures & evaluating the metrics	Data Analytics and Optimization algorithms

B. List of relevant publications from the research team (Max 5):

Article reference (provide full citation in a standard format)	Impact factor	Citations
Improving Mesenchymal Stem Cell Classification Using Machine Learning Techniques	0.65	3
Protective Head wear for Autism Patients with LED Light	Design Patent	Design no. 337058-001
A Unified and Semantic Model Approach for Histopathologic Cancer Detection Based on Deep Double Transfer Learning	10.96	2
Analysis methods and mining of brain functional connectivity for detection of brain disorders	10.96	2
Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled	1.5	2
Design and development of voice controlled robotic wheel chair for handicapped people	1.5	4
"An Exo Frame Structure Utilizing Electrical Actuators For Arm Rehabilitation And Effortless Load	Application Patent	201841025468

6. Details of current and completed projects by the research team members

[List all the projects currently being implemented (if any) and completed (if any) in the last five years by each of the team members. Add more rows if needed.]

A. Details of projects under implementation

Name the team member	Funding agency	Title of the project	Role (PI/CoPI)	Sanctioned grant (₹)	Start date	End date (Expected)
Dr.B.Sreedevi	AXIOM Technologies	AI Federaated learning model for patients electronic health record.	CoPI	35000	08/12/2022	19/3/2023

B. Details of the projects completed during the last 5 years

Name (PI / CoPI) of this proposal	Funding agency	Title of the project	Role (PI/CoPI)	Sanctioned grant (₹)	Start date	End date
Dr.K.PALANIKUMAR	AMS Constructions	Design of Helmet for Autism People	PI	230000	18/7/19	13/8/20
Dr.B.SREEDEVI	DST	Mind Controlled Gaming for Differently Abled	CoPI	100000	20/8/18	23/9/19
Dr.B.SREEDEVI	AICTE	Predictive Modeling And Data Analysis Using Python Based Machine Learning Technique	CoPI	300000	2018	2018

7. List of facilities available / accessible for the project implementation

A. List of research facilities crucial for the project readily accessible by PI/Co-PI(s)

[List the available facilities apart from what will be purchased as part of this project]

Name (PI / CoPI)	Facility	Remarks
PI	NVIDIA QUADRO	M2000
PI	GENOME SERVER	Product Name - HPE Product Line – Apollo 4510 Gen9 CTO Chassis Product Series – XL450 – Gen 9 Intel Broadwell Microarchitecture Full access granted by Host Institution

B. List of Infrastructural facilities being extended by the host institution(s) for the project implementation

S. No.	**Infrastructural Facility**	**Available / Not available /Not required***[Mention any one status]*
1	Workshop Facility	**Available**
2	Water & Electricity	**Available**
3	Laboratory Space/ Furniture	**Available**
4	Power Generator	**Available**
5	AC Room or AC	**Available**
6	Telecommunication including e-mail & fax	**Available**
7	Transportation	**Available**
8	Administrative/ Secretarial Support	**Available**

S. No.	Infrastructural Facility	Available / Not available /Not required*[Mention any one status]*
9	Information facilities like Internet/ Library	**Available**
10	Computational Facilities	**Available**
11	Animal/ Glass House	**Not required**
12	Cryogenic Facility	**Not required**
13	Bio-imaging Facility	**Available**
14	Nanofabrication Facility	**Not required**
15	Nano Characterization Facility	**Not required**

8. **Environmental risk considerations for the proposed work**:*[Max 200 words]*

[List the potential risks of the proposed work, and steps taken to ensure safe laboratory practices/field experiments/work involving pathogens and/or animals]

The availability of high-performance computing has become a central method of allowing efficient utilization biological high-performance sequencing(HTS) data,which takes a fair amount of time to collect useful biological knowledge. An analysis of the importance of genetics includes a neurodegenerative disease such asAlzheimer. Researchers survey an enormous number of human genomes to do so and compile those genomes together into recognizable entities. This needs considerable computing resources. It takes 180 uncompressed gigabytes to reassemble one genome into a genetic representation of an organism, while computing specifications on that genome add 500 GB and an additional 100 GB is needed for long-term storage. This helps clinicians and researchers to distinguish biomarkers that are split into persons with positive and negative prognoses, while adapting better to various medications or therapies. In order to define treatment targets, the proposed work incorporate radiology, imaging, blood, and genomics results. That is the development cycle in the proposed work. The application of deep learning to genomic datasets is a fascinating field that is quickly evolving and is intended to revolutionize the study of genomes.

9. **Any other information that may be relevant to the project***[optional]*

Budget details and justifications

[Prepare the budget as per the following section which can be filed later in the online form; Mention all the digits as rupees withoutdecimalization as Lakhs/Thousands. Prepare year-wise budget for the given subcomponents as per the requirements of the project and provide justifications in the following section.]

A. Grants for creating capital assets (non-recurring components)
[Usually, this component is planned for first year, justify if this budget is extended to Year 2 or 3.Quotations will be necessary at a later stage if the project is approved.]

Component	Year 1	Year 2	Year 3	Total A
HP Z440 1 EW88PA SSD Quadro M2000	**1,55,959**	0	0	1,55,959

(Workstation E5-1607v4 8GB K620 Win 10 Pro 64bit)				

B. General grants-in-aid (Recurring components)

Component	Year 1	Year 2	Year 3	Total
Human Resources	4,84,800	1,80,000	1,80,000	**8,44,800**
Consumables	45,000	45,000	45,000	1,35,000
Contingency *Maximum total budget for contingency should be less than 6% of the total project cost (i.e., 3 lakhs for a total project cost of 50 lakhs)*	25,000	25,000	25,000	75,000
Facility charges	20,000	20,000	20,000	60,000
Travel *Maximum total budget for travel should be less than 6% of the total project cost unless the project requires extensive field work.*	10000	10000	10000	30000
Overhead *(10% of total project cost or 5 lakhs, whichever is less)*	5,65,240	5,65,240	5,65,240	**16,95,720**
Total (B)				**Rs.28,40,520**

Total proposed budget (₹) [A+B]:Rs.29,96,479

Component-wise justifications

Equipment
HP Z440
1 EW88PA SSD Quadro M2000 (Workstation E5-1607v4
8GB K620 Win 10 Pro 64bit)
Leveraging GPUs to accelerate this proposal's objective can vastly decrease runtime and costs compared to CPU-based approaches. The mentioned equipment is used for performing professional Computer Aided Design(CAD) , Computer generated imagery (CGI), scientific calculations for genome sequencing and deep learning architectures.
Human Resources
This project requires well-trained, research associate who has completed Ph.D. and a technical assistant with Master Degree as qualification since this project deals with high priority area i.e. precision medicine and HPC to develop and complete this project with utmost care and on-time delivery of the project
Consumables

Installation of High Performance Computing Software and libraries

Contingency

Contingency which are unexpected costs away from the budget is much needed for smooth completion of the project. Here a contingency of 5 % is calculated per year of total cost and is equated for three years Facility Charges

Travel

Inland travel is necessary for the PI, Co-PI and the project assistant to attend workshops, present in conferences and develop open database therefore it could be useful for research community in India

Overhead

Since the institution is providing space, electricity and other facility to do the project, the institutional overheads are to be considered at 15 % of annual cost

Endorsement letter from safety /ethical committee

Endorsements from safety /ethical committee *[Optional unless you are working with animals/pathogens. Upload if applicable[pdf max 1 MB]*

Not Applicable

ANNEXURE I

SAI RAM INSTITUTE OF TECHNOLOGY

Sai Leo Nagar, West Tambaram, Chennai - 600 044. www.sairamit.edu.in

Endorsement from head of organization for MoE-STARS proposal submission

This is to certify that Prof.K.PALANIKUMAR is having a regular faculty position in our institution in the department of MECHANICAL ENGINEERING. This institution agrees to undertake the financial and other management responsibilities for the part of the project work which will be conducted in our organization.

Date: 02.02.2023

Place:Chennai

Signature and seal

Name:Dr.K.PALANIKUMAR

Designation:PROFESSOR & PRINCIPAL

Full address:SRI SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, WEST TAMBARAM,CHENNAI 600044.

Sairam

SAI RAM INSTITUTE OF TECHNOLOGY

An Autonomous Institution | Affiliated to Anna University & Approved by AICTE, New Delhi
Accredited by NBA and NAAC 'A++', An ISO 9001:2015 Certified and MHRD NIRF ranked institution
Sai Leo Nagar, West Tambaram, Chennai - 600 044. www.sairamit.edu.in
Founder Chairman : M.P. Lr. Leo Muthu

Endorsement from head of organization for MoE-STARS proposal submission

This is to certify that Dr.G.SHANMUGASUNDAR is having a regular faculty position in our institution in the department of MECHANICAL ENGINEERING. This institution agrees to undertake the financial and other management responsibilities for the part of the project work which will be conducted in our organization.

Date: 02.02.2023

Place:Chennai

Signature and seal

Dr.K.PALANI KUMAR
PRINCIPAL
SRI SAIRAM INSTITUTE OF TECH
SAI LEO NAGAR, CHENNAI-600 044

Name: Dr. K.PALANIKUMAR

Designation:PROFESSOR & PRINCIPAL

Full address:SRI SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, WEST TAMBARAM,CHENNAI 600044

SAI RAM INSTITUTE OF TECHNOLOGY

An Autonomous Institution | Affiliated to Anna University & Approved by AICTE, New Delhi

Accredited by NBA and NAAC 'A+' | An ISO 9001:2015 Certified and WFEO NMP ranked institution

Sai Leo Nagar, West Tambaram, Chennai - 600 044. www.sairamit.edu.in

Founder Chairman : M.P. Lt.s. Leo Muthu

Endorsement from head of organization for MoE-STARS proposal submission

This is to certify that Dr.B.SREEDEVI is having a regular faculty position in our institution in the department of COMPUTER SCIENCE AND ENGINEERING. This institution agrees to undertake the financial and other management responsibilities for the part of the project work which will be conducted in our organization.

Date:02.02.2023

Place:Chennai

Signature and seal

Dr.K.PALANI KUMAR
PRINCIPAL
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044

Name:Dr.K.PALANIKUMAR

Designation:PROFESSOR & PRINCIPAL

Full address:SRI SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, WEST TAMBARAM,CHENNAI 600044

ANNEXURE –II

BIODATA

- **World's top 2% of Scientists on a list compiled by Stanford University.**
- **Received AICTE- Visvesvaraya National Award for Best Teacher.**
- **Global Peer review Award from Publons from Web of Science**
- Received Chartered Engineer from Institution of Engineers (India). .
- Currently working as Professor and Principal, Sri Sai ram Institute of Technology, Chennai, India.
- Published Scopus/WoS indexed 292research articles **(Scopus Citations – 7658, h index – 46)**
- Published Scopus/WoS/Google Scholar indexed 353research articles **(Google Scholar Citations – 11580, h index – 57)**
- Received the funding of more than 1 Crore from funding Agencies.
- Served as the Chairman, Institution of Engineers (India), Kancheepuram Chapter
- Serving as Committee member Mechanical Engineering, Tamilnadu State Centre, Institution of Engineers (India)
- Serving as a National Executive Committee Member in Indian Society for technical Education.
- Edited a book on Futuristic Trends in Intelligent Manufacturing (Springer Nature) and Response Surface Methodology in Engineering Science (IntechOpen).
- Edited four conference proceedings (Materials Today Proceedings (2), Advanced Materials Research (Trans Tech), Materials and manufacturing Engineering Series (Springer).
- Reviewed more than 572 articles from refereed journals.
- 23 Book Chapters Published
- 3 Books Published
- Published Research Articles : SCI / WOS : 147 , Scopus : 192

Dr. K. PALANIKUMAR
Professor & Principal

Qualification	:	Ph.D.,
Email	:	palanikumar_k@yahoo.com palanikumar@sairamit.edu.in
Specialization	:	Mechanical / Manufacturing Engineering
Research Interest	:	Composite materials: Processing, applications, natural fibers Total quality management, optimization.

QUALIFICATION

- A.M.I.E Mechanical Engineering, Institution of Engineers (India).
- M.E. Production Engineering – Annamalai University – **University First Rank**
- Ph.D. Mechanical Engineering – **College of Engineering Guindy,** Anna University, Chennai.
- Post Ph.D work on machining of Composites with Prof. J. Paulo Davim, **University of Aveiro, Portugal,** without visiting Portugal.
- Post Diploma in Tool Design from Central Polytechnic, Chennai.

DETAILS OF TEACHING AND RESEARCH EXPERIENCE

S.No	Designation & Office address	Period		Nature of duties/ responsibilities	Reason for leaving
		From	To		
1	Professor and Principal Sri Sai Ram Institute of Technology	2008	Till Date	Teaching, Research and administration of the Institution	Currently Working
2.	Professor and Principal S.R.R. Engineering College	2004	2008	Teaching, Research and administration of the Institution	Better prospects.
3.	Lecturer, Assistant Professor, Professor Sathyabama University, Sathyabama Engineering College, Chennai.	1994	2004	Teaching, Research and administration of the Institution	Transferred to the new institution in the same group with promotion

OTHER EXPERIENCE

- Lab Instructor, Sathyabama Engineering College - **4 years**
- Industrial Experience 3 years

PROFESSIONAL MEMBERSHIP : 13

Life Member, Indian Institute of Metals	#57767	Since Aug, 2019
Life Member-Senior Fellow, The Society of Innovative Educationalist & Scientific Research Professional, Chennai	LM17181965	Since March, 2019

Member, American Society for Mechanical Engineers (ASME), USA.	000007072846	Since 8 years
Charted Engineer (India), The Institution of Engineers, India	F-116936-6	March 2012
Fellow Member, The Institution of Engineers, India	F-116936-6	March 2012
Life Member, Indian Welding society.	L00737	March 2008
Life Member, Tribology society of India.	LM3707	April 2007
Life Member, Indian Society for Non-Destructive Testing and Evaluation.	LM6684 CH	Feb 2004
Fellow Member, Indian Institution of Production Engineers (IIPE)	SF2108	Feb 2004
Life Member, Indian society for Technical Education	LM 23708	Mar 1997
Life Member, Indian Institute of Metals	57767	August 2019
Senior Member, Computer Society of India	01164293	2012

PROFESSIONAL RECOGNITION/ AWARDS /PRIZES/CERTIFICATES AND HONOURS

S.No	Name of Award	Awarding Agency	Year
1	Visvesvaraya National Award for Best Teacher	AICTE	2021
2.	World Top 2 % Scientist in Materials	Compiled by Stanford university	2020
3.	Prof. K. Arumugam National Award for innovative research work	Indian Society for Technical Education	2018
4	Maharashtra State National Award for Best Research work in Engineering and Technology	Indian Society for Technical Education	2014
5.	Best Faculty of the Year Published Research	Computer Society of India (CSI)	2019

RESEARCH FUNDED PROJECTS AND GRANDS

No.	Name of the Project	Funding agency	Fund Received	Duration	Start Sate	End Date	Grant No
18	AICTE-ISTEInduction / Refresher Programme	AICTE-ISTE	93,000	5 Days	Dec, 2021	Dec, 2021	122/SSIT.Ch-44/AICTE-ISTE/Induction Refresher Prosram/ dated 23.09.2021
17.	Innovation and	DST, Govt.	4.80 lakhs	2 years	2020	2021	No09/ 73/2020/

	Entrepreneurship-technology Based entrepreneurship (CAM, CAD & PC Trouble Shooting)	of India.					NEB(TR) Letter dated 07.12.2020
16.	AICTE-ISTE Refresher programme on Teaching Learning Process	ISTE	3.00 Lakhs	Nov, 2020	14 th Dec 2020	Jan 2021	ISTE/ AICTE-ISTE FDP-1-351126476-2018-2019 letter dated 11.03.2020
15.	FDP on Smart and Phase changing materials	AICTE, New Delhi.	2.07 Lakhs	Nov'2020.	Phase01: 27/07/20 Phase 02: 14/09/20	01/08/20 19/09/20	Refno 34-65/ 68 /RIFD/STTP/Policy1/ 2018-2019
14.	International Conference on mechanical, manufacturing and Materials for sustainable Development.	AICTE, New Delhi.	5.00 Lakhs	August 2020	4/11/20	6/11/20	F-No.67-13/IDC/GOC/POLICY4/ 2019-20
13	Finite Element Analysis	Anna University – Chennai	0.30 Lakhs	30,000/-	2019	----	F.No 23- / AU-CFD/ 079 / 2019-2020
12.	DST-NIMAT Project-Entrepreneurship awareness camp	DST-EDI, Gujarath	1.00 Lakhs	Mar,2018-Mar,2019	Mar 2018	Mar2019	EDII/DST/NIMAT /18-19/420
11.	Skill development Program for unemployed youth	AICTE, New Delhi.	7.00 lakhs	Principal Investigator. Rs 7,00,000/- lakhs	2018	2019	PMKVY/AICTE-PMKVY-1-0789/2018 Dated 23.08.2018
10	AICTE-ISTE Refresher programme on Teaching Learning Process	ISTE	3.00 Lakhs	May'2018.	21.05.2018	26.05.2018	ISTE/AICTE-ISTEFDP-1-3325466791/2018 Dt.12.03.2018
9.	FDP on Biodegrable composites: Processing and applications	AICTE, New Delhi.	7.00 Lakhs	Oct-Nov'2017.	20/10/2017	02/11/2017	F.No6-131/RIFD/FDP/POLICY-1/2016-17
8.	DST-NIMAT Project-Entrepreneurship awareness camp	DST-EDI, Gujarat	0.40 Lakhs	Mar,2017-Mar,2018	Mar 2017	Mar 2018	EDII/DST/NIMAT /17-18/310
7.	DST-NIMAT Project-Entrepreneurship	DST-EDI, Gujarat	7.5 lakhs	April 2016 – Mar 2017.	Apr 2016	Mar 2017	EDII/DST/NIMAT /16-17/220

	awareness camp, Technical Education Development Programme and Faculty Development Programme.	India.					
6.	DST-NIMAT Project-Entrepreneurship awareness camp	DST-EDI, Gujarat, India	0.60 Lakhs	Mar,2015-Mar,2016	Mar 2015	Mar 2016	EDII/DST/NIMAT /15-16/112
5.	Innovation and Entrepreneur Development Centre.	DST, Govt. of India.	47.00 Lakhs	2015-05 to 2020-07	Mar 2015	Mar 2021	Grant number: 11/03/2015 NEB©, 11/03/2015 NEB(G) Dated 28 May 2015.
4.	FDP on Processing and Characterization of composite materials including natural fiber reinforced composites	AICTE, New Delhi	6.0 Lakhs	March 2014 – March 2015	19/03/2015	30/03/2015	F.No.33/RIFD/FDP/P(1)/2014-15 Dt. 18.11.2014
3.	Staff Development Programme on Artificial Intelligence withAI	AICTE	7.0 Lakhs	September 2011	15/09/2011	27/09/2011	f.No.38/RIFD/FDP/P(1)/2011-12
2.	Development of Computer Integrated Manufacturing System	AICTE	10.00 Lakhs	September 2011	21 /09/2011	March 2012	f.No.130/RIFD/FDP/P(1)/2011-12
1.	Short Term Training Programme on Latest Trends in Manufacturing for Global Competitiveness- A Changing Trend approach with case studies	ISTE	2.0 Lakhs	December 2004	05/12/2004	19/12/2004	Ref.no 3-16/ 5 /RIFD/STTP/Policy1/ 2004-2005

CONSULTANCY

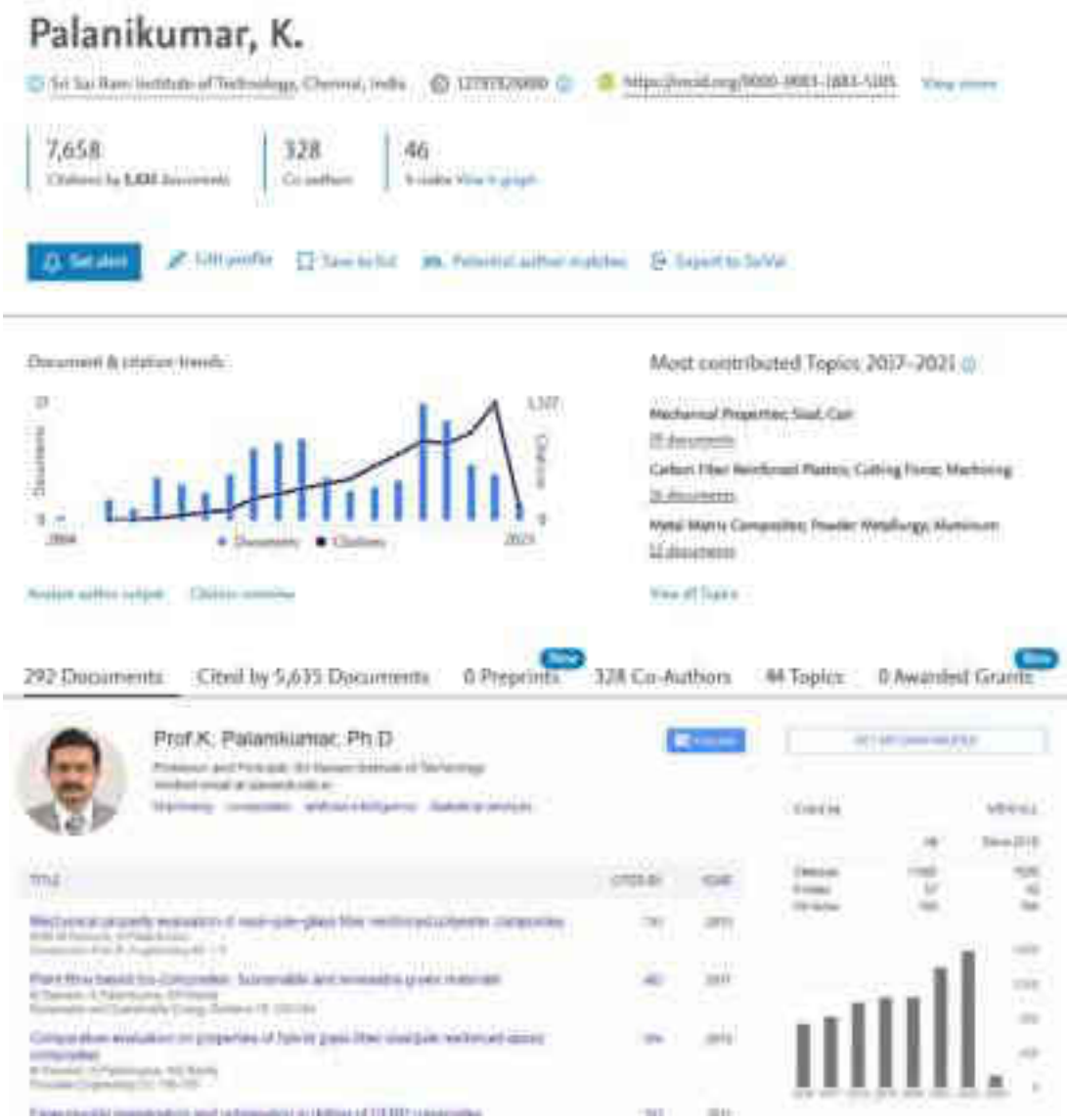
Title of Industrial based Work	Client	Period
Tool Design	S.A. International Limited, Government of Tamilnadu undertaking-Worked as a consultant for tool design course on Part-time basis.	2001-2003

Tool design	Karthick Industries, Chennai and Sathyabama University Offer consultancy for Tool design and earned more than 1 lakh as charges.	2001-2004
Studies on Machining characteristics of GFRP Composites	Strategic Composites, Chennai The materials and other requirement for carryout the Ph.D work is provided by the above company and the findings are included in their Project	2001-2004
Effect of Nano modified polyester resin on hybrid Sandwich laminates	Paper Published in Elsevier- Private patent bending	2013-Present
Composite material substitute for conventional materials	Super fiber Glass industries	2012
Natural fiber composite mudguard for automobile	Private	2013-present
Design of Composite materials Helmet for firefighting equipment	Revo Technologies and Enterprises -consultancy amount - Rs 2,00,000/-	2020- Present
Design of Helmet for Autism People	Revo Technologies and Enterprises consultancy amount - Rs 1,80,000/-	2020- Present
Design of Helmet for Autism People	AMS Constructions - consultancy amount – Rs 2,30,000/-	2019 -2020
Design and Analysis of Composite Materials	CADDAM Technologies - consultancy amount – Rs 50,000/-	2019-2020
An Authentication Slip Procurement System For A Public Transport Vehicle	Revo Technologies and Enterprises Rs 50,000/-	2019-2020
Woven Aloevera Sisal KenafFibre Epoxy composites for Corrugated Roof sheet	Revo Technologies and Enterprises Rs 1,50,000/-	2019-2020
A MultiLayered Natural Fiber Reinforced Composite Sheet Laminate	Super fiber Glass industries Rs 1,50,000/-	2019-2020
A Durable MultiLayered Protective cover enclosing the Head and Neck of firefighters	Super fiber Glass industries Rs 80,000/-	2018-2019
A fibre reinforced hybrid polymer composite protective mechanism for the head	Revo Technologies and Enterprises Rs 80,000/-	2018-2019
Development of composite material for high loading environment	Super fiber Glass industries Rs 60,000/-	2018-2019
Development of composite material with High strength	Minmax Technologies Rs 45,000/-	2018-2019
Design of Composite materials	Super fiber Glass industries	2020- Present

Helmet for firefighting equipment	-consultancy amount - Rs 2,00,000/-	

DETAIL OF PATENTS(Total Patents 21; Granted: 6)

RESEARCH SCHOLARS SUCCESSFULLY GUIDED (Ph.D): 21 Ph.D Scholars Completed under the Guidance(Doctor of Philosophy in Engineering)



JOURNAL EDITORIAL

S.No.	Position	Name	From	To
5.	Associate Editor	Journal of Advances in Mechanical Engineering and Science (JAMES)	2015	Till date
4..	Associated Editor	Journal of Modern Manufacturing Technology	2011	Till date
3.	Editorial Board Member	International Journal of Design and Manufacturing Technology, Sathyabama University, Chennai, India.	2006	2008
2.	International Editorial Review Board	The International Journal of Manufacturing, Materials, and Mechanical Engineering	2012	Till date

		(IJMMME), IGI-GLOBAL Publishers, USA		
1.	Associated Editor	The International Journal of Materials Forming and Machining Processes (IJMFMP), IGI-GLOBALPublishers, USA.	2013	Till date

REVIEWS

Dr B.Sreedevi

Professor & HOD, Department of Computer Science and Engineering

Sri Sairam Institute Technology Anna University

Chennai India 600045

Mobile: +91 9444245253 email: sreedevi.balasubramanian@gmail.com

Citizenship: India

1.1 Research Interests

My research interests revolve around the problem of Medical Image Processing and, more recently, Stem Cells. Much of my recent work focuses on image segmentation isolation and prediction using Machine learning algorithms. I've compared various Machine Learning Algorithms and proposed a model for predicting Accuracy. My interest in multiscale, parts-based shape representations, and their common abstraction as hierarchical graphs, has motivated my research in inexact graph indexing and matching – key problems in object recognition, another broad focus of my research. My research has also explored many problems related to object recognition, including object tracking, vision-based navigation, content based image retrieval, language-vision integration, and image/model abstraction.

1.2

1.3 Education

- Ph.D., Computer Science and Engineering Anna University, Chennai, India, Aug 2017 - Sub-specialization: Machine Learning and Image Processing

- Master of Technology in Computer Science and Engineering, SRM University
  Chennai, India, April 2007

- Bachelor of Engineering in Computer Science and Engineering, University of Madras April 1999

1.4 Professional Experience

- **Head of the Department & Professor**, Department of Computer Science and Engineering, Sri Sai Ram Institute of Technology, Anna University. June 2010 to Present

- **Assistant Professor** Department of Computer Science and Engineering Rajalakshmi Engineering College, Thandalam, Chennai, India. July 2019 to May 2010

- **Lecturer** Department of Computer Science and Engineering, SRM University, Chennai, India. Jan 2001 to March 2007

1.5 Technical Skills

- Cisco Certified Network Administrator(CCNA-1)

- Programming in C, Python, Java with JDBC, PHP
- Web Technologies: HTML, CSS, AJAX, Java Script, XML and Web Services
- Extensive knowledge of RDBMS like Oracle and MYSQL.
- Familiarity in OS like Fedora, Windows and Linux.
- Work Experience in IDE like Net beans and Eclipse.
- Application of Data Mining Algorithms with WEKA tool.

1.6 Achievements

- Development of Visible Light Communication for Smart Museums, Bangkok University, Centre of Research in Optoelectronics, Bangkok, Thailand-May 2019
- AICTE Lilavathi Award 2022
- Longest Continuous Student Branch Counsellor 2019
- Academic Excellence Award 2018
- Best faculty advisor Award by Institution of Engineers (India) 2019
- "Uttama Acharya Puraskar"-A National Award for Impact Creators-Lions Club of Vijayawada
- Acted as chair for International Conferences
- Syllabus Committee member in Anna University for PG Programme.(ME Big Data Analytics)
- Acting as Hon'Treasurer in Computer Society of India Kancheepuram Chapter.

1.7 Certifications

Certified EMC Academic Associate in Data Science and Big Data Analytics by DELL EMC2 during March 2018.

NPTEL-IIT certification in Data Mining, Database Management Systems and Internet of Things.

CCNA-1 Certification

Microsoft Azure Fundamentals

1.8 Professional Affiliations

Institute of Electrical and Electronics Engineers	Dec 2022
Inventive Research Organization (IRO)	Feb 2017-Present
International Association of Engineers (IAENG)	Dec 2017-Present
Computer Society of India –Student Branch Counsellor	May 2011 – Present
Indian Society for Technical Education (ISTE)	May 2014 – Present
Institution of Engineers (India)(IEI)	Nov 2018- Present
National Digital Library (NDL)	May 2016 – Present
The Society of Innovative Educationalist and Research (FSIERP)	Mar 2019-Present

1.9 Books Published

- Internet Programming in Sahara Publications, India with ISBN 9789386636157 – 2017
- Book Chapter in "Machine Learning and Applications" on the topic Machine Learning based Credit Card based Fraud Detection(CNN Algorithm)

- ***Book Chapter in Advanced Aspects of Engineering Research Vol. 5 "Study on Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled"***

1.10 Patents

- Mind Controlled Gaming for Differently Abled Indian Provisional (**Patent No201841016343**) in the field of Bio Medical Engineering – May 2018
- Multi Purpose Surveillance Based On Radar System With Camera Using Embedded Systems(No. 202041031869-24/07/2020)
- VLC Transceivers For Smart Museums(No. 202141029314, 09/07/2021)

1.11 Grants

- Dr.B.Sreedevi, 2017, Department of Science and Technology, Government of India granted Rs.100000/- for the project titled "Mind Controlled Gaming for Differently Abled".

- AICTE Sponsored STTP for Rs.300000/- in Predictive Modeling And Data Analysis Using Python Based Machine Learning Technique

- AICTE Sponsored ATAL FDP for Rs.93000/- in Data Sciences.

1.12 Publications

- **Sreedevi, B & Rajagopalan, SP, 'Improving Mesenchymal Stem Cell Classification Using Machine Learning Techniques', SCI, Annexure-I, ISSN: 1537-744X, Article: ID 405974**

- G Udendhran, R., Sreedevi, B., Sneha ,"A Unified and Semantic Model Approach for Histopathologic Cancer Detection Based on Deep Double Transfer Learning" 2022 2nd International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies, ICAECT 2022, 2022 Scopus Indexed 2022.

- C Rosewelt L, A., Sreedevi, B., Gomathi Shivani,"An Effective Detection of Version Number Attacks in the IoT using Neural Networks", 2022 2nd International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies, ICAECT 2022, 2022 Scopus Indexed 2022.

- Sreedevi. B ,'Disaster Management Using Blockchain and Cloud Services' Journal of Green Engineering (JGE) 10 (10)

- Dr.B.Sreedevi, P.Rayavel," Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled',AIP Publications,Scopus Indexed 2019.

- Sreedevi. B, Pachhaiammal@Priya M, T.Ragunthar, 'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms', International Journal of Pure and Applied Mathematics,Vol.117,no.21,2017.

- Dr.B.Sreedevi, Pachaiammal @Priya. M ,'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ',IEEE Digital Library and Scopus Indexed,Publication Year: 2018, Page(s):6 – 11
- Sreedevi, B ,'Analysis of Performance Metrics with Mesenchymal Stem cell Classification and Optimization Algorithms' ,International Journal of Creative Research Thoughts (IJCRT) 5 (4), 2613-2618,2017

- Sreedevi, B & Rajagopalan, SP 2015, 'Examine and Extraction of Optimized Stem Cells Using Image Processing', Australian Journal of Basic and Applied Sciences, vol. 9, no. 10, Special 2015, pp. 1-5.

- Sreedevi. B, Abheek Kumar Srivastava, Ashwin Venkataraman,' Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm', International Journal of Advanced Research in Computer Science and Software Engineering, Volume 3, Issue 10, October 2013, ISSN: 2277 128X

- B.Sreedevi, Dr.S.P.Rajagopalan,' Analysing Stem Cells Using Transformed Stem Cell Algorithm ', International Journal of Applied Engineering Research (IJAER), Volume 10, Number 75 (2015) .

- Pradeep Kumar Sahoo, S. P. Rajagopalan, Sreedevi B, Pachhaiammal@ Priya.M,' Web Content Mining Based Relevant Text Data Extraction', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.186-193.

- Pachhaiammal@Priya M, S.P.Rajagopalan, B.Sreedevi and Pradeep Kumar Sahoo,' Analysis methods and mining of brain functional connectivity for detection of brain disorders', International Journal of Applied Engineering Research (IJAER),Vol 75(2015)pp.258-262.

1.13 International & National Conferences

- **Dr.B.Sreedevi, 'Decentralized Application for managing the Disaster with Block chain, Cloud &IOT',International Conference on Computer and Information Sciences at University of PETRONAS, Malaysia during JULY 13-15,2021.**

- A Unified and Semantic Model Approach for Histopathologic Cancer Detection Based on Deep Double Transfer Learning" 2022 2nd International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies, ICAECT 2022, 2022 Scopus Indexed 2022.

- C Rosewelt L, A., Sreedevi, B., Gomathi Shivani,"An Effective Detection of Version Number Attacks in the IoT using Neural Networks", 2022 2nd International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies, ICAECT 2022, 2022 Scopus Indexed 2022.

- Dr.B.Sreedevi, P.Rayavel Playing Games in Computers without Physical Interaction Using Electroencephalography for Differently Abled', NATIONAL CONFERENCE ON MATHEMATICAL TECHNIQUES AND ITS APPLICATIONS (NCMTA – 2019) AT SRM UNIVERSITY FROM 11-12 JANUARY 2019.

- Dr.B.Sreedevi, Pachaiammal @Priya. M ,'Analysis of Performance Metrics with Mesenchymal Stem Cell Classification and Optimization Algorithms ',International Conference on Communication, Computing & Internet of Things, held at Sri Sai Ram Engineering College, Chennai, India from 15-17 February 2018.

- Dr.B.Sreedevi,P.Rayavel, National Conference on Mathematical Techniques and its Applications(NCMTA) held at SRM University, Chennai, India from 11-12 January 2019.

- B.Sreedevi, Dr.S.P.Rajagopalan, 'Analysing Stem Cells Using Transformed Stem Cell Algorithm 'International Conference On Computing And Information Technology (ICCIT '15)

- Sreedevi, B, Abeek Kumar Srivastava & Ashwin Venkataraman 2013,'Treatment of Hepatocellular Carcinoma with Stem Cells Algorithm', Proceedings of the International Conference on Recent Trends in Computing(ICRTC 2013) ,4th & 5th October 2013, pp. 32-27.

- Sreedevi, B & Rajagopalan, SP 2015, 'Analysing Stem Cells Using Transformed Stem Cell Algorithm', Proceedings of the International Conference on Computing and Information Technology (ICCIT'15), 13th &14th August 2015, pp. 96-100.

- Sreedevi, B & Rajagopalan, SP 2015, 'Examine and Extraction of Optimized Stem Cells Using Image Processing', Proceedings of the National Conference on Recent Enhancement In Advanced Computing Technologies - 'React'15' On 27th March, 2015.

- B.Sreedevi, E.Madhumitha, M.Kalaiselvi,'Automatic Classification Of Intracardiac Tumor And Thrombi In Echocardiogram Using Adaptive Co- Segmentation', Proceedings of the National Conference on Recent Enhancement In Advanced Computing Technologies - 'React'16'

1.14 Workshop & Conferences

- AICTE-Smart India Hackathon Coordinator since 2017.
- Coordinator for TEDX-SriSairamIT and Hackathon Events.
- Organized first International Conference on Computing and Information Technology (ICCIT'15) during 2015.
- Organized a Staff development programme on "Soft Computing with AI" sponsored by AICTE for Rs.700000/- during 2011.
- Organized National Conferences on "Information & Communication Engineering Systems"-NICE '11, NICE'17 and NICE'18.
- International Seminar on "Recent Trends in Computer Technology" by Dr.Emerson Raja Joseph, Multimedia University, Malaysia during 2014.
- National Event on" CSI Golden Tech Bridge Programme" by Computer Society of India during 2014.

- FDP on Python Programming by ICTACT of Tamilnadu during 2018.
- Attended a seminar on “Stem Cell and Regenerative Medicine” during Nov 2016 at Anna University
- Delivered a session in FDP on “Internet Programming” at Loyola ICAM Institute of Technology, Chennai
- Attended STTP in Pondicherry Engineering College during 2016 on “Recent trends in optimization techniques”.
- Attended FDP on “Hadoop” conducted by ICTACT at Sri Sai Ram Institute of Technology during 2016.

Name :**Dr.G.SHANMUGASUNDAR**

Designation : **AssociateProfessor & DeanR&D**

Email :shanmugasundar.mech@sairamit.edu.in

Communication Address : Associate Professor / Department of Mechanical Engineering
Sri Sai Ram Institute of Technology
Sai Leo Nagar , West tambaram , Chennai -44 .
Mobile: 9941380398

https://scholar.google.co.in/citations?user=QxtH7-8AAAAJ&hl=en
https://www.scopus.com/authid/detail.uri?authorId=57208956759
https://vidwan.inflibnet.ac.in/profile/178711
https://www.webofscience.com/wos/author/record/2208736
https://orcid.org/0000-0002-5608-7737
https://www.linkedin.com/in/dr-g-shanmugasundar/

Qualification : B.E., M.E,Ph.D

Specialization : MechanicalEngineering

ResearchInterest : Robotics, Mechatronics System Design, CAM & CNCoptimization

Experienceinyears : **Teaching**UG 14 PG 06 **Industry** ~~Nil~~

No. of Workshop/Conferences/
FDP /Webinarattended : Workshop &Webinar 45 Conferences 16 FD P 18

No. of Workshop/Conferences/
FDP/WebinarOrganized :Workshop&Webinar 26 Conferences 06 FD P 06

Publications	National : 04
	International: 36
	Book : 04
Research Funded Projects	04 – (DST –TEDP , DST – EAC , IIC mentor mentee program) as Co-Coordinator
Consultancy	02
Patents	10
Academic Achievements	Academic Project funded by Tamilnadu State Council Science and technology 02 Times. Appreciation reward for 100 % results

2 List of Publications:

1. **Shanmugasundar, G**., Mahanta, T. K., Čep, R., &Kalita, K. (2022). Novel Fuzzy Measurement Alternatives and Ranking according to the Compromise Solution-Based Green Machining Optimization. In Processes (Vol. 10, Issue 12, p. 2645). MDPI AG. https://doi.org/10.3390/pr10122645.

2. **G. Shanmugasundar,** S. Gurudarshan, N. Kirubaharan, & M.S. Sundar. (2022). Design and Development of Tank Cleaning and Inspection Robot. Journal of Pharmaceutical Negative Results, 1009–1012. https://doi.org/10.47750/pnr.2022.13.S03.156.

3. **G. Shanmugasundar,** G. Manoj Kumar, S.E. Gouthem, & V. Surya Prakash. (2022). Design and Development of Solar Powered Autonomous Seed Sowing Robot. Journal of Pharmaceutical Negative Results, 1013–1016. https://doi.org/10.47750/pnr.2022.13.S03.157.

4. **Shanmugasundar G**, Sapkota G, Čep R, Kalita K. Application of MEREC in Multi-Criteria Selection of Optimal Spray-Painting Robot. Processes. 2022; 10(6):1172. https://doi.org/10.3390/pr10061172.

5. **Shanmugasundar G**, Fegade V, Mahdal M, Kalita K. Optimization of Variable Stiffness Joint in Robot Manipulator Using a Novel NSWOA-MARCOS Approach. Processes. 2022; 10(6):1074. https://doi.org/10.3390/pr10061074.

6. **Shanmusundar, G**., Krishana, A. A., Anand, S. M., Kanna, P. K., &Yamini, A. (2022). Design and development of voice controlled robotic wheel chair for handicapped people. In RECENT TRENDS IN SCIENCE AND ENGINEERING. RECENT TRENDS IN SCIENCE AND ENGINEERING. AIP Publishing. https://doi.org/10.1063/5.0074458.

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8. **Shanmugasundar, G**., Dharanidharan, M., Vishwa, D., Gokul, P., &Manojkumar, L. (2022). A study on design of universal gripper for different part handling: Methods, mechanisms, and materials. In RECENT TRENDS IN SCIENCE AND ENGINEERING. RECENT TRENDS IN SCIENCE AND ENGINEERING. AIP Publishing. https://doi.org/10.1063/5.0074452.

9. **Shanmugasundar, G**., Gowtham, M., Aswin, E., Surya, S., &Arujun, D. (2022). Design and fabrication of multi utility agricultural vehicle for village farmers. In RECENT TRENDS IN SCIENCE AND ENGINEERING. RECENT TRENDS IN SCIENCE AND ENGINEERING. AIP Publishing. https://doi.org/10.1063/5.0074457.

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structural applications. Materials Today: Proceedings, 46, 3439–3443. https://doi.org/10.1016/j.matpr.2020.11.781

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48. **G. Shanmugasundar**and R. Sivaramakrishnan, "Software Development for an Inverse Kinematics of Seven- Degrees of Freedom Newly Designed Articulated Inspection Robot," Int. J. Comput. Appl., vol. 58, no. 18, 2012, doi: 10.5120/9384-3858.
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BOOK CHAPTERS PUBLISHED :

1. **Shanmugasundar, G.,**Dr, &Goutham, M., Mr. (2022). Survey on Artificial Intelligence Based Autonomous Inspection Systems for an Industry 4.0. In Design, Modelling and Fabrication of Advanced Robots (Vol. 1, Issue 1, pp. 06–14). REST Publisher. https://doi.org/10.46632/dmfar/1/1/2.

2. **Shanmugasundar, G.,**Mr, &Ajithkumar, E., Mr. (2022). Performance Analysis of Automated Air Pollution Removable System with Fire Indicator. In Design, Modelling and Fabrication of Advanced Robots (Vol. 1, Issue 2, pp. 91–94). REST Publisher. https://doi.org/10.46632/dmfar/1/2/5.

3. **Shanmugasundar, G.,**Mr, Bharath Ganesh, S., Mr, &Rathnavelu, P., Mr. (2022). Design and Fabrication of Drone Ambulance for Emergency Medication. In Design, Modelling and Fabrication of Advanced Robots (Vol. 1, Issue 2, pp. 95–98). REST Publisher. https://doi.org/10.46632/dmfar/1/2/6.

4. **Shanmugasundar,** G., Dr, Manoj Kumar, G., Mr, Gouthem, S. E., Mr, Surya Prakash, V., &VijaiKarthik, R., Mr. (2022). Development of iot Based Water Quality Control and Filtration System. In Design, Modelling and Fabrication of Advanced Robots (Vol. 1, Issue 1, pp. 01–05). REST Publisher. https://doi.org/10.46632/dmfar/1/1/1.

3 PATENTS DETAILS:

1. Patent Published, Patent No. 201741042997 – "Exo Skeleton Arm using Block andTackle Mechanism' -08.12.2017.

2. **Patent granted,** Patent No . 201841025468 " AnExo Frame Structure UtilizingElectrical Actuators For Arm Rehabilitation And Effortless Load "– "09.07.2018.

3. Patent Published, Patent No- 202041011372 "A Seven Degrees Of Freedom Serial Robotic Manipulator For Detecting And Rectifying The Weld Defect On The Circumference Of The Storage Steel Cylindrical Canister" -27/03/2020

4. Patent published , Patent no - 202041044652 "An Automatized Load Carrying Electric Vehicle with Custom Path Navigation" -14/10/2020.

5. Patent published , Patent no- 202141046635 , "An Automated Guided Mobile Robot With Image Recognition", -03/12/2021.

6. Patentpublished , Patent no – 202141048478, "A Robotic Device To Clean Tanks/Drums", - 26/11/2021.

7. Patent published , Patent no 202141026318," An Integrated Farming Equipment With Iot Control And Photovoltaic Arrangement" -14/06/2021.

8. Patent published , Patent no 202241048098 "A Wheel Chair Convertible To A Transportable Stretcher Based On Human Interactions- 24/08/2022.

9. Patent published , Patent no 202241051542 "Neuro signal and voice data controlled travelling equipment - 09/09/2022.

10. Patent published , Patent no 202241051513 “An Artificial Intelligence Based Inspection Device” - 09/09/2022.

11. Patent published , Patent no 202241076703 “Brain Computer Interfaced (Bci) System For Non Contact Controlling Of The Navigational Device To Assist The Physically Challenged Users “ - 29/12/2022.

12. Patent Filled, Patent no 202241077127 “Multi-Purpose Ornithopter For Industrial Safety Monitoring “ - 30/12/2022.

13. Patent published , Patent no 202241076700“Brain Computer Interfaced (Bci) System For Non-Touch Remote Controlling Of The Household Electrical Devices Providing Home Automation” - 29/12/2022.

Application: 96981560059698 | General

Supporting and Empowering Communities to think about child abuse, hygiene and rural development.

Started at: 2/20/2023 01:32 AM - Finalized at: 2/25/2023 03:37 AM

Page: IEEE Pre-University STEM Grant Application 2023

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Unit Type

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Region 10

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No

IEEE Section

MADRAS SECTION

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Resource Category

Game, STEM Kits, Other

Engineering Discipline

Communication Engineering , Electrical Engineering , Other

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Organizational Unit (OU) Role of Primary Contact

STUDENT BRANCH COUNSELLOR

Secondary Contact Name

Ms.G.VALARMATHI

Secondary Contact Email

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Did you receive an IEEE STEM Grant prior?

No

Program, Event & Resource Status

Starting a new program/event/resource

Level of Funding Requested

Up to $500 (20-40 grants available)

Total Funding Requested (USD)

500

Program Description & Background

There are huge developmental disconnects between the rural and urban sectors such as inequity in health, education, incomes and basic amenities as well as employment opportunities - all causing great discontent and large-scale migration to urban areas. Hence Sri Sairam Institute of Technology through Unnat Bharat Abhiyan have adopted five villages
1. Pazhanthandalam
2. Nallur
3.Erumaiyur
4.Thirumudivakkam
5. Puduppair around our campus.
A team has been formed in the name of "UBA tech team" for interaction with the people .Every one month we conduct surveys to know their difficulties and will try to solve them. From the surveys we came to know the need of the village and planned to conduct a program through STEM.
Regular meeting were conducted with the village people to collect their needs and setting up of development of goals for their happy and peaceful life.
we identified certain problems which need to be addressed immediately.
1. Teaching the basic electrical connections and repairing required for daily needs like tube light , fans , grinder servicing.
2. Creating awareness to girls students regarding education , marriage
3. Awareness to parents regarding child marriage.
4. Educating the importance of first aid for any emergencies.
5. Medical camp to improve their health consciousness.

The you tube link

https://youtu.be/XPiipt00aXw

we are planning to implement to conduct this program in NALLUR village .

Target Audience

Students aged 11-13, Students aged 14-18, Educators teaching ages 14-18, Parents with children ages 2-4, Parents with children ages 11-13, Parents with children ages 14-18

Anticipated # of Participants

Expecting
1. 60 studnets
2. 10 teachers
3. 20 parents

Program Goals and Objectives

The objectives are
1. To provide tips for repairing of Electrical appliances-
2. Guidelines to girls about the importance of education and "NO" "GO" - "TELL": rules.
3. To educate the parents about the laws and child marriage .
4. ABCs of First Aid for basic ten Medical Emergencies.
5. General Medical checkup for awareness about their health

a. Target Community- Students from Age group above 16 , parents and special concentration for girl students
b. The community's challenges-
(i) They depend on the the third person to get their electrical problem rectified.
(ii) Due to ignorance in their hygienic life the diseases are increasing.
c. The significance of the problem faced - waiting for Electrician to rectify and get the problem resolved is time consuming and lack in accessibility.
d. Existing Solution - They are dependent on government employees or at the least they have to pay and get their problem resolved.
e. Proposed Engineering Solution for the problem-
(i) The training will them feel confidence and do rectify their own electrical problems.
(ii) Prevention is better than cure. Teach them how to maintain hygiene in surroundings and how to manage the environment to be healthy. Basic medical facilities to treat common ailments and especially women and children.
(iii) Educating the different types of child abuses and their symptoms to the parents and girls community .
f. How to measure the success metrics?-
(i)Taking survey and finding after one month how was it effective
(ii) Conducting Quizzes to know the level of understanding the concepts explained.
(iii) Brainstorming sessions,
i. Justification for the local community to adopt the project -
(i) Providing the education will make them feel more confident.
(ii) Provide training to villagers about their occupation, will increase their self employability .
(iii) Awareness about health and hygiene and procedures taken during emergencies will save their lives.

Timeline and Milestones

Initially , regular meets and interacting with the village people and identified various requirements
After analyzing setting up of development of goals for village development is planned

Planning to conduct the program in the month
from 10.07.2023 to 14.07.2023.
or

08.08.2023 to 12.08.2023

2. Evaluation in the month of 23-08- 2023. or 12.09.2023

Program Event Agenda

Separate file is attached

Budget

1. Electrical tool kit - 3,000
2. First aid Kit - 2,250
3. Resource person remuneration - 5,000
4. Banner - 2,000
5. Kit(notepad+pen) - 2,000
6. Brochure / pamphlet - 2,000
7. Venue - 3,000
8. Refreshments and food - 16,000
9. Prizes and certificate - 10,000
10. Miscellaneous - 5,000

Total - 50,250

Evaluation / Assessment Plan

Evaluation for electrical appliances will be done after one week of the program
After survey of the medical camp the public can be directed to take the proper treatment in our medical college.
Guidance can be provided for the students about how to proceed for higher education.
Conducting quizzes on child safety to know the depth of understanding
Brainstorming session regarding the first aid

Attachments

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Additional Attachments

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TERMS and CONDITIONS

Dr.G.Saritha

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Application: 96981560059698 | General

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2. Creating awareness to girls students regarding education , marriage
3. Awareness to parents regarding child marriage.
4. Educating the importance of first aid for any emergencies.
5. Medical camp to improve their health consciousness.

The you tube link

https://youtu.be/XPiipt00aXw

we are planning to implement to conduct this program in NALLUR village .

Target Audience

Students aged 11-13, Students aged 14-18, Educators teaching ages 14-18, Parents with children ages 2-4, Parents with children ages 11-13, Parents with children ages 14-18

Anticipated # of Participants

Expecting
1. 60 studnets
2. 10 teachers
3. 20 parents

Program Goals and Objectives

The objectives are
1. To provide tips for repairing of Electrical appliances-
2. Guidelines to girls about the importance of education and "NO" "GO" - "TELL": rules.
3. To educate the parents about the laws and child marriage .
4. ABCs of First Aid for basic ten Medical Emergencies.
5. General Medical checkup for awareness about their health

a. Target Community- Students from Age group above 16 , parents and special concentration for girl students
b. The community's challenges-
(i) They depend on the the third person to get their electrical problem rectified.
(ii) Due to ignorance in their hygienic life the diseases are increasing.
c. The significance of the problem faced - waiting for Electrician to rectify and get the problem resolved is time consuming and lack in accessibility.
d. Existing Solution - They are dependent on government employees or at the least they have to pay and get their problem resolved.
e. Proposed Engineering Solution for the problem-
(i) The training will them feel confidence and do rectify their own electrical problems.
(ii) Prevention is better than cure. Teach them how to maintain hygiene in surroundings and how to manage the environment to be healthy. Basic medical facilities to treat common ailments and especially women and children.
(iii) Educating the different types of child abuses and their symptoms to the parents and girls community .
f. How to measure the success metrics?-
(i)Taking survey and finding after one month how was it effective
(ii) Conducting Quizzes to know the level of understanding the concepts explained.
(iii) Brainstorming sessions,
i. Justification for the local community to adopt the project -
(i) Providing the education will make them feel more confident.
(ii) Provide training to villagers about their occupation, will increase their self employability .
(iii) Awareness about health and hygiene and procedures taken during emergencies will save their lives.

Timeline and Milestones

Initially , regular meets and interacting with the village people and identified various requirements
After analyzing setting up of development of goals for village development is planned

Planning to conduct the program in the month
from 10.07.2023 to 14.07.2023.
or

08.08.2023 to 12.08.2023

2. Evaluation in the month of 23-08- 2023. or 12.09.2023

Program Event Agenda

Separate file is attached

Budget

1. Electrical tool kit - 3,000
2. First aid Kit - 2,250
3. Resource person remuneration - 5,000
4. Banner - 2,000
5. Kit(notepad+pen) - 2,000
6. Brochure / pamphlet - 2,000
7. Venue - 3,000
8. Refreshments and food - 16,000
9. Prizes and certificate - 10,000
10. Miscellaneous - 5,000

Total - 50,250

Evaluation / Assessment Plan

Evaluation for electrical appliances will be done after one week of the program
After survey of the medical camp the public can be directed to take the proper treatment in our medical college.
Guidance can be provided for the students about how to proceed for higher education.
Conducting quizzes on child safety to know the depth of understanding
Brainstorming session regarding the first aid

Attachments

Download File

Additional Attachments

Download File

TERMS and CONDITIONS

Dr.G.Saritha

Subscribe to TryE Mailing List

Yes

IEEE Privacy Policy

Yes

Indian Council of Medical Research (ICMR)

Deptartment of Health Research
(Ministry of Health and Family Welfare)

Investigator-Initiated Research Proposals

Date of submission: 28-Apr-2023 03:36:20 PM

Proposal Id: IIRP-2023-6898, **Version Id:** F1, **Proposal Title:** STUDY OF EARLY PROGNOSIS OF DENGUE FEVER SURVEILLANCE SYSTEM

Personal Details of PI

Name of PI (IN BLOCK LETTERS)	DR SARITHA GANESAN	**Designation**	Assistant Professor
Email	SARITHA.ECE@SAIRAMIT.EDU.IN	**Contact**	9445134433
Date of Birth	06-Jan-1982	**Date of Superannuation**	06-Jun-2050
Nature of Employment	Permanent	**Institute**	Sri Sairam Institute of Technology

Proposal Details PART-A

Advertisement	Call for Investigator-Initiated Research Proposals for small extramural grants	**Institute**	Sri Sairam Institute of Technology
Institute Type	Private	**Valid DSIR Certificate** (Validity)	YES (20-Jan-2023)
Title of the proposed research project	STUDY OF EARLY PROGNOSIS OF DENGUE FEVER SURVEILLANCE SYSTEM		

Summary (up to 250 words): A structured summary should contain the following subheadings: Rationale/ gaps in existing knowledge, Novelty, Objectives, Methods, and Expected outcome.

Despite mass vaccination campaigns and large scaled improvements in global surveillance, infectious diseases are a worldwide problem. In recent years, the ability to use models as a tool to help visualize, understand and combat infectious diseases has become more feasible and reliable. In this context, modeling focuses on transmission patterns between the different animal, human or vector components as well as including parameters which affect these pathways such as environmental, climatic or geographic ones. The output of these models can help in decision making processes concerning control purposes, surveillance methods and hopefully also as good predictive tools. Prediction forms part of surveillance systems, and more specifically in early warning systems. It is the timely collection and analysis of data as well as the use of risk-based assessments in order to aid in prompt health interventions such as movement control, vaccination campaigns or the distribution of important information. Early warning systems for vector borne diseases are especially complex due to the involvement of various factors originating from the human, animal and insect sector as well the disease itself. The authors investigate the variety and depth of available models for dengue fever surveillance and their use as early warning tools.Early warning system (EWS) for vector-borne diseases is incredibly complex due to numerous factors originating from human, environmental, vector and the disease itself. Dengue EWS aims to collect data that leads to prompt decision-making processes that trigger disease intervention strategies to minimize the impact on a specific population. Dengue EWS may have a similar structural design, functions, and analytical approaches but different performance and ability to predict outbreaks. Hence, this review aims to summarize and discuss the evidence of different EWSs, their performance, and their ability to predict dengue outbreaks. A systematic literature search was performed of four primary databases: Scopus, Web of Science, Ovid MEDLINE, and EBSCOhost. However, the Overall, meteorological alarm indicators (temperatures and rainfall) were the most frequently used and displayed the best performing indicator. Other potential alarm indicators are entomology (female mosquito infection rate), epidemiology, population and socioeconomic factors. EWS is an essential tool to support district health managers and national health planners to mitigate or prevent disease outbreaks. This systematic review highlights the benefits of integrating several epidemiological tools focusing on incorporating climatic, environmental, epidemiological and socioeconomic factors to create an early warning system. The early warning system relies heavily on the country's surveillance system. The lack of timely and high-quality data is critical for developing an effective EWS.

Priority Area: Non-Communicable Diseases	**Priority Area diseases:** Oral health	**Area of Research**	Delivery

Friday, April 28, 2023 3: 36: 57: PM

Keywords Six keywords separated by comma which best describe your project may be provided.	Dengue EWS,Mosquito sensor, dengue prediction,SAW,GPS based risk assessment
Abbrevations Only standard abbreviations should be used in the text. List of abbreviations maximum of ten may be given as a list.	EWS - early warning system, SAW- surface acoustics wave
Problem Statement (up to 500 words): State the currently available information to present the problem adequately.	Severe dengue fever can cause internal bleeding and organ damage. Blood pressure can drop to dangerous levels, causing shock. In some cases, severe dengue fever can lead to death. Women who get dengue fever during pregnancy may be able to spread the virus to the baby during childbirth. Additionally, babies of women who get dengue fever during pregnancy have a higher risk of preterm birth, low birth weight or fetal distress.
Rationale of the study (up to 250 words) Mention how the research question addresses the critical barrier(s) in scientific knowledge, technical capability, and/or programmatic/ clinical/lab practice and its relevance to local, national and international context with relevant bibliography.	Dengue incidents are increasing worldwide. Previous studies estimated that 50 million dengue infections occur annually, and approximately 2.5 billion people are living in dengue-infested areas . In the last decades, the DF incident has increased dramatically as the geographic presence of Aedes mosquitoes expanded to new countries . Current control methods have not stopped the spread of Aedes mosquitoes and dengue virus worldwide. Currently no vaccine against dengue virus is licensed. However, a recombinant vaccine (CYD-TVD) has shown efficacy against symptomatic dengue disease . This condition has led to a worldwide resurgence of dengue and has highlighted the urgent need for a novel and sustainable device to control Aedes mosquitoes in human habitations.
Hypothesis/ Research question (up to 100 words): Please provide details	In this case report, there was no active infection of hepatitis A or B or C infection, but the patient had acute hepatitis E infection as shown by hepatitis virology and autoimmune workup.. The presenting signs and symptoms were overlapping between viral hepatitis and dengue fever, and thus, it could be hard to challenging diagnosis in an endemic area. In one study, it was found that women were infected with dengue virus and hepatitis E virus simultaneously. Another study conducted in India found that a young man was infected with dengue, HEV, and Leptospira at the same time. In epidemic regions, a physician should be vigilant for identifying such coinfections.
Study Objectives (up to 25 words/ objective) Define the objectives clearly and in measurable terms; mention as primary and secondary objectives, if necessary. Do not include more than 3-4 objectives.	The Primary objective of the study is to predict the affected region and provide the necessary treatment at the earliest. 1. To develop real time database of Surveillance system 2. To collect a time series of Dengue Disease which includes, personal attributes, clinical attributes, serological attributes and Geographical attributes. NA

Methodology Include objective-wise work plan under the following sub-headings:

#	Study Design	Study Site	Methods (e.g. PICO)	Sample Size	Implementation Strategy	Statistical analysis	Ethical issues
1	NA	NA	NA	NA	NA	NA	NA
2	NA	NA	NA	NA	NA	NA	NA
3	NA	NA	NA	NA	NA	NA	NA
4	NA	NA	NA	NA	NA	NA	NA

Expected outcome/ Deliverables aligned with research question (up to 100 words):	The expected outcome to be achieved by precise surveillance using mosquito sensors and the data of analysis expected to be stored in the database for further references. so that the threat of the diseases can be reduced and decrease the death rate.
Future plan based on expected outcomes	To develop a complete monitoring system to which the mosquito is sensed and the data are stored in a database and a risk is analyzed using an analysis graph through which the treatment can be done earlier to the affected region. Due to these sensors the affected region can be recognised at the earlier and the preventing measure can be taken at the earlier. This will provide surveillance and the spread of dengue fever can be reduced.

Whether the study is going to generate new intellectual property	If the complete analysis system is developed, then the project can be generated to new intellectual property and can attain the pattern rights.
Timelines with achievable targets	View

Proposal Details PART-B

Preliminary work done by the PI including the source of funding (up to 250 words):	The project work focuses on the health of the civilians who are at high risk of dengue infection. As we have adopted the village under our institution, we have planned to implement the surveillance system. We visited the village and planned to implement a medical camp.We are creating a portable model of mosquito sensor and kept for surveillance of mosquitoes in that zone. Then we have planned to maintain a regular medical camp for our college medical team. By controlling the diseases with early prediction and analysis of the data by generating the report.
Skill and experience of the research team Highlight only salient points (along with 5 relevant publications) that provides confidence to reviewers that team can implement the project with quality.	Our institution has availability of medical resources.So it is easy to implement the surveillance system.we have experienced doctor’s who maintain and take care of the medical camp.
Institutional Support/ Facilities	In Our institution the student branch of IEEE and UBA(Unat Bharat Abhiyan) collaborated to develop a promising project which helps the people who are unable to take treatment.
Laboratory facilities (in-vitro/ in-silico) Institutional resources such as instruments/ equipment and other physical resources available for use in the project proposed animal house etc.	The disease is analyzed in our institution's medical college laboratories.
Conflict of Interest declaration (if any)	I understand that if I, my family members and close relatives and personal friends have any direct or indirect interest in any company which has business dealings with the Owners' Corporation, I shall make a declaration to the Management Committee.
Duration (in Months)	24 Months

Investigator Details

#	Name	Institute	Designation	Email	Contact No.	Role in Proposal
1	Dr SARITHA GANESAN	Sri Sairam Institute of Technology	Assistant Professor	saritha.ece@sairamit.edu.in	9445134433	PI
2	Dr Palanikumar K	Sri Sairam Institute of Technology	Professor	palanikumar@sairamit.edu.in	9677053338	Co-PI
3	Ms VALARMATHI G	Sri Sairam Institute of Technology	Assistant Professor	valarmathi.ece@sairamit.edu.in	9789992329	Co-PI

Documents consideration

#	Document Name	Is Applicable?	Uploaded Document	Remarks	Action
1	Declaration & Attestation Form(duly signed by Head of Department/ Director)	Yes	View	ATTACHED	
2	Declaration & Attestation Form(duly signed by Head of Department/ Director)	Yes	View	ATTACHED	
3	Additional supplementary information including figures tables flow diagrams etc	Yes	View	ATTACHED	

Budget Details

Year	Institute Name	Manpower	Contingency	Equipment	Travel	Overhead Charges	Total Budget (Rs.)
Year: 1	Sri Sairam Institute of Technology	600,000.00	140,000.00	350,000.00	50,000.00	10,000.00	1,150,000.00
Year: 2	Sri Sairam Institute of Technology	600,000.00	140,000.00	350,000.00	50,000.00	10,000.00	1,150,000.00

Budget Breakup Details (Staff/Manpower)

#	Budget Year	Institute	Designation	No. of Person(nos)	Require Month(nos)	Cost Per Person(Rs.)	Total Cost(Rs.)
No Record							

Budget Breakup Details (Contingency)

#	Budget Year	Institute	Contingency Name	Total Cost(Rs.)	Justification
No Record					

Budget Breakup Details (Equipment)

#	Budget Year	Institute	Equipment Name	Equipment Model	Equipment Manufacturer	Equipment Type	Total Cost(Rs.)	Justification
No Record								

Declaration

I hereby declare that the entries in this form and the additional particulars, if any, furnished herewith are true to the best of my knowledge and belief. I understand that in the event of my information being found false or incorrect at any stage, my project/proposal shall be liable to cancelation / termination without notice or any compensation in lieu thereof.

All India Council for Technical Education

(A Statutory body under Ministry of HRD, Govt. of India)
Nelson Mandela Marg, Vasant Kunj, New Delhi-110070 Website: www.aicte-India.org

AICTE Training and Learning (ATAL) Academy (Online FDP)

F. No.01.App No.1650524193/AICTE/ATAL-HQ/2022-23/770 **Date: 23/09/2022**

To

Assoc. Prof. Muthamizhan. T
Coordinator for ATAL Online FDP,
Sri Sai Ram Institute of Technology
Sai Leo Nagar
Kanchipuram - 600 044 TAMIL NADU

Sub: Release of a sum of Rs.3,00,000/- [Rupees Three Lakhs Only] for AICTE Training and Learning (ATAL) Academy Blended/Hybrid FDPs/CPDPs.

Sir,

This is to convey the sanction of the Council for payment of **Rs. 3,00,000/- (Rupees Three Lakhs Only)** for conducting of online AICTE Training And Learning (ATAL) Academy FDP/CPDP **Electrical & Computer Engineering from 10.10.2022 to 21.10.2022 to Sri Sai Ram Institute of Technology, Kanchipuram - 600 044** under **AICTE Training and Learning (ATAL) Academy.**

This fund is being released **in conformity** with the terms & conditions as well as norms of the scheme as already communicated and also being communicated in this letter.

The instructions/guidelines to be followed by University/Institution

I. Release of funds and maintenance of accounts

a. The University/College/Institute shall maintain proper accounts of the expenditure out of the grants, which shall be utilized only on approved items of expenditure.

The cost for conducting per programme will be Rs.3,00,000/- as per detail given as under:

1.	Honorarium for Coordinator	Rs.	10,000/-
2.	Honorarium to Co-Coordinator	Rs.	7,000/-
3.	Honorarium to Computer Operator	Rs.	1,000/-
4.	Honorarium for experts (*Rs.5000 per session for total 14 session*)	Rs.	70,000/-
5.	Provision for payment to Three Lab Technicians engaged during lab practices @ Rs.5,000/- per programme per lab Technician	Rs.	15,000/-
6.	TA/DA to Experts engaging sessions (lump sum)	Rs.	32,000/-
7.	Refreshment & Lunch (Rs.350/- per head for 50 Trainees for 5 Days	Rs	87,500/-
8.	One Book each for 20 participants as reward	Rs.	10,000/-
9.	Miscellaneous charges*(Petty expenses not covered above)*	Rs.	5,500/-
10.	Hands on training material, Consumable items, etc., (reimbursed on actual basis)	Rs.	62,000/-
	TOTAL:	**Rs.**	3,00,000/-

Programmes having permission to change amounts under different heads with overall ceiling of Rs 3.0 lakh being intact.

c. The grant is subject to the adjustment on the basis of Utilization Certificate in the prescribed proforma to be submitted by the University/College/Institution. Further, the accounts of the institute will be open for test check by the Council or Controller & Auditor General of India or any other officer designated by them.

II. Distribution of funds to Institutions

The full amount of the grant sanctioned will be released as an advance (i) Rs.2.38 lakh (ii) Rs.62,000/- on actual basis to the University/Institute through electronic transfer on the account of the University/Institute after submission of mandate form.

III. Conduct of test and issuance of certificate

a. A test shall be conducted by coordinator at the end of the program.

b. The certificates shall be issued to those participants who have approved by coordinator attended the program with minimum **80% of attendance** and scored **minimum 70% marks** in the test.

IV. Submission of documents by University/Institution

a. The following mandatory relevant documents are required to be submitted by the University/Institution within one month of the completion of the program -

(i) List of candidates who have successfully completed the program on the basis of the test conducted by Program Coordinator.

(ii) A program completion report along with photographs, videos, media report is to send after the completion of workshop along with the list of participants and Utilization Certificate, Expenditure Statement and feedback form etc. within one month of conduct of **AICTE Training and Learning (ATAL) Academy programme**.

b. The amount of the grant shall be adjusted on submission of utilization certificate & detailed expenditure statement by University/Institution. On receipt of these documents, the total amount of financial assistance, admissible as per the norms, shall be worked out and grant-in-aid shall to adjust.

V. General Instructions

a. **Maximum 50 (minimum 30) participants** may be allowed to attend blended FDP/CPDP within 100 km of host institutes. However, AICTE officials may be allowed to attend over and above the maximum limit.

b. A test has to be conducted on the last day accordingly Scheme Document 2022-23 and those who score more than 70% will be termed as successful candidates. Those who have **attendance 80% or more** and also **score more than 70% in the test** will be issued a **digital certificate.**

c. The **sessions are to be recorded** as the facility is available on the software which is being used for online delivery of FDP/CPDP. You are also requested to upload recording on YouTube of Google drive.

d. Eligibility

For Institutions (Both Technical & Non-Technical)

(i) The government funded institutions like IITs, IIMs, NITs, IITs Universities, State Universities/Institutions/Research Institutions other government organizations and PSUs.

(ii) Private organization / institutions having overall NIRF ranking up to 200 or NAAC grade A++ or Department conducting FDP/CPDP having full NBA accreditation.

(iii) Industry/Training Institutions (Experience in Relevant training in last 5 Years).

(iv) Coordinator must be a full time regular faculty/instructor/trainer etc. & having knowledge and experience to conduct blended FDP/CPDP.

For Participants:

(i) The faculty members of the AICTE approved institutions, Research Scholars, PG, Scholars. participants from Government, Industry (Bureaucrats/Technicians/Professionals/School Teachers and staff of host institutions.

To be nominated by the Institute

(ii) Not more than 10% from Host Institution

(iii) Maximum 50 (minimum 30) participants may be allowed to attend blended FDP/CPDP within 100 km of host institutes. However, AICTE Officials may be allowed to attend over and above the maximum limit.

(iv) Participants shall bear the cost of travelling and boarding/lodging if he/she wishes to attend ATAL FDP/CPDP. However, refreshment & lunch would be provided for free.

ATAL FDPs/CPDP are free, and No fee will be charged from any participant attending ATAL FDP/CPDP.

e. If programme is not conducted in the financial year 2022 only, the released amount has to be returned back to AICTE.

f. Any extra money required to complete the programme must be borne by the institute from their own resources but the quality of the activities should not be compromised.

g. FDP/CPDP Title Name, Name of Coordinator, Institute Name is not allowed to change without permission; however scheduled dates may be changes with information to ATAL Academy Cell and Regional Office.

This Sanction Order may be treated as Offer Letter for all purposes.

Yours sincerely,

[M. SURYAPRASAD]
REGIONAL OFFICER
AICTE, SRO, CHENNAI

Copy forwarded for information and necessary action to: -

1. The Dean, Sri Sai Ram Institute of Technology, Sai Leo Nagar, Kanchipuram - 600 044 .....for information.
2. **ATAL Academy Cell AICTE HQ**
3. **Guard File.**

Annexure-III

AICTE Training And Learning (ATAL) Academy Programme

STATEMENT OF EXPENDITURE

AICTE File No.(Sanction letter file No.) :F.No.01, App No.1650524093/AICTE/ATAL-HO/2022-2023/770 Dated 23-09-2022.

Title of the Programme : AICTE TRAINING AND LEARNING (ATAL) ACADEMY SPONSORED TWO WEEK FDP on "Power Electronics applications to renewable energy systems, Electric vehicles and intelligent control" from 10.10.2022 to 21.10.2022

Application No. :

Name of the Coordinator : Dr.Muthamizhan .T
Associate Professor / EEE, Sri Sai Ram Institute of Technology-Chennai

Sanction No.and Date	Grant Sanctioned	Details of expenditure Incurred Item wise	Amount Rs. (in each head)	No.of Participants	Duration of the Programme (with dates)
23-09-2022	Rs 3,00,000	1. Honorarium to Coordinator	10,000	46	TWO WEEKS (10.10.2022 to 21.10.2022)
		2. Honorarium to Co-Coordinator	7,000		
		3. Honorarium for computer operator	1,000		
		4. Honorarium for experts (Rs. 5000/session for 14 sessions)	70,000		
		5. Provision for payment to Three Lab Technicians engaged during lab practices @ Rs.5000/-per programme per lab Technician	15,000		
		6. TA/DA to Experts engaging sessions	32,000		
		7. Refreshment & Lunch	87,500		
		8. One book each for 20 participants as reward	10,000		
		9. Miscellaneous charges (petty expenses not covered above)	5,500		
		10. Hands on training material, Consumable item; etc	62,000		
		Total	**3,00,000/-**		
		Grant Received	**3,00,000/-**		
		Balance to be Received	**Nil**		

(1) Name and Signature of Coordinator
Dr. T. Muthamizhan, M.E., Ph.D.,
Associate Professor
Department of Electrical & Electronics Engineering,
Sri Sai Ram Institute of Technology
Sai Leo Nagar, West Tambaram, Chennai - 600 044.

(2) Name and Signature of Head of Institution with Seal
Dr.K.PALANI KUMAR
PRINCIPAL
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044.

(3) Signature (with Seal) of the Finance Officer/ Auditor/Accounts Officer
(If it is Govt./Govt. Aided Institute)

(4) Signature of Chartered Accountant:
Name of Chartered Accountant:
Membership No:
Firm's Regn. No.
Full Address:
Date:

For P.T. PONNAIAH & CO.,
Chartered Accountants
04.01.2023
(P.T. PONNAIAH)
Partner, M. No. 019873)
UDIN: 23019873BGUKEV2925

3/4

ANNEXURE XII

SRI SAI RAM INSTITUTE OF TECHNOLOGY, Chennai-44

UTILIZATION CERTIFICATE FOR THE FINANCIAL YEAR 2022-2023.

Name of the Scheme under which Grant was sanctioned AICTE Training And Learning (ATAL) Academy Programme - FDP

AICTE File No. : F.No.01. App No.1650524193/AICTE/ATAL-HQ/2022-2023/770 Dated 23-09-2022

Name of Co-ordinator : Dr.Muthamizhan .T

Application No. : **1650524193**

Title of the ATAL Programme : AICTE TRAINING AND LEARNING (ATAL) ACADEMY SPONSORED TWO WEEK FDP on "Power Electronics applications to renewable energy systems, Electric vehicles and intelligent control" from 10.10.2022 to 21.10.2022

Sl. No.	AICTE Sanction Order/Letter No. & Date under which grant was sanctioned	Amount (Rs.)	
1.	F.No.01. App No.1650524193/AICTE/ATAL-HQ/2022-2023/770 Dated 23-09-2022	3,00,000	Certified that out of the grant-in-aid of **Rs.3,00,000/-** (Three Lakhs) sanctioned by the AICTE during the financial **year 2022-2023** in favour of **Sri Sai Ram Institute of Technology** as per letter mentioned in the margin, **Rs.Nil** on account of unspent balance of previous year, **Rs. Nil** on account of other income / receipts, a sum of **Rs.3,00,000/-** has been utilized for the purpose for which it was sanctioned and the balance of **Rs. Nil** remained unutilized at the end of the year.

Certified that I have satisfied myself that the conditions on which the grant-in-aid was sanctioned have been duly fulfilled and that I have exercised the following checks to see that the money was actually utilized for the purpose for which it was sanctioned.

Kinds of checks exercised: -

1. Audited Annual Accounts of the Institute 2. Receipt and Payment account 3. Periodical Progress Reports.

(1). Name, Signature & Address of the Claimant/Awardee/Coordinator with seal: (T. Muthamizhan)

(2). Signature of Chartered Accountant:
Name of Chartered Accountant:
Membership No:
Rubber stamp:
Full Address:
Date: 04-01-2023
(P.T. PONNAIAH)
Partner, M. No. 019873)
UDIN: 23[illegible]BAUKV2925

(3). Signature of Head of the Institute:
Name & Designation of the Head of Institute:
Rubber stamp:
Full Address:
Date:
DR.K.PALANI KUMAR
PRINCIPAL
SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044.

(4). Signature of the Finance Officer/Accounts Officer:
Name of the Finance Officer/Accounts Officer:
(If it is Govt./Govt. Aided Institute)

NextGen Learning and Class Room Management Based on ARVR Using Laptop as a Hub

Reference No. : 132022001299

Saved By : Dr. BRINDHA DEVI DEVI
Saved Date : 27-Aug-2022

PROPOSAL DETAILS

Dr. BRINDHA DEVI DEVI
hodit@sairamit.edu.in
PROFESSOR & HOD (INFORMATION TECHNOLOGY)
Sri Sairam Institute of Technology
Sairam college rd, sai leo nagar, west tambaram, chennai, tamil nadu , Chennai, Tamil nadu-600044
[College (Private)]

Technical Details :

Scheme : State University Research Excellence (SERB SURE)

Research Area : Electrical Electronics & Computer Engineering (Engineering Sciences)

Duration : 36 Months

Contact No : +918754582225

Date of Birth : 05-Aug-1979

Nationality : INDIAN

Total Cost (INR) : 29,12,000

Project Summary :

Laptops are a crucial learning tool for students and teachers in most institutions. However, some instructors and teachers discourage and restrict students from using laptops in the classroom environment. Initial laptop models do not give the creators the proper guidelines and educational content because of inadequate features like small screens, low-resolution cameras, and voice calls. The traditional classroom learning process encourages the Face-to-Face (F2F) interaction of teacher and students, increasing student learning and absorbents. In addition, if the students miss any content, teachers can put the additional effort and increase the student learning activities. Hence, the improvement of next-generation learning is enhanced by the E-learning concept. The E-learning process has several technologies, laptops, mobile more and sensors to improve the overall learning process. The laptop assiststhe learning process and has many tools, applications and devices that enable teachers to boost their teaching process. Suppose the teacher hasan excellent understanding of techniques and laptops causes to making easier. Moreover, the laptop-based learning and teaching process improves education growth.Integrating computer technologies in the classroom learning process enhances the learning process. The laptop-based learning process has several advantages, such as high-level student engagement, teamwork, collaborations, students' preparation for the future, teaching outcome improvement, and managing connection between teachers and students. Even though laptop-based learning highly supports the education system, it has several challenges in the class environment. Numerous factors such as ongoing support, ease of use, cost and understanding affect the laptop-based learning process. In addition, students may misuse the technologies, requires continuous professional development, the student must be auditing continuously, and new technology costs and changes highly influence laptop-based classroom learning. Therefore, this research investigates the highlights and positive perceptions of laptop-based learning and teaching processes. To achieve this research objective, more than 50 teachers and students are utilized in this study. The study uses the teacher's teaching and students' performance, which is investigated by the continuous survey. According to the questionaries, the impact of the laptop

Objectives :

• In modern learning, additional hardware such as multiple camera feeds, display devices, intelligent collaborations, binaural audio, ergo assessment, ergo sensors, and doodle pad are incorporated with the laptop to improve the teacher's teaching process. Introducing the Optimized Neural Model-based Artificial Intelligence techniques in the learning process to assess the student attentiveness and engagement level. Integrating the Artificial Intelligence (AI) techniques related to devices to overcome the difficulties involved in the low-audio related feature analysis. New sensors are incorporated with the laptop to monitor the student's exercise and stretch by the PET teachers

Keywords :
Nextgenerationlearning.

Expected Output and Outcome of the proposal :

This research study gathers student and teacher information from various questionnaires and surveys. To achieve this research objective, more than 50 teachers and students are utilized in this study. The study uses the teacher's teaching and students' performance, which is investigated by the continuous survey. According to the questionaries, the impact of the laptop in learning and teaching in higher-educational institutions is analyzed to improve student performance in current and future learning. Three main questions guided this study: (1) How did educators and learners use laptop computers in their teaching space to attain instructional objectives? (2) In what way did access to laptops impactlearners' attitudes headed forlaptops and school compared to their non-laptop students? (3) By what means did the learner use of laptop provision learning progressions

Any other relevant information:

This study aimed to develop sensor-based Internet of Educational Things (IoET) learning device (i.e., laptop) to expand the prevailing mobile devices and help higher education. Online Physical Education (PE) refers to anexclusive set of challenges in transforming conventional PE into digital space while meeting similar benchmarks, curriculum, and evaluation standards of conventional courses. New sensors are integrated with the laptop to monitor the student's exercise and stretch by the PET teachers. There is much to look into, from high-speed internet to steady video quality and a noiseless environment. A key area often undermined in virtual classrooms is the need for high-quality audio. To maximize student engagement, clear and consistent audio is critical to the overall learning process. This study introduces the Artificial Intelligence-assisted Optimized Convolutional Neural Network Model (AI-OCNNM) to assess the student attentiveness and engagement level in online learning.

Suitability of the proposed work in major national initiatives of the Government:

Innovate India

Theme of Proposed Work:

Cyber Physical Systems including AI, IOT and Cyber Security

Collaboration Details for last 5 Years :

Planned Collaboration for the proposed work with any foreign scientist/ institution ? **No**

SNo.	CO-PI Details
1	 **SAMPATH RAJARAM** sampath.it@sairamit.edu.in ASSISTANT PROFESSOR(INFORMATION TECHNOLOGY) **Sri Sairam Institute of Technology** Sairam College Rd, Sai Leo Nagar, West Tambaram, Chennai, Tamil Nadu , TAMIL NADU, CHENNAI *College (Private)* D.O.B : 11 May, 1980

NextGen Learning and Class Room Management Based on ARVR Using Laptop as a Hub

Technical Details

1. Origin of the Proposal:

(Scientific rationale for doing this work should be elaborated)

Laptops are a crucial learning tool for students and teachers in most institutions. However, some instructors and teachers discourage and restrict students from using laptops in the classroom environment. Initial laptop models do not give the creators the proper guidelines and educational content because of inadequate features like small screens, low-resolution cameras, and voice calls. The traditional classroom learning process encourages the Face-to-Face (F2F) interaction of teacher and students, increasing student learning and absorbents. In addition, if the students miss any content, teachers can put the additional effort and increase the student learning activities. Hence, the improvement of next-generation learning is enhanced by the E-learning concept. The E-learning process has several technologies, laptops, mobile more and sensors to improve the overall learning process. The laptop assiststhe learning process and has many tools, applications and devices that enable teachers to boost their teaching process. Suppose the teacher hasan excellent understanding of techniques and laptops causes to making easier.

Moreover, the laptop-based learning and teaching process improves education growth.Integrating computer technologies in the classroom learning process enhances the learning process. The laptop-based learning process has several advantages, such as high-level student engagement, teamwork, collaborations, students' preparation for the future, teaching outcome improvement, and managing connection between teachers and students. Even though laptop-based learning highly supports the education system, it has several challenges in the class environment. Numerous factors such as ongoing support, ease of use, cost and understanding affect the laptop-based learning process. In addition, students may misuse the technologies, requires continuous professional development, the student must be auditing continuously, and new technology costs and changes highly influence laptop-based classroom learning. Therefore, this research investigates the highlights and positive perceptions of laptop-based learning and teaching processes. To achieve this research objective, more than 50 teachers and students are utilized in this study. The study uses the teacher's teaching and students' performance, which is investigated by the continuous survey. According to the questionaries, the impact of the laptop

in learning and teaching in higher-educational institutions is analyzed to improve student performance in current and future learning.

2. Review of status of Research and Development in the subject

2.1 International Status:

(Researchers working in the area worldwide and their contributions must be properly highlighted with recent references and reviews. A correct and faithful description of the international research status must be given)

1. Fox, Michael FJ, Alexandra Werth, Jessica R. Hoehn, and H. J. Lewandowski. "Teaching labs during a pandemic: Lessons from Spring 2020 and an outlook for the future." arXiv preprint arXiv:2007.01271 (2020).
2. Chowdhury, Faieza. "Virtual Classroom: To Create a Digital Education System in Bangladesh." International Journal of Higher Education 9, no. 3 (2020): 129-138.
3. Islam, Md Sadequle. "Bangladeshi university students' perception about using Google classroom for teaching English." Psycho-Educational Research Reviews 8, no. 2 (2019): 57-65.
4. Abdullah, Raja Nazim, Junaidah Abdul Muait, and GanefriGanefri. "Students' perception towards modern technology as teaching Aids." Asian Journal of Assessment in Teaching and Learning 9, no. 2 (2019): 37-42
5. Harbin, M. Brielle. "Collaborative note-taking: A tool for creating a more inclusive college classroom." College Teaching 68, no. 4 (2020): 214-220.

2.2 National Status:

(Same as above to cover the contribution of Indian Scientists in the project area)

2.3 Importance of the proposed project in the context of current status

- In modern learning, additional hardware such as multiple camera feeds, display devices, intelligent collaborations, binaural audio, ergo assessment, ergo sensors, and doodle pad are incorporated with the laptop to improve the teacher's teaching process.
- Introducing the Optimized Neural Model-based Artificial Intelligence techniques in the learning process to assess the student attentiveness and engagement level.
- Integrating the Artificial Intelligence (AI) techniques related to devices to overcome the difficulties involved in the low-audio related feature analysis.

- New sensors are incorporated with the laptop to monitor the student's exercise and stretch by the PET teachers

2.4 If the project is location specific, basis for selection of location be highlighted:

The Project is not Location Specific

3.WorkPlan:

3.1Methodology:

Online learning mediums have been pivotal to students and teachers in a post-pandemic world. Modern Learning is an educational methodology that seeks to make a learning experience that will makelearnersof the realism of the contemporary world. Modern teaching and learning create the newest and most immersive ways to explore the curriculum.Portability characteristics, wireless connection, and sophisticated functions of laptop computers provide students with more mobility and freedom of choice of course selection in higher education. Online learning orE-learning enhances student communication, perceptions, quality of education, self-learning,and critical thinking. The result shows the influence of e-learning on educators' responsibility and students' satisfaction in higher education.Using networked intelligent sensors, tags, and mobile computing devices makes it conceivable to change daily objects into interactive learning prospects, permitting learners to acquire authentic learning experiences from real-world information. Moreover, the laptop-based learning and teaching process improves education growth. Integrating computer technologies in the classroom learning process enhances the learning process. The laptop-based learning process has several advantages, such as high-level student engagement, teamwork, collaborations, students' preparation for the future, teaching outcome improvement, and managing connection between teachers and students. Even though laptop-based learning highly supports the education system, it has several challenges in the class environment. Numerous factors, such as ongoing support, ease of use, cost, and understanding, affect the laptop-based learning process. In addition, students may misuse the technologies, requires continuous professional development, the student must be auditing continuously, and new technology costs and changes highly influence laptop-based classroom learning.

This study aimed to develop sensor-based Internet of Educational Things (IoET) learning device (i.e., laptop) to expand the prevailing mobile devices and help higher education. Online Physical

Education (PE) refers to anexclusive set of challenges in transforming conventional PE into digital space while meeting similar benchmarks, curriculum, and evaluation standards of conventional courses. New sensors are integrated with the laptop to monitor the student's exercise and stretch by the PET teachers. There is much to look into, from high-speed internet to steady video quality and a noiseless environment. A key area often undermined in virtual classrooms is the need for high-quality audio. To maximize student engagement, clear and consistent audio is critical to the overall learning process. This study introduces the Artificial Intelligence-assisted Optimized Convolutional Neural Network Model (AI-OCNNM) to assess the student attentiveness and engagement level in online learning. This AI-OCNNM model overcomes the difficulties involved in the low-audio-related feature analysis.Therefore, this research investigates the highlights and positive perceptions of laptop-based learning and teaching processes.

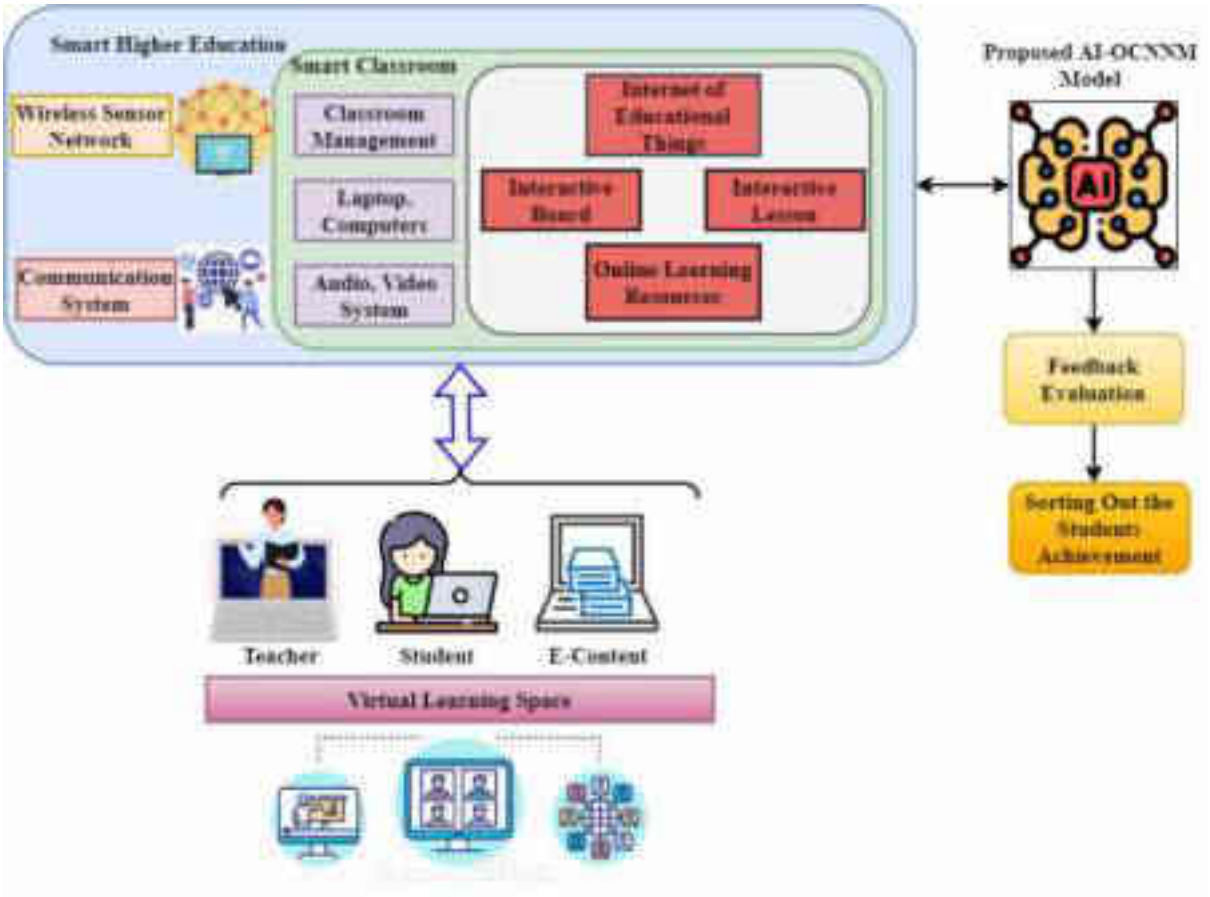


Figure 1: Proposed AI-OCNNM model

Figure 1 shows the proposed AI-OCNNM model. The wireless sensor networksand communication system form the basis of the Internet of Educational Things (IoET) that serves

as the test environment for the smart classroom teaching system, complemented by the smart access gateway and its disseminated wireless system. A smart board is a kind of interactive whiteboard that may also function as a computer display, allowing the user to type on it, draw on it, and do other computer-like tasks using a keyboard, a stylus pen, or even their finger. This feature is helpful since it encourages student participation and may be used to capture what is written on it in a video/flash format. Subsequently, it may serve as a student resource when the teacher uploads it to the learning E-portal. These videos may be compiled into an entire online course to improve the quality of the students' e-learning experience. Several learning theories, including whole-class instruction, constructivism, and active learning, recognize the importance of smart boards in fostering student participation. Using computers and the Internet, a virtual learning space provides students with a more engaging and effective educational environment. The use of self-learning plans, micro-videos, teaching materials, assignments, exams, and other forms of feedback after class are all a part of the smart classroom's comprehensive approach to student preparation, in-class learning, and post-class review. For pupils to thrive in today's global data situation and further their intellectual growth, smart classrooms provide ever-more-intelligent teaching, a more connected learning environment, and more cooperative learning with personalized teaching and learning process.

Artificial Intelligence (AI) based online learning technologies can potentially become tools to promote equity and provide personalized learning.Using AI to accomplish time-intensive tasks and make problem-solving more effective, administrators can re-focus their efforts on enhancing student experiences at higher education institutions.In online teaching and learning for teachers, the accessible version of video conferencing applications such as Zoom and Google meet through web cameras offers beneficial features.It includeshosting meetings with up to a hundred participants and permitting learners to wordlessly signal to the educator that they have a questionand brainstorm on a virtual whiteboard or doodle pad. The doodling pad is a powerful tool to encourage creativity and student engagement. Intelligent collaboration on projects by annotating documents on other students' display screens. This study proposes powerful audio signal processing models built with Convolutional Neural Network (CNN) to infer environments' sounds on an exceptional scale and low-audio related feature analysis.

The spectrogram technique transforms the signals into time-frequency sounds of a signal over the period at various frequencies in particular waveforms. The spectrogram displays how energy level varies over a period. The spectrogram of input signals can be defined as the Fourier Transform. The articulation is provided by,

$$F(m,\omega) = \sum_{j=-\infty}^{\infty} y(j)\omega(m-j)e^{-i\omega m} \quad (1)$$

As shown in equation (1), where $y(j)$ denotes input signals, and $\omega(j)$normally focused at the period$m$indicates window function like Hanning and Hamming window.

The convolutional neural network is intended to progress information taken from multi-dimensional data. CNN uses the elements of natural signals prearranged at four fundamental notions: local connections, shared weights, and poolinglayers. The convolution layers' primary goal is to identify the feature's local relationships from the prior layer and map their data to a specific feature map. The convolutional of inputs$J$ with filters$F$ $(F \in \mathbb{R}^{2b_1+2b_2})$ is provided by

$$(J * F)_{m,n} = \sum_{l=-b_1}^{b} \sum_{k=-b_2}^{b} F_{l,k} J_{m-l,n-k} \quad (2)$$

$ReLU\ (h\ (x)\ =\ max(0,x))$, which are nonlinearity activation functions employed by the feature map formed with the convolution layers. The max pooling layer task is similar to syndicate features conveyed from the prior layer. The max-pooling layer comprehends down-sampling operations by computing the high value of the field on the feature maps overlapping with filters. From the Fully Connected (FC) layer to the classification layers, the CNN model is generally the same as the multi-layer perceptron networks (MLP). The softmax functions are commonly used in CNN to counterpart the non normalized value of the prior layer to possible dissemination over forecasted student achievement scores.

$$\rho(y_j) = \frac{e^{y_j}}{\sum_{i=1}^{L} e^{y_i}},\ i = 1, \ldots, L \quad (3)$$

As inferred from the equation (3), where $\rho(y_j)$ denotes softmax outputs for everyy_j and $y_i$signifies the value of input vectors.

The batch normalization layer reduces the training period of CNN and the sensitivity to network initialization. Thus, the batch normalization layer is selected for the standardization progression in the suggested CNN model. The normalized activation with inputs(y_j), batch mean (n_a) and batch variance (u_a)parameters are calculated by

$$\hat{y}_j = \frac{y_j - n_a}{\sqrt{u_a^2 + \epsilon}} \quad (4)$$

As discussed in equation (4), where ϵ denotes constants and cultivates the numerical condition in case the u_a is lesser. The n_a and the u_a computation isdemonstrated in expressions (5) and (6) correspondingly.

$$n_a = \frac{1}{m}\sum_{j=1}^{m} y_j \quad (5)$$

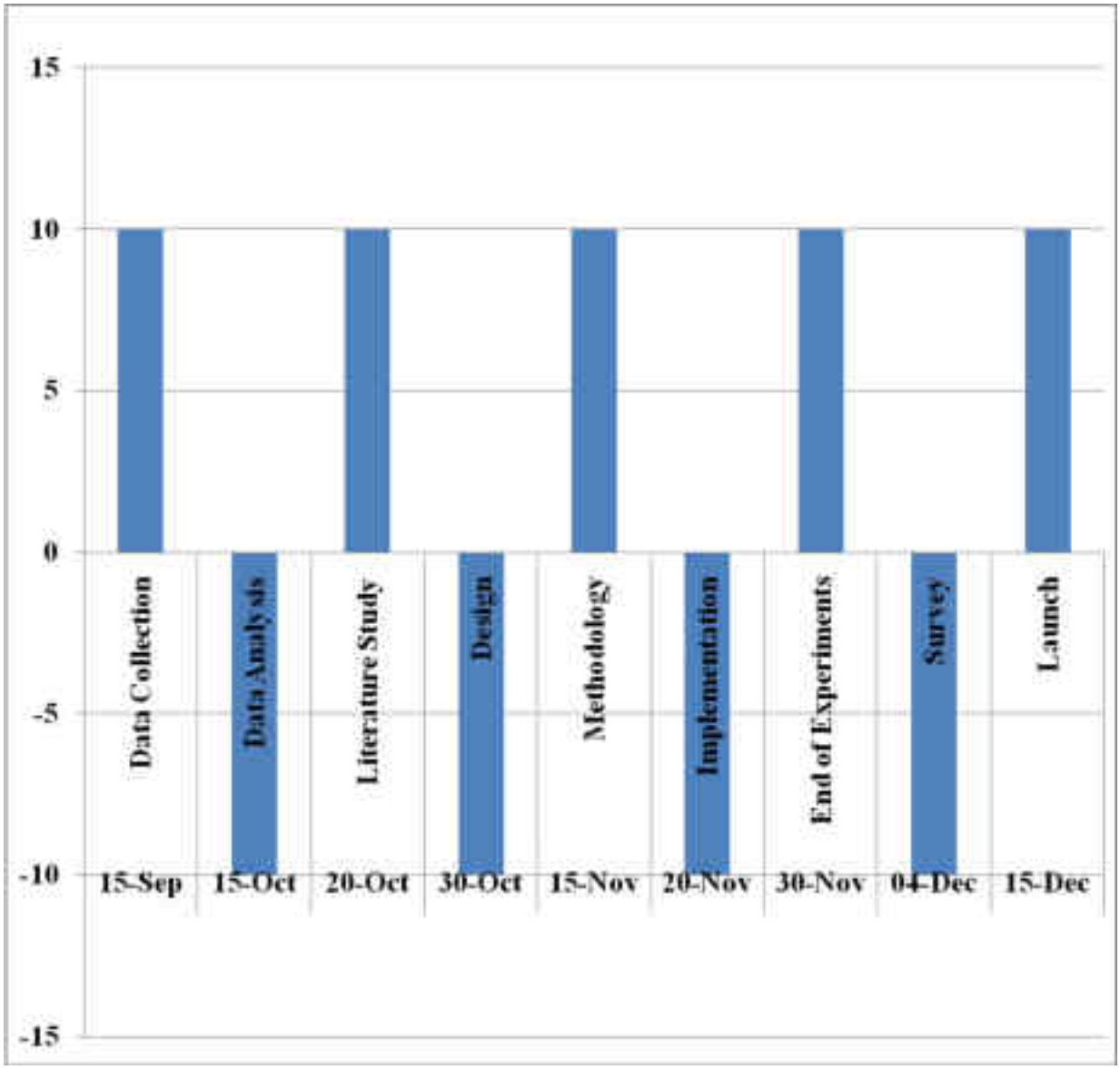
$$u_a = \frac{1}{m}\sum_{j=1}^{m} (y_j - n_a)^2 \quad (6)$$

Lastly, the activation in batch normalization layersisdetermined with scale and shift operations as

$$y_j = b\hat{y}_j + a \quad (7)$$

As found in equation (7), where b and a are scalesand balance elements, correspondingly. These dynamics are learnable parameters updated to the suitable value during training. The mathematical expression and outcomesillustrate that the suggested convolutional neural network model and in-depth features positively categorized the learning environment sounds and overcame the low-level audio feature extraction problem. During the analysis, convolution network uses the boosting along with the bat optimization algorithm to minimizing the deviations between the teachers teaching inputs and students output. Here, Ada-boosting algorithm applied to minimizing the weaker feature involvement in the classifier. Then neural functions are fine-tuned by selecting the parameters according to the bat algorithm.The bat algorithm uses the echolocation to sensing the prey and barriers to identifying the solution. These parameter selection process reducing the classification error rate and deviation between the inputs and outputs. The introduced optimized classifiers helps to monitoring the student performance by addressing the research issues.

3.2TimeScheduleofactivitiesgivingmilestonesthroughBARdiagram.



3.3Suggested Plan of action for utilization of research outcome expected from the project:

This research study gathers student and teacher information from various questionnaires and surveys. To achieve this research objective, more than 50 teachers and students are utilized in this study. The study uses the teacher's teaching and students' performance, which is investigated by the continuous survey. According to the questionaries, the impact of the laptop in learning and teaching in higher-educational institutions is analyzed to improve student performance in current and future learning. Three main questions guided this study:

(1) How did educators and learners use laptop computers in their teaching space to attain instructional objectives?

(2) In what way did access to laptops impactlearners' attitudes headed forlaptops and school compared to their non-laptop students?
(3) By what means did the learner use of laptop provision learning progressions?

The collected data is processed using the AI-OCNNM model. The convolutional neural model is trained by applying the set of teachers' input according to the subject-wise. The gathered details are classified to understand how the student understands the laptop-based teaching concept. Here, information such as teaching, duration, idea, and objectives are input into the system. The convolutional neural model trains the process the inputs and outputs are generated in terms of positive and negative feedback. Here, the outcomes are used to understand how effectively the laptop-based learning and teaching process improves student learning and understanding in the institution. The convolutional neural model understands the student's knowledge, listening, and understanding pattern, significantly impacting the learning process. Then the modern technology-based learning process helps manage to teach and learn in an emergency or pandemic situation. In laptop-learning recording options, students recall the subjects whenever they have doubts and listening difficulties.

3.4Environmental impact assessment and risk analysis.

Low attendance owing to heavy internet traffic, lack of practical skills, lack of learner involvement, the vagueness of regulations, and an increase in cybercrimes are only a few factors that might undermine the rationality and validity of online learning. Theft and unauthorized alteration of data, eavesdropping, and the inaccessibility of servers and personal computers are some of the most common forms of cybercrime. Original documents may be altered, tampered with, or destroyed throughout the transaction due to active and passive assaults by hackers. So, risk awareness training would be a top focus in online education. This article highlights the many risks the participants face and the solutions to those risks that might improve the system's dependability and efficiency. While environmental awareness is rising, it becomes imminent to quantify the environmental impact of our educational activities and operations. Therefore, considering this sudden shift away from the classroom in many parts of the globe due to the pandemic, it seems evident to evaluate whether the adoption of online learning is more respectful to the globe than regular classrooms. This study addresses whether an e-learning class is more environmentally friendly than a traditional presential classroom.

4. Expertise:

4.1 Expertise available with the investigators in executing the project:

S.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status
1	AN INTEGRATED FARMING EQUIPMENT WITH IOT CONTROL MODULE AND PHOTOVOLTAIC ARRANGEMENT	1. K.Palanikumar 2.G.Shanmugasundar 3 . V. Brindha devi 4 . S. Meganathan 5 . G. Fenneth moses 6 . S. Jayachandran 7 . V.. Rathnavel subramanian 8 . R. Rajagopalan 9 . M. Dharanidharan 10 . D.Vishwa	202141026318	14/06/2021	India	Published

2	Enhanced Power utilization and Virtualization in cloud Datacenter through Cluster-MG algorithm	Dr.S.Sugumaran Dr.V.Brindha Devi Dr.S.Sivaprakash Mr.P.Suthahar S.Hemalatha Dr.T.Kavitha	202041054869	25/12/2020	India	Published
3	An Obstacle Detection System with a Primary and secondary Device for Affixing to the Subcutaneous Layer of the Visually impaired person	Dr.K.PalaniKumar V.Brindha Devi R.Jegatha P.Sharmila K.SaiRam S.Varadarajan K.Boobeshwaran	202141053610	22/11/21	India	Published

4.2 Summary of roles/responsibilities for all Investigators:

(If the proposal contains more than one Investigator, it is important to clearly mention the role of each Investigator in implementing the objectives of the proposal. The Board does not encourage Investigators who do not have specific scientific role in the proposal)

S. No.	Name of the Investigators	Roles/Responsibilities
1.	Dr.V.Brindha Devi	Principal Investigator

4.3 Key publications published by the Investigators pertaining to the theme of the proposal during the last 5 years

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1	DR.V.BRINDHA DEVI	A NOVEL APPROACH FOR INTRUSION DETECTION USING GENETIC ALGORITHM AND SVM TREE	PENSEE JOURNAL,	Vol 75	172-179	2013
2	DR.V.BRINDHA DEVI	BUS PASS AND TICKET AUTOMATION SYSTEM	IJCERT			2016
3	DR.V.BRINDHA DEVI	AN INTELLIGENT TEMPORAL ADAPTIVE GENETIC FUZZY CLASSIFICATION ALGORITHM FOR EFFECTIVE INTRUSION DETECTION'	TRANSYLVANIAN REVIEW,	Vol 24		
4	DR.V.BRINDHA DEVI	MODELLING NETWORK INTRUSION DETECTION SYSTEM USING GENETIC AND NEURAL NETWORK"	INTERNATIONAL JOURNAL OF APPLIED ENGINEERING AND RESEARCH			

5	**DR.V.BRINDHA DEVI**	**AN INTELLIGENT AGENT BASED INCREMENTAL FEATURE SELECTION ALGORITHM FOR EFFECTIVE INTRUSION DETECTION IN MANET**	**ASIAN JOURNAL OF RESEARCH IN SOCIAL SCIENCE AND HUMANITIES.**			
6	**DR.V.BRINDHA DEVI**	**NEURAL KDE BASED BEHAVIOUR MODEL FOR DETECTING INTRUSIONS IN NETWORK ENVIRONMENT'**		**Vol.06**	**166-173**	
7	**DR.V.BRINDHA DEVI**	**A VIRTUAL KEYBOARD SECURITY SYSTEM FOR AUTOMATED TELLER MACHINE',**	**INTERNATIONAL JOURNAL OF ENGINEERING AND TECHNOLOGY**	**VOL 7**		**2018**
8	**DR.V.BRINDHA DEVI**	**A EFFECTIVE CLOUD BASED PERSONAL EMERGENCY RESPONSE SYSTEM BY PROVIDING PRIVACY PROTECTION FOR THE MEDICAL DATA**	**INTERNATIONAL JOURNAL OF ENGINEERING AND TECHNOLOGY**	**VOL 7.**	**261-265**	**2018**

9	**DR.V.BRINDHA DEVI**	**IOT-BASED TRAFFIC PREDICTION AND TRAFFIC SIGNAL CONTROL SYSTEM FOR SMART CITY”**	**SOFT COMPUTING**	**25 (18),**	**12241-12248**	**2021**
10	**DR.V.BRINDHA DEVI**	**Allocation of Vehicle Based on the Availability Using Machine Learning**	**IEEE International Power and Renewable Energy Conference**	**1-6**		**2021**
11	**DR.V.BRINDHA DEVI**	**VOTING BOOTH HELPER SYSTEM USING MACHINE LEARNING**				
12	**DR.V.BRINDHA DEVI**	**PREHISTORIC STONE IMAGE TAMIL CHARACTER RECOGNITION USING OPTIMIZED DEEP NEURAL NETWORK USING ZERNIKE MOMENTS AND SIMPLEX METHOD**	**Turkish Journal of Computer and Mathematics Education**			
13	**DR.V.BRINDHA DEVI**	**INTELLIGENT TOURIST SYSTEM**	**Journal of Physics**	**1911 (1),**		**2020**

14	**DR.V.BRINDHA DEVI**	**THE DEFENSE AGAINST JAMMING ATTACK IN COGNITIVE RADIO NETWORKS: ENERGY EFFICIENCY MANAGEMENT PERSPECTIVE**	**Microprocessors and Microsystems**	**82**	**103816,**	**2021**
15	**DR.V.BRINDHA DEVI**	**DECENTRALIZED CLASSROOM USING BLOCKCHAIN**	**International Virtual Conference on Industry 4.0**		**247-256**	**2021**
16	**DR.V.BRINDHA DEVI**	**A COMPUTATIONAL WORKFLOW TO EXPLORE MATERIAL PROPERTIES OF EXISTING SETTINGS OF POINT CLOUD DATA**	**Materials Today**	**46**	**3933-3936**	**2021**
17	**DR.V.BRINDHA DEVI**	**ANN: FORECAST OF AN HEAT TRANSFER INVESTIGATION OF CONCENTRIC TUBE HEAT EXCHANGER**	**Materials Today**	**46**	**3956-3959**	**2021**

18	**DR.V.BRINDHA DEVI**	**CHARTER AUTHENTICATED ANTI-THEFT SECURE MOTOR SYSTEM**	**ITM Web of Conferences**	**37**	**01009**	

4.4 Bibliography

- Fox, Michael FJ, Alexandra Werth, Jessica R. Hoehn, and H. J. Lewandowski. "Teaching labs during a pandemic: Lessons from Spring 2020 and an outlook for the future." arXiv preprint arXiv:2007.01271 (2020).
- Chowdhury, Faieza. "Virtual Classroom: To Create a Digital Education System in Bangladesh." International Journal of Higher Education 9, no. 3 (2020): 129-138.
- Islam, Md Sadequle. "Bangladeshi university students' perception about using Google classroom for teaching English." Psycho-Educational Research Reviews 8, no. 2 (2019): 57-65.
- Abdullah, Raja Nazim, Junaidah Abdul Muait, and GanefriGanefri. "Students' perception towards modern technology as teaching Aids." Asian Journal of Assessment in Teaching and Learning 9, no. 2 (2019): 37-42
- Harbin, M. Brielle. "Collaborative note-taking: A tool for creating a more inclusive college classroom." College Teaching 68, no. 4 (2020): 214-220.

5. List of Projects submitted/implemented by the Investigators

5.1 Details of Projects submitted to various funding agencies:

S. No	Title	Cost in Lakh	Month of submission	Role as PI/Co-PI	Agency	Status
1	An efficient and cost-effective smart sensing technology for early forest fire detection and prevention system	24 Lakhs	December 2020-21	PI	DST	Under Review

5.2 Details of Projects under implementation

S. No	Title	Cost in Lakh	Duration	Role as PI/Co-PI	Agency

NA	NA	NA	NA	NA	NA

5.3 Details of Projects completed during the last 5 years

S. No	Title	Cost in Lakh	Duration	Role as PI/Co-PI	Agency

Institution wise Budget Breakup :

Budget Head	Sri Sairam Institute of Technology	Total
Research Personnel	13,32,000	**13,32,000**
Consumables	3,00,000	**3,00,000**
Travel	6,00,000	**6,00,000**
Equipment	2,00,000	**2,00,000**
Contingencies	1,80,000	**1,80,000**
Overhead	3,00,000	**3,00,000**
Total	**29,12,000**	**29,12,000**

Institute Name : *Sri Sairam Institute of Technology*

Year Wise Budget Summary (Amount in INR) :

Budget Head	Year-1	Year-2	Year-3	Total
Research Personnel	4,44,000	4,44,000	4,44,000	**13,32,000**
Consumables	1,00,000	1,00,000	1,00,000	**3,00,000**
Travel	2,00,000	2,00,000	2,00,000	**6,00,000**
Equipments	2,00,000	0	0	**2,00,000**
Contingencies	60,000	60,000	60,000	**1,80,000**
Overhead	1,00,000	1,00,000	1,00,000	**3,00,000**
Grand Total	**11,04,000**	**9,04,000**	**9,04,000**	**29,12,000**

Research Personnel Budget Detail (Amount in INR) :

Designation	Year-1	Year-2	Year-3	Total
Junior Research Fellow *In modern learning, additional hardware such as multiple camera feeds, display devices, intelligent collaborations, binaural audio, ergo assessment, ergo sensors, and doodle pad are incorporated with the laptop to improve the teacher's teaching process.*	3,00,000	3,00,000	3,00,000	**9,00,000**
Technical Assistant *New sensors are incorporated with the laptop to monitor the student's exercise and stretch by the PET teachers* *So it is mandatory to depute a Technical Assistant*	1,44,000	1,44,000	1,44,000	**4,32,000**

Consumable Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
Consumables are needed for the usage of AR VR devices and the need for the usage of Projectors and need for smart devices are mandatory	1,00,000	1,00,000	1,00,000	**3,00,000**

Travel Budget Detail (Amount in INR) :

Justification (Inland Travel)	Year-1	Year-2	Year-3	Total
To visit the various Schools to find out the various learning process to study the various activities involved	2,00,000	2,00,000	2,00,000	**6,00,000**

Equipment Budget Detail (Amount in INR) :

Generic Name ,Model No. , (Make)/ Justification	Quantity	Spare time	Estimated Cost
Laptop (DELL Latitude) *The traditional classroom learning process encourages the Face-to-Face (F2F) interaction of teacher and students, increasing student learning and absorbents. In addition, if the students miss any content, teachers can put the additional effort and increase the student learning activities. Hence, the improvement of next-generation learning is enhanced by the E-learning concept. The E-learning process has several technologies, laptops, mobile and sensors to improve the overall learning process.*	5	95 %	**2,00,000**

Contingency Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
The usage of Printer and cartridges for the Project Documentation and the daily miscellaneous expenditure	60,000	60,000	60,000	**1,80,000**

Overhead Budget Detail (Amount in INR) :

Justification	Year-1	Year-2	Year-3	Total
The laptop-based learning process has several advantages, such as high-level student engagement, teamwork, collaborations, students' preparation for the future, teaching outcome improvement, and managing connection between teachers and students	1,00,000	1,00,000	1,00,000	**3,00,000**

Summary

- Currently working as Professor and Head of the Department of Information Technology, Sri Sai ram Institute of Technology, Chennai, India.
- Published Scopus/WoS indexed 4 research articles
- Published Scopus/WoS/Google Scholar indexed 25 research articles
- Received the funding of more than 15 Lakhs Crore from Various funding Agencies.

Dr. V. BRINDHA DEVI

Professor & Head of the Department - Information Technology

Qualification : Ph.D.,
Email : brindha.renju@gmail.com
hodit@sairamit.edu.in
Specialization : Computer Science Engineering
Research Interest : Network Security,Machine Learning
Date of Birth: : 05-08-1979

QUALIFICATION

B.E Computer Science and Engineering- Bharathidasan University,Tirchirappalli

M.E. Systems Engineering & OR– College of Engineering Guindy, Anna University, Chennai.

Ph.D. Information & Communication Engineering – College of Engineering Guindy, Anna University, Chennai.

DETAILS OF TEACHING AND RESEARCH EXPERIENCE

S.No	Designation & Office address	Period		Nature of duties/ responsibilities	Reason for leaving
		From	To		
1	Professor and Head of Department/IT Sri Sai Ram Institute of Technology	2012	Till Date	Teaching, Research and administration of the Department	Currently Working
2.	Lecturer, Assistant Professor, Associate Professor R.M.K. College of Engineering and Technology	2008	2012	Teaching, Research	Change of Location.
3.	Lecturer Veltech Engineering College, Chennai.	2003	2008	Teaching	Better Prospects
4	Lecturer Oxford Engineering College	2000	2003	Teaching	After Marriage Moved to chennai

PROFESSIONAL MEMBERSHIP

Member, IEEE	97645248	Since Dec, 2020
Life Member-Senior Fellow, The Society of Innovative Educationalist & Scientific Research Professional, Chennai	LM17181965	Since March, 2019
Fellow Member, The Institution of Engineers, India	M-163500-4	2016
Life Member, Indian society for Technical Education	LM 89980	2010
Member, Computer Society of India	I1505660	2012

PROFESSIONAL RECOGNITION/ AWARDS /PRIZES/ CERTIFICATES AND HONORS

S.No	Name of Award	Awarding Agency	Year
1	UtmaPurshakar Acharya Award	Indian Servers	2019
2	Best HoD of the Year	Computer Society of India (CSI)	2019
3	IEI Best Division of the Year	IEI	2018,2019
4	IEI Best Faculty Advisior	IEI	2021
5.	Arivu Kalanchiyam Award	Mylapore Tamil Sangam	2022
6.	Innovative Researcher and Dedicated Educationalist Award	IGSRE	2022

RESEARCH FUNDED PROJECTS AND GRANTS

No.	Name of the Project	Funding agency	Fund Received	Duration	Start Date	End Date	Grant No
1	AICTE-MODROB	AICTE	7.0 Lakhs	December 2018	2019	2020	280/RIFD/MOD/POLICY-1/ 2018-2019
2.	AICTE -Seminar Grant	AICTE	2.0 Lakhs	JULY 2013	JULY 2013	DEC 2013	7-367/RIFD/SG/ POLICY/2013-2014
3	TNSCST	TNSCST	5000	JULY 2018	2018		

C : DETAIL OF PATENTS (Total Patents 5; Granted: 2)

1. GRANTED PATENTS

S.No.	Application No.	Applicants	Title	Application Date	Application Status
1.	201941012141	**Dr.K.Palanikumar** Dr. V.Brindha Devi P.Sharmila Neeraja.S Pavitra.P Queency Leena Sawyer	Wireless security camera for stalker and threat identification	28/03/2019	Granted on 09/04/2021
2	2020102208	R.Vidya K.Karthick Kumar VijayaLakshmi JayaSudha Suguna S Jerald Jeba **Brindha Devi V**	An Intelligent Embedded Tool Recognition System For CNC Machines Using Deep Learning Algorithms	10/09/2020	Granted on 10/09/2020

2. PUBLISHED PATENTS

S. No.	Application No.	Applicants	Title	Application Date	Application Status
1	202141026318	1. **K.Palanikumar** 2. G.Shanmugasundar 3 . V. Brindha devi 4 . S. Meganathan 5 . G. Fenneth moses 6 . S. Jayachandran 7 . V.. Rathnavel subramanian 8 . R. Rajagopalan 9 . M. Dharanidharan 10 . D.Vishwa	An Integrated Farming Equipment With IOT Control & Nbsp;Mo Dule And Photovoltaic Arrangement	14/06/2021	Published 25/06/2021

2	202041054869	Dr.S.Sugumaran Dr.V.Brindha Devi Dr.S.Sivaprakash Mr.P.Suthahar S.Hemalatha Dr.T.Kavitha	Enhanced Power utilization and Virtualization in cloud Datacenter through Cluster-MG algorithm	25/12/2020	25/1/2020
3	202141053610	Dr.K.PalaniKumar V.Brindha Devi R.Jegatha P.Sharmila K.SaiRam S.Varadarajan K.Boobeshwaran	An Obstacle Detection System with a Primary and secondary Device for Affixing to the Subcutaneous Layer of the Visually impaired person	22/11/21	10/12/21

List of Publications:-

- **P**ublished a Paper on ":A NOVEL APPROACH FOR INTRUSION DETECTION USING GENETIC ALGORITHM AND SVM TREE" Vol 75,No 11,pp 172-179,NOV 2013, in Pensee Journal, ISBN 0031-4773 FRANCE PENSEE.
- Published a paper titled "Bus pass and Ticket Automation System" in IJCERT Journal in August 2016.ISSN (o) 2349-7084.
- Published a paper on 'An Intelligent Temporal Adaptive Genetic Fuzzy Classification Algorithm for Effective Intrusion Detection',Transylvanian Review, vol.24,no.8.(Annexure-I).
- Published a paper on "Modelling Network Intrusion Detection System using Genetic and Neural Network" pp 22-30, in International Journal of Applied Engineering and Research Annexure-2, Serial No:8565.
- Published a paper titled "An Intelligent Agent based Incremental Feature Selection Algorithm for Effective Intrusion Detection in MANET" in Asian Journal of Research in social science and Humanities.
- Published a paper titled, 'Neural KDE Based Behaviour Model for Detecting Intrusions in Network Environment' Vol.06,No.4,pp.166-173.
- Published a paper Titled, 'A Virtual Keyboard Security System for Automated Teller Machine',in International Journal of Engineering and Technology

,2018,vol 7. pp-59-63.

- Published a paper Titled, 'A Effective Cloud Based Personal Emergency Response System by providing privacy protection for the Medical Data ',in International Journal of Engineering and Technology ,2018,vol 7. pp-261-265.
- Published a paper Titled, "IoT-based traffic prediction and traffic signal control system for smart city" in Soft Computing 25 (18), 2021,pp -12241-12248
- Published a paper Titled,"Allocation of Vehicle Based on the Availability Using Machine Learning" , 2021 IEEE International Power and Renewable Energy Conference (IPRECON), 1-6 ,2021
- Published a paper Titled, "Voting Booth Helper System Using Machine Learning",2021 IEEE International Power and Renewable Energy Conference (IPRECON), 1-6
- Published a paper Titled,"Prehistoric Stone Image Tamil Character Recognition using Optimized Deep Neural Network using Zernike Moments and Simplex Method",Turkish Journal of Computer and Mathematics Education (TURCOMAT) 12 (11 2021
- Published a paper Titled,"Intelligent Tourist System For The 21st Century",Journal of Physics: Conference Series 1911 (1), 012020.
- Published a paper Titled,"The Defense Against Jamming Attack in Cognitive Radio Networks: Energy Efficiency Management Perspective",Microprocessors and Microsystems 82, 103816, 2021
- Published a paper Titled,"Decentralized Classroom Using Blockchain " International Virtual Conference on Industry 4.0, 247-256,2021
- Published a paper Titled "A computational workflow to explore material properties of existing settings of point cloud data",Materials Today: Proceedings 46, 3933-3936,2021
- Published a paper Titled"ANN: Forecast of an heat transfer investigation of concentric tube heat exchanger",Materials Today: Proceedings 46, 3956-3959 ,2021
- Published a paper Titled "Charter Authenticated Anti-Theft Secure Motor System",ITM Web of Conferences 37, 01009,2021

- Published a paper Titled “De-Centralized Certificate Creation and Verification using Block Chain (DCCVuB)”International Journal of Engineering and Advanced Technology (IJEAT) 9 (1s)2019

PROFORMA FOR BIO-DATA (to be uploaded)

1. Name and full correspondence address : Mr.R.Sampath ,Assistant Professor
   Department of IT
   Sri Sai Ram Institute of Technology,
   Chennai- 600044

2. Email(s) and contact number(s) : sampath.it@sairamit.edu.in & 8248255272

3. Institution : Sri Sai Ram Institute of Technology

4. Date of Birth : 11.05.1980

5. Gender (M/F/T) : Male

6. Category Gen/SC/ST/OBC OBC

7. Whether differently abled (Yes/No) NO

8. Academic Qualification (Undergraduate Onwards)

S.NO	DEGREE	YEAR	SUBJECT	UNIVERSITY/INSTITUTION	% OF MARKS
1	BE	2002	IT	MADURAI KAMARAJ UNIVERSITY	66%
2	MTech	2005	IT	SRM UNIVERSITY	7.49 CGPA

9. Ph.D thesis title, Guide's Name, Institute/Organization/University, Year of Award.

10. Work experience (in chronological order).

S.NO	POSITIONS HELD	NAME OF THE INSTITUTE	FROM	TO	PAY SCALE
1	ASSISTANT PROF	SRI SAI RAM INSTITUTE OF TECHNOLOGY	2022	TILL DATE	52000
2	ASSO.PROF	DHAANISH AHMED COLLEGE OF ENGG	2019	2022	42000
3	ASSO.PROF	MS.AJ COLLEGE OF ENGINEERING	2017	2019	35000
4	ASSISTANT PROF	KCG COLLEGE OF TECHNOLOGY	2010	2017	39435
5	ASSISTANT PROF	INDUS COLLEGE OF ENGG	2008	2010	22000
6	ASSISTANT PROF	AMC ENGG COLLEGE	2007	2008	18600
7	LECTURER	CRESCENT ENGG COLLEGE	2005	2007	14400

11. Professional Recognition/ Award/ Prize/ Certificate, Fellowship received by the applicant

S.NO	NAME OF THE AWARD	AWARDING AGENCY	YEAR
1	BEST COMMENDABLE PERFORMANCE	KCG COLLEGE OF TECHNOLOGY	2010
2	BEST COMMENDABLE PERFORMANCE	KCG COLLEGE OF TECHNOLOGY	2011
3	BEST PROJECT IN STTP	IISC BANGALORE	2017

12. Publications *(List of papers published in SCI Journals, in year wise descending order).*

S.No.	Author(s)	Title	Name of Journal	Volume	Page	Year
1	R.SAMPATH	3D brain image based Alzheimers disease detection techniques using fish swarm optimizers deep convolution siamaise neural network	Expert Systems	12963	10	2022
2	R.SAMPATH	Automated computer aided system for early detection of Alzheimers disease by regional atrophy analysis in functional magnetic resonance imaging	International Journal of Bio medical Engineering and Technology	1504	10	2020
3	R.SAMPATH	Analysis of Regional Atrophy and Prolong adaptive exclusive atlas to detect the alzheimers disease using medical images	Multimedia tools and Applicatios	130	751	2019
4	R.SAMPATH	Ecocardiography image segmentation using feed forward artificial neural network with fuzzy mutli scale edge detection	International Journal of Signals and Imaging Systems and Engineering	11	5	2019
5	R.SAMPATH	A Dynamic and interoperable communication frame work for controlling the operations of wearable sensors in smart health care applications	Computer Communications	149	17-26	2019
6	R.SAMPATH	Earlier detection of Alzheimer's disease using N fold Cross Validation Approach	Journal of Medical Systems	217	42	2018
7	R.SAMPATH	Study of Connectivity Properties and Network Topology for Imaging Classification by using adaptive Neuro fuzzy inference system	ARPN Journal of Engineering and Applied Sciences	9	4258-4263	2015
8	R.SAMPATH	Alzheimers disease image segmentation using self organizing networks	Journal of Software	10	670-680	2015
9	R.SAMPATH	Alzheimers disease Classification using HKNRK classifier	Research Journal of applied engineering sciences and technology	10(1)	29-34	2015
10	R.SAMPATH	Classification of Alzheimers disease	IJAER	9	16979-	2014

		stages using ANFIS Classifier			16990	

13.Detail of patents.. NA

S.No	Patent Title	Name of Applicant(s)	Patent No.	Award Date	Agency/Country	Status

14. Books/Reports/Chapters/General articles etc.

NA

15. Any other Information (maximum 500 words)

NA

Certificate from the Investigator

Project Title: Next Gen Learning and Class Room Management Based on AR/VR Using Laptop as a Hub

It is certified that

1. The same project proposal has not been submitted elsewhere for financial support.

2. We/I undertake that spare time on equipment procured in the project will be made available to other users.

3. We/I agree to submit a certificate from Institutional Biosafety Committee, if the project involves the utilization of genetically engineered organisms. We/I also declare that while conducting experiments, the Biosafety Guidelines of Department of Biotechnology, Department of Health Research, GOI would be followed in toto.

4. We/I agree to submit ethical clearance certificate from the concerned ethical committee, if the project involves field trails/experiments/exchange of specimens, human & animal materials etc.

5. The research work proposed in the scheme/project does not in any way duplicate the work already done or being carried out elsewhere on the subject.

6. We/I agree to abide by the terms and conditions of SERB grant.

Name and signature of Principal Investigator: Dr.V.Brindha Devi
Date:19.09.2022
Place:Chennai

19/9/22
Dr. V. BRINDHA DEVI
HEAD OF THE DEPARTMENT
INFORMATION TECHNOLOGY
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI - 600 044.

Name and signature of Co-PI (s) (if any): R.Sampath
Date19.09.2022
Place:Chennai

R.Sampath
19/9/2022

Undertaking by the Principal Investigator

To

The Secretary
SERB, New Delhi

Sir

I Dr. BRINDHA DEVI. V

herby certify that the research proposal titled NEXT GEN LEARNING AND CLASSROOM MANAGEMENT BASED ON AR/VR USING LAPTOP AS A HUB submitted for possible funding by SERB, New Delhi is my original idea and has not been copied/taken verbatim from anyone or from any other sources. I further certify that this proposal has been checked for plagiarism through a plagiarism detection tool i.e. TURNITUN approved by the Institute and the contents are original and not copied/taken from any one or many other sources. I am aware of the UGCs Regulations on prevention of Plagiarism i.e. University Grant Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulation, 2018. I also declare that there are no plagiarism charges established or pending against me in the last five years. If the funding agency notices any plagiarism or any other discrepancies in the above proposal of mine, I would abide by whatsoever action taken against me by SERB, as deemed necessary.

19/9/22

Signature of PI with date

Name / designation

Dr. V. BRINDHA DEVI
HEAD OF THE DEPARTMENT
INFORMATION TECHNOLOGY
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI - 600 044.

Undertaking by the Principal Investigator

To

The Secretary
SERB, New Delhi

Sir

I Dr. BRINDHA DEVI. V

herby certify that the research proposal titled NEXT GEN LEARNING AND CLASSROOM MANAGEMENT BASED ON AR/VR USING LAPTOP AS A HUB submitted for possible funding by SERB, New Delhi is my original idea and has not been copied/taken verbatim from anyone or from any other sources. I further certify that this proposal has been checked for plagiarism through a plagiarism detection tool i.e. TURNITUN approved by the Institute and the contents are original and not copied/taken from any one or many other sources. I am aware of the UGCs Regulations on prevention of Plagiarism i.e. University Grant Commission (Promotion of Academic Integrity and Prevention of Plagiarism in Higher Educational Institutions) Regulation, 2018. I also declare that there are no plagiarism charges established or pending against me in the last five years. If the funding agency notices any plagiarism or any other discrepancies in the above proposal of mine, I would abide by whatsoever action taken against me by SERB, as deemed necessary.

19/9/22

Signature of PI with date

Name / designation

Dr. V. BRINDHA DEVI
HEAD OF THE DEPARTMENT
INFORMATION TECHNOLOGY
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI - 600 044.

SAI RAM INSTITUTE OF TECHNOLOGY

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Sai Leo Nagar, West Tambaram, Chennai - 600 044. www.sairamit.edu.in
Founder Chairman : MJF. Ln. Leo Muthu

Endorsement from the Head of the Institution of PI

This is to certify that:

1. Institute welcomes participation of Name: **Dr.V.Brindha Devi** Designation :**Professor** as the Principal Investigator and **Mr.R.Sampath, Assistant Professor** as the Co- Investigator/s for the project titled **Next Gen Learning and Class Room Management Based on AR/VR Using Laptop as a Hub** and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume the responsibility of the fruitful completion of the project with the approval of SERB.

2. The PI, **Dr.V.Brindha Devi** is a permanent or regular employee of this Institute/University/Organization and has 21 years of regular service left before superannuation

3. The project starts from the date on which the University/Institute/ Organization/College receives the grant from SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi.

4. The investigator will be governed by the rules and regulations of University/ Institute/Organization/College and will be under administrative control of the University/ Institute/Organization/College for the duration of the project.

5. The grant-in-aid by the SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi will be used to meet the expenditure on the project and for the period for which the project has been sanctioned as mentioned in the sanction order.

6. No administrative or other liability will be attached to SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi at the end of the project.

7. The University/Institute/Organization/College will provide basic infrastructure and other required facilities to the investigator for undertaking the research project.

8. The University/ Institute/Organization/College will take into its books all assets created in the above project and its disposal would be at the discretion of SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi.

9. The University/ Institute/Organization/College assumes to undertake the financial and other management responsibilities of the project.

Seal of

University/ Institute/Organization/College

Signature

Registrar of University / Head of the Institute/
Head of organization / Principal of College

DR. V. BALAJI KUMAR
PRINCIPAL
SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044.

Date: 19.09.22

SAI RAM INSTITUTE OF TECHNOLOGY

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Sai Leo Nagar, West Tambaram, Chennai - 600 044. www.sairamit.edu.in
Founder Chairman : MJF. Ln. Leo Muthu

Endorsement from the Head of the Institution of Co-PI

This is to certify that:

1. Institute welcomes participation of Name : **Dr.V.Brindha Devi** Designation : **Professor** as the Principal Investigator and **Mr.R.Sampath, Assistant Professor** as the Co- Investigator for the project titled **Next Gen Learning and Class Room Management Based on AR/VR Using Laptop as a Hub** and that in the unforeseen event of discontinuance by the Principal Investigator, the Co-Investigator will assume the responsibility of the fruitful completion of the project with the approval of SERB.

2. The Co-PI, **Mr.R.Sampath** is a permanent or regular employee of this Institute/University/Organization and has 15 years of regular service left before superannuation

3. The Co-PI will be governed by the rules and regulations of University/ Institute/Organization/College and will be under administrative control of the University/ Institute/Organization/College for the duration of the project.

4. The grant-in-aid by the SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi will be used to meet the expenditure on the project and for the period for which the project has been sanctioned as mentioned in the sanction order.

5. No administrative or other liability will be attached to SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi at the end of the project.

6. The University/Institute/Organization/College will provide basic infrastructure and other required facilities to the investigator for undertaking the research project.

7. The University/ Institute/Organization/College will take into its books all assets created in the above project and its disposal would be at the discretion of SCIENCE & ENGINEERING RESEARCH BOARD (SERB), New Delhi.

8. The University/ Institute/Organization/College assume to undertake the financial and other management responsibilities of the project.

Seal of

University/ Institute/Organization/College

Date: 19.09.22

Signature

Registrar of University/Head of the Institute/
Head of organization / Principal of College

Dr.K.PALANI KUMAR
PRINCIPAL
SRI SAIRAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044.

19/05/2023
Chennai -44

From,

S. BALASUBRAMANI
Assistant professor & IEI Coordinator
Department of Mechanical Engineering
SRI SAIRAM INSTITUTE OF TECHNOLOGY
Chennai – 44

To

The Principal
SRI SAIRAM INSTITUTE OF TECHNOLOGY
Chennai – 44

Respected sir,

Sub: Requisition for claiming expenses for the chief guest for the 2 days IEI Sponcered Workshop conducted on 02nd Jan'2023.

As we conducted IEI Kancheepuram Local Center Sponsored **"Two days Workshop on Smart Manufacturing and Robotics"** on **04th & 05th January 23** for our students, I kindly request you to approve the below expenses & speaker remunerations from the sanctioned funding amount.

Sl no	Name of speaker / Description	Amount (Rs)
1	Dr.K.Palanikumar , Coordinator	2000/-
2	Dr.S.Illayavel Professor / Sri Venkateswara College of Engineering	3500/-
3	Dr.S.Rajarajan	1500/-
4	Mr.D.Viswa Software Engineer/ TCS	3000/-
5	Dr.Vigneswaran .S	1000/-
6	Dr.Marceswaran .M	1000/-
7	Mr.E.Balakrishnan	1000/-
8	Tea & Snacks for participants (150 Members for two Days)	4800/-
9	Banner & Invitation Printing	2700/-
10	Travel Allowance	3000/-
11	Miscellaneous Charges	500/-
	Total	24,000/-
	(Twenty Four Thousand only)	

Thanking you

19/05/23

Forwarded to the Principal

19/5/23

Yours sincerely

19/05/2023
Chennai -44

From,

S. BALASUBRAMANI
Assistant professor & IEI Coordinator
Department of Mechanical Engineering
SRI SAIRAM INSTITUTE OF TECHNOLOGY
Chennai – 44

To

The Principal
SRI SAIRAM INSTITUTE OF TECHNOLOGY
Chennai – 44

Respected sir,

Sub: Requisition for claiming expenses for the chief guest for the 2 days IEI Sponcered Workshop conducted on 02nd Jan'2023.

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Sl no	Name of speaker / Description	Amount (Rs)
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2	Dr.S.Illayavel Professor / Sri Venkateswara College of Engineering	3500/-
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4	Mr.D.Viswa Software Engineer/ TCS	3000/-
5	Dr.Vigneswaran .S	1000/-
6	Dr.Mareeswaran .M	1000/-
7	Mr.E.Balakrishnan	1000/-
8	Tea & Snacks for participants (150 Members for two Days)	4800/-
9	Banner & Invitation Printing	2700/-
10	Travel Allowance	3000/-
11	Miscellaneous Charges	500/-
	Total	24,000/-
	(Twenty Four Thousand only)	

Thanking you

19/05/23

Forwarded to the Principal
19/5/23.

Yours sincerely

19/5/23

Sri
SAI RAM INSTITUTE OF TECHNOLOGY
(Managed by Sapthagiri Educational Trust, Chennai - 77)
Accredited by NBA and NAAC "A+" | An ISO 9001:2015 Certified and MHRD NIRF ranked institution
Sai Leo Nagar, West Tambaram, Chennai. Tel : 044 - 2251 2111 : www.sairamit.edu.in
Founder Chairman : MJF. Ln. Leo Muthu

Dr.K.PALANIKUMAR, M.E.,Ph.D.,
Principal

Lr. No.SSIT/A2/Ch-44/Payment of Remuneration/2023 Dt. 07.06.2023

To
The Branch Manager
City Union Bank,
Poonthandalam,
Kancheepuram Dist.

Sir,

Sub: SSIT, Ch-44 – Payment of IEI Workshop Remuneration amount credited through **Fund Transfer** (held on 04.01.2023 & 05.01.2023)– Requested - Reg.

******

We have enclosed herewith a Yourself **Fund Transfer** cheque as given below along with the details of the Members Account No. Name of the Bank, IFSC Code of the individual branch of the CUB for kind information.

S.No.	Bank Name	Cheque No. &Date	Amount
1.	CUB Bank Account Holders	000007 07.06.2023	6,500/-
		TOTAL	**6,500/-**

(Rupees Six Thousand Five Hundred only)

Therefore, it is requested that the amount may kindly be credited into their account through Fund Transfer. The name of Members are furnished in the excel format in your mail Id. Cub634@cityunionbank.in with a hard copy.

Thanking you,

CITY UNION BANK

PRINCIPAL
PRINCIPAL
SRI SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044

Encl: as above

SRI SAIRAM INSTITUTE OF TECHNOLOGY

IEI WORKSHOP (2 DAYS FROM 04.01.2023 TO 05.01.2023)

S.NO	Name as per the bank account	Bank Account Number	Name of the ban	Branch	IFSC Code	Amount
1	K.PALANIKUMAR	500101012080276	CUB	POONTHANDALAM	CIUB000634	2000
2	S.RAJARAJAN	500101012079956	CUB	POONTHANDALAM	CIUB000634	1500
3	S.VIGNESWARAN	500101011224285	CUB	POONTHANDALAM	CIUB000634	1000
4	M.MAREESWARAN	500101012080596	CUB	POONTHANDALAM	CIUB000634	1000
5	E.BALAKRISHNAN	500101012083220	CUB	POONTHANDALAM	CIUB000634	1000
					TOTAL	6500

PRINCIPAL
SRI SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044

CUB

POONTHANDALAM
Sri Sairam Engineering College campus
POONTHANDALAM 600044 - 600044
IFS Code : CUBB000634

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For SIT IE I STUDENT CHAPTER

Trustee

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Founder Chairman : MJF. Ln. Leo Muthu

Dr.K.PALANIKUMAR, M.E.,Ph.D.,
Principal

Lr. No.SSIT/A2/Ch-44/Payment of Remuneration/2023 Dt.07.06.2023

To:
The Branch Manager,
City Union Bank,
Poonthandalam,
Kancheepuram Dist.

Sir,

Sub: SSIT, Ch-44 – Payment of IEI Workshop Remuneration amount credited through **NEFT Transfer** (held on 04.01.2023 & 05.01.2023)– Requested - Reg.

*****

We have enclosed herewith **Yourself Bulk NEFT** cheque with the details of the Members Account No. Name of the Bank, IFSC Code of the individual's branch of the CUB for kind information.

S.No.	Bank Name	Cheque No. &Date	Amount
1.	Other Bank Account Holders	000008 07.06.2023	6,500/-
		TOTAL	**6,500/-**

(Rupees Six Thousand Five Hundred only)

Therefore, it is requested that the amount may kindly be credited into their account through NEFT. The name of Member are furnished in the excel format in your mail Id. Cub634@cityunionbank.in with Hard copy.

Thanking you,

Encl: as above

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PRINCIPAL
SRI SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044

SRI SAIRAM INSTITUTE OF TECHNOLOGY

IEI WORKSHOP (2 DAYS FROM 04.01.2023 TO 05.01.2023)

S.NO	Name as per the bank account	Bank Account Number	Name of the bank	Branch	IFSC Code	Amount
1	S.ILAIYAVEL	0467293948	INDIAN BANK	SRIPERUMBUDUR	IDIB000S080	3500
2	VISHWA DHAKSHANAMURTHY	50100421892323	HDFC	VILLUPURAM	HDFC0001075	3000
					TOTAL	6500

PRINCIPAL
SRI SAI RAM INSTITUTE OF TECHNOLOGY
SAI LEO NAGAR, CHENNAI-600 044

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a sum of Rupees ...Four thousand Eight hundred...

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Head of A/c. Debit Certificates Printing

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a sum of Rupees One hundred only.

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on account of / in payment of ... Banner & Installation - DEE

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a sum of Rupees Three thousand only.

on account of / in payment of Travel allowance - IEP event

by CASH / CHEQUE No..... dated ..... of .....

Rs. 3000/-

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TAMILNADU STATE COUNCIL FOR SCIENCE AND TECHNOLOGY
DOTE Campus, Chennai-600025

STUDENT PROJECT SCHEME 2019-2020
APPROVED LIST OF PROJECTS - ENGINEERING STREAM

No.	Guide Name & Address	Title of the Project	Student(s) Name	Code	Amt. Rs.
Chemical Engineering					
1.	Dr.M.Rengasamy Assistant Professor Dept. of Petrochemical Engg, Anna University Tiruchirappalli-620024	Fabrication of capillary action crude oil removal and recovery model to clean up oil spills	V.Krishna Theja S.Manojkumar V.Vijayakumar	CHE-001	7500/-
2.	Dr.N.Samsudeen, AP & Dr.K.M.Muthukumar Professor Dept. of Chemical Engg National Institute of Tech. Tiruchirappalli-620015	Simultaneous electricity and bio butanol production from industrial waste water treatment using microbial fuel cell	Khadeeja Parveen	CHE-002	7500/-
3.	Mr.S.Yuvaraj Assistant Professor Dept. of Chemical Engg Adhiyamaan College of Engg, Hosur-635109	Experimental investigation on extraction (Soxhlet + Microwave assisted) and drying characteristics of red dragon fruit (Hylocereus polyhizus)	Arun R Kabileeshwaran S Muthupandi S Nandhakumar T	CHE-003	7500/-
4.	Mr.M.P.Murugaesan Assistant Professor Dept. of Chemical Engg Erode Sengunthar Engineering College Erode-638057	Production of the oral dosage form for the treatment of cholestrol and vitamin deficiency from the natural source	J.V. Dhanagopal M.S.Idhikaskumar A.Aravinth R.Hariharan	CHE-004	7500/-
5.	Dr.R.Palani Associate Professor Dept. of Chemical Engg Sri Venkateswara college of Engineering, Sriperumbudur-602 117	Removal of Chromium(VI) from contaminated water by using the petals of banana blossoms	I.Becky Miriyam	CHE-005	7500/-
6.	Dr.M.D.Duraimurugan Professor Dept. of Petro Chemical Technology Excel College of Engg and Technology, Namakkal-637303	Extraction and recovery of azo dye into an anionic liquid	Kanchaiya Kumar Sumit Kumar Sajid Ahmed K Mohamed Arshad Mahboob N	CHE-006	7500/-
7.	Dr.C.Gomadurai Associate Professor Dept. of Chemical Engg Kongu Engg College Erode-638 060	Experimental Studies on leaching of copper from chalcopyrite using mixed solvent	C.Prabhu V.Shree Ram R.Vinith	CHE-007	7500/-
8.	Mr.D.Sreenivasan Assistant Professor Dept. of Chemical Engg., Paavai Engg College Namakkal-637018	Isolation of Chitin and Chitin derivative from shell waste (Scylla serrata)	A.Suresh Babu S.Parandhaman P.Adnan Sreerag Manikandan	CHE-008	7500/-
9.	Dr.S.Satheeskumar Professor Dept. of Nanotechnology KSR College of Tech Namakkal-637215	Electroless deposition of copper - zinc oxide nano particle on banana bark fiber silk to produce high efficient anti-bacterial bandages	S.Praveen Kumar	CHE-009	5500/-

10.	Dr.K.Nagarajan HOD, of Chemical Engg Rajalakshmi Engineering College, Chennai-602105	Encapture of carbon from exhaust gas of two wheelers with wate soluble aminw polymer	Aswini.M Dharshana.S Varshini Ramesh	CHE-010	7500/-
11.	Dr.R.Rajesh Kannan Assistant Professor Dept. of Chemical Engineering Annamalai University Annamalai Nagar-608002	Studies on removal of dyes using nanosorbent from Hydrilla verticillata Plant	D.Dharanitharan	CHE-011	7500/-
12.	Dr.K.P.Bhuvana Assistant Professor Central Institute of Plastics Engineering and Tech., Chennai-600032	Preparation and Antibacterial activities of Chitosan based Silver nanoparticles embedded in Sodium Alginate Nanofibers for Hepatocellular Regeneration	G.Manikandan M.Yuvashree	CHE-012	7500/-
13.	Mr.B.Ganesh Assistant Professor Dept. of Chemical Engg Adhiparasakthi Engineering College,Chennai-600025	Purification of contaminated ground water by using cost effective filter	S.Arun A.Mathi M.Mohan Kumar	CHE-013	7500/-
14.	Dr.Gomathi Priya Professor,Dept. of Chemical Engg,ACTech Campus Anna University Chennai-600025	Energy and exergy analysis of various food products using batch dryer	Mohamed Aadil Arsh A.G.M Manish Kumareswar Garthick Aswin A.S	CHE-014	7500/-
15.	Dr.D.Thiruppathi Assistant Professor Dept. of Chemistry Vivekanandha College Thiruvedakam West-625234	Fabrication of DNA base fluorescent biosensor based on (Ru(dpphen) Complex	J.Ravichandran	CHE-015	7500/-

Civil Engineering

16.	Mr. A. Vishnu Assistant Professor Dept. of Civil Engineering Kumaraguru College of Technology Coimbatore - 641 049	Self Curing Concrete using Biomaterials like Calotropis Giganntea, Sipinacea Olearracea and Cyprus Bark as Admixtures	Muhammed Afzal Khan R. Harini R. C. Jayanth	ECV-001	7500/-
17.	Dr. R. Sathia Associate Professor Dept. of Civil Engg. Jeppiaar Engineering College, Chennai - 600 119	Development of Binary and Ternary Geopolymer Concrete by replacing various Mineral Admixtures	N. Swathi N. Tasbihaa Yasmin V.K. Vincy Priya S. Youvasri	ECV-002	7500/-
18.	Mr. V. Senthil Kumar Assistant Professor Dept. of Civil Engg. Surya Group of Institutions Villupuram - 605 652	Assessment of Noise Pollution in Various Zones of Villupuram Town	S. Maamadhuram Vaigarai M. Bhavani B. Pragadeeshwari	ECV-003	7500/-
19.	Dr. R. Vidya Assistant Professor Dept. of Civil Engg. M.A.M. College of Engineering and Technology,Siruganur, Trichy-621 105	Biotic Filter for Reducing the Concentration of CO2	S. Santhosh Sivan K. Kalaiyappan V. Ram Kumar J. Santhosh Kumar	ECV-004	7500/-
20.	Mr. P. Sri Balaji Assistant Professor Dept. of Civil Engg., St. Joseph's College of Engineering,OMR, Chennai - 600 119	Micro Plastic Contamination Related Health Risk Assessment From Gravitational Settling Dust in Chennai Metropolitan City	S. Sudarsan G.M.R. Rohith G. Srisivachandira	ECV-005	7500/-

21.	Dr. P. Asha, Professor Dept. of Civil Engg. St. Peter's Institute of Higher Education and Research,Avadi, Chennai-62	Sustainable, Lightweight and Thermal Resistant Concrete Panels using Corn Waste	M. Thanvelu J. Sifra V. Varun M. Sowmya Narayanan	ECV-006	7500/-
22.	Ms. P. Easwary Assistant Professor Dept. of Civil Engg., Mailam Engineering College, Mailam - 604304	Making Green Porous Concrete for Rain Water Harvesting and Urban Pavements	T. Varsha S. Yuvasri V. Vinothini S. Aisha	ECV-007	7500/-
23.	Ms. M. Bhuvaneswari Assistant Professor Dept. of Civil Engineering Roever College of Engineering and Technology Perambalur - 621 220	Mechanical Properties of Concrete Mixed with Shredded Tablet Cover Fibre	S. Gengadevi D. Maheswari A. Rasheetha Sameem A. Saranya	ECV-008	7500/-
24.	Dr. M.N.A. Gulshan Taj. Associate Professor Dept. of Civil Engineering Sona College of Tech., Salem - 636 005	Low Cost Eco-friendly sanitary napkins using banana fibers	S. Kavyaa	ECV-009	5500/-
25.	Mr. P. Sooriya Narayanan Assistant Professor Dept. of Civil Engineering Sri Ramakrishna Engineering College Coimbatore - 641 022	Electro-osmotic consolidation of peaty/mushy soils at Nadukani, Nilgiris region for landslide risk reduction management	R. Bhaviya S. Divine Salvia G. Sri Harini R. Sulekha	ECV-010	7500/-
26.	Dr. S. Karthikeyan Associate Professsor Dept. of Civil Engineering Anna University Chennai - 600 025	Assessment of Mercury in Ambient Air and its human exposure in Chennai	S. Arunmuthu	ECV-011	7500/-
27.	Dr. S. Chitra Assistant Professor Dept. of Civil Engineering Government College of Technology Coimbatore - 641 013	Bond strength investigation on corroded reinforced concrete(RC) elements with corrosion inhibitors	M. Muhsina Parveen	ECV-012	7500/-
28.	Ms. K. Valarrani Assistant Professor PSN Engineering College Melathediyoor, Palayamkottai Tirunelveli – 627 152	Treatment of Milk Dairy Farm Effluent by Natural Coagulant	Bharathwaj Velmurugan	ECV-013	7500/-
29.	Dr. K. Jayasudha Associate Professor Dept. of Civil Engineering MRK Institute of Technology Cuddalore - 608 301	Investigation and implementation of rain water harvesting in our College campus	T. Aakashraj J. Ajay A. Baranitharan N. Pradheepkumar	ECV-014	7500/-
30.	Dr. J. Sahaya Ruben Head and Professor Dept. of Civil Engg., Rohini College of Engineering and Tech. Kanyakumari-629 401	Effective utilization of sludge waste as a partial replacement of fine aggregate in construction application	C. Jenita P. Balasowbarnika M.L. Priya M. Thanga Priya	ECV-015	7500/-
31.	Mr. K. Sankar Assistant Professor Dept. of Civil Engineering Muthayammal Engineering College, Rasipuram-637 408	Utlization of Textile Sludge in Cement Mortar and Paste	S. Mounika P. Dinakaran M. Ulaganathan K.A. Gokul	ECV-016	7500/-

32.	Ms. M. Romeekadevi Assistant Professor Dept. of Civil Engg. Bharathiyar Institute of Engineering for Women Deviyakurichi - 636 112	Experimental Investigation on Hybrid Fiber Concrete by using Environ-mentally Contamin-ating Material	R. Tamilselvi R. Kowsalya P. Kalpana	ECV-017	6500/-
33.	Mr. B. Sivasakthi Assistant Professor Dept. of Civil Engg. N.S.N. College of Engineering and Tech., Karur - 639 003	Implementation of Traffic Management by using Intelligent Traffic Control System with Wireless Sensor Network	T. Kubendran P. Logesh N. Sivagurunathan	ECV-018	6500/-
34.	Dr. M. Kannan Professor Dept. of Civil Engineering Parisutham Institute of Technology and Science,Nanjikottai, Thanjavur - 613 006	Assessment of Groundwater Improvement by using GIS Techniques in and around Orathanadu Taluk, Thanjavur District	T. Arthi V.K. Anooshya M. Durga Devi G. Murugeshwari	ECV-019	7500/-
35.	Ms. K.S. Shobana Assistant Professor Dept. of Civil Engg Dr. N.G.P. Institute of Technology Coimbatore - 641 048	Soil Stabilization using treated Textile Waste	K. Ajitha P. Karthick H. Dines	ECV-020	7500/-
36.	Dr. K. Mahendran Professor & Director Centre for Rural Technology (Dept of Civil Engg) The Gandhigram Rural InstituteGandhigram- 624 02	Experimental Study on Stabilized Mud Blocks using Bio-Enzyme	J. Sadhana J. Priya	ECV-021	7500/-
37.	Mr. S. Ashok Kumar Assistant Professor Dept. of Civil Engg. Narasu's Sarathy Institute of Technology Salem - 636 305	Experimental Study on Zero Cement and Zero Water Curing Eco Friendly Concrete for Sustainable Environment	R. Naveen V. Rameshkumar A. Praveenkumar	ECV-022	6500/-
38.	Ms. M. Sivaranjani Assistant Professor Dept. of Civil Engg. Adithya Institute of Technology Coimbatore - 641 107	Effect of Consolidation and Swell properties of Soil Stabilized using Arecanut Husk Ash	K. Haridevan B.D. Yuvas Pravin T. Velmurugan	ECV-023	7500/-
39.	Dr. V. Rajagopalan Assistant Professor Dept. of Civil Engg., University College of Engineering (BITCampus) Anna University Trichy – 620 024	Comparative Study on Clay Soil Stabilisation with Silica Fume and Fly Ash for Engineering Applications	R. Senthoorya M. Surendhar V. Tamilarasan R. Akalya	ECV-024	7500/-
40.	Dr. K. Vidhya Professor & Head Dept. of Civil Engineering Mahendra Engineering College, Namakkal-637503	A Novel Approach on Manufacturing of Light Emitting Brick	A.P. Anshad A.K. Akhil V.N. Nisar	ECV-025	7500/-
41.	Dr. P. Oliver Jayaprakash Professor Dept. of Civil Engineering Sethu Institute of Technology Pulloor - 625 006	Development of Low Cost Building Blocks for Cost Effective Mass Houses in Rural TamilNadu	J. Logeswari R. Madhumitha K. Monisha	ECV-026	7500/-

42.	Mrs. P. Karthika Assistant Professor Dept. of Civil Engineering Nandha Engg College Erode - 638 052	An Experimental Study on Strength and Durability Properties of Concrete by Partial Replacement of Steel Slag and Glass Powder with Cement	K. Vishnuprasad	ECV-027	7500/-
43.	Dr. R. Sudharsanan Associate Professor Dept. of Civil Engineering Velammal Engineering College,Surapet, Chennai - 600 066	Self Contained Compacted Bio-Filter for Water Treatment	S. Sudharsan R. Mohamed Musthafa G. Raghul	ECV-028	7500/-
44.	Ms. T. Kousalya Assistant Professor Dept of Mechanical & Automation Engineering SNS College of Technology Vazhiyampalayam , Coimbatore - 641 035	Design and Fabrication of Self-Directed Wall/Ceiling Designer	R. Sathiyaseelan M.A. Naveen T. Keerthivasan S. Deepakraj	ECV-029	7500/-
45.	Dr. E. Arunbabu Assistant Professor (SG) Dept. of Civil Engineering Centre for Water Resources, CEG, Anna University Chennai - 600 025	Integrated assessment of Water Quality by In-Situ Testing and Remote Sensing Techniques	A. Abdul Wahid	ECV-030	7500/-
46.	Mr. R. Navis Sylor Bose Assistant Professor Dept. of Civil Engineering DMI Engineering College Aralvoimozhi - 629 301	Construction of Economically Efficient Buildings U-Boot Voided Concrete Slab	A. Rashmiya T. Shuruthi L. Daphny Gnanam	ECV-031	7500/-
47.	Dr. M. Muthukannan, Professor Mr. A. Chithambar Ganesh, AP Dept. of Civil Engg., Kalasalingam Academy of Research and Education Krishnankoil - 626 126	Utlization of Industrial Waste in the Production of Energy Efficient Bricks	M. Dhivya C. Sangeetha Bijula J. Shalom Paulin Daffodile	ECV-032	7500/-
48.	Dr. T.CH. Madhavi Professor & Head Dept. of Civil Engg., SRM Institute of Science and Tech.,Ramapuram, Chennai - 600 089	Textile Reinforced Concrete - A Novel and Innovative Material	P. Prajesh	ECV-033	7500/-
49.	Mrs. M. Poovizhiselvi Assistant Professor Dept. of Civil Engineering Erode Sengunthar Engineering College, Erode - 638 057	Removal of Nickel, Manganese, Zinc, Tannery Effluent using Eucalyptus Camaldulensis and Camellia Sinensis Absorbent	M.A. Jenisha	ECV-034	7500/-
50.	Mr. R. Janarthanan Assistant Professor Dept. of Civil Engineering Sri Vidya College of Engineering and Tech., Virudhunagar - 626 005	Experimental Research on Steel Column to Increase Strength by using Restrain Bars	R. Raje Kumar S. Pandiya Raj	ECV-035	7500/-
51.	Mr. K.V. Sabarish Assitant Professor Vels Institute of Science, Technology & Advanced Studies (VISTAS), Pallavaram, Chennai – 600 117	An Experimental Investigation on Low Calcium Fly Ash Based Geopolymer Concrete in Strength and Durability	M. Rahul Vigneshwaran G. Harinath	ECV-036	7500/-

52.	Dr. B. Soundara Professor Dept. of Civil Engineering Bannari Amman Institute of Technology Sathyamangalam-638401	Evaluation of Engineering Properties of Microbial (Bacteria) Stabilized Soil	S. Nithipandian V. Soundaryan	ECV-037	7500/-
53.	Mrs. N.R. Chitra Assistant Professor Dept. of Civil Engineering Institute of Road and Transport Technology Erode - 638 316	Generation of Bio-Fuel and Compost from Food Waste	B. Aishwarya B. Gokul Raj D. Jency Nikitha T. Dhanasekar	ECV-038	7500/-
54.	Ms. C. Indhu Assistant Professor Dept. of Civil Engineering Chettinad College of Engineering and Technology Karur - 639 114	Making of Bricks by using Granite Sludge Powder	M. Dharma K. Krishnaraj K. Kabilan G. Surya	ECV-039	7500/-
55.	Ms. D. Mythili Assistant Professor Excel Engineering College,Pallakkapalayam Namakkal – 637 303	Experimental Investigation on Strength of Concrete with Cactus	D.M. Jonisha E. Gopinath A. Ragul Krishnan B. Karthik	ECV-040	7500/-
56.	Mr. B. Abraham Ponsingh Assistant Professor Dept. of Civil Engineering Mookambigai College of Engineering Pudukkottai - 622 502	Sustainable Approach of Rain Water Harvesting on Flexible Pavement	S. Samynathan	ECV-041	7500/-
57.	Ms. P. Kothai Assistant Professor Dept. of Civil Engg., Theni Kammavar Sangam College of Technology Theni - 625 534	Experimental Investigation of Concrete using Alccofine	P. Rajapandi K. Balamurugan S. Mohamed Azarudheen J. Maharajothi	ECV-042	7500/-
58.	Mr. S. Balamurugan Assistant Professor Dept. of Civil Engg., Mount Zion College of Engg and Tech Pudukkottai - 622 507	Construction of Rainwater Harvesting in Government Middle School Pulivalam, Pudukkottai	L. Manikandan K. Sakthidasan S. Shanmugasundaram U. Muthumanikandan	ECV-043	7500/-
59.	Ms. S. Asvitha Valli Assistant Professor Dept. of Civil Engg., Francis Xavier Engineering College Tirunelveli - 627 003	Ground Improvement using Stone Columns Encased with Geonets	Mohammed Yahiya Khan Mohammed Faheem Muthupattan	ECV-044	7500/-
60.	Dr. R. Mohana Assistant Professor Dept. of Civil Engg Mepco Schlenk Engg College,Sivakasi, Virudhunagar-626 005	Bio-Composite as a Potentital Wood Substitute Material	R. Priya Shakthi M. Keerthana	ECV-045	7000/-
61.	Mr. K. Sathesh Kumar Assistant Professor Dept of Civil Engg Jai Shriram Engineering College, Tirupur - 638 660	Study on the Mechanical Properties and Structural Behaviour of Chopped Basalt Fiber Reinforced Self Compacting Concrete	N. Vishnuraj S. MaiKeerthivasan R. Jeevanatham	ECV-046	7500/-

62.	Dr. T. Muralikrishna Associate Professor Dept. of Civil Engineering R.M.K. Engineering College,Kavaripettai - 601 206, Thiruvallur	Cost Effective Paver Blocks using Rejected Charcoal Waste	R. Arunagiri S. Abhilash S. Akash S. Balaji	ECV-047	7500/-
63.	Mr. T. Santhosh Kumar Assistant Professor Dept. of Civil Engineering CK College of Engg and Technology Cuddalore - 607 003	Cellular Lightweight Concrete Blocks as a Replacement of Burnt Clay Bricks	M. Ranjith Kumar R. Manikandan G. Karthikeyan	ECV-048	7500/-
64.	Mr. N. Vellingiri Assistant Professor Dept. of Civil Engineering Sasurie College of Engg., Vijayamangalam-638 056,	Reduction of Energy by Inducing Fibre Optics in Concrete Block	L. Chandru G. Ranjith Kumar V. Vijaypandi A. Praveen Kumar	ECV-049	7500/-
65.	Dr. R. Divahar Associate Professor Dept. of Civil Engg., Aarupadai Veedu Institute of Technology, Paiyanoor - 603 104	Treatability Study of Combined Fruit and Vegetable Waste water using Hybrid upflow Anerobic Sludge Blanket Reactor (HUASB)	S. Karanraj S. Giridharan C. Mathan	ECV-050	7500/-
66.	Mrs. V. Sakthi Maragatham Assistant Professor Dept. of Civil Engineering Einstein College of Engineering Tirunelveli - 627 012	Experimental Investigation of Cement Concrete with Partial Replacement of E-Plastic Waste as Coarse Aggregate and Adding Human Hair Fiber	S. Alphanse A. Ganesan A. Muthumari K. Kalaiselvam	ECV-051	7500/-
67.	Mr. P. Easwaran Assistant Professor Dept. of Civil Engineering K.S. Rangasamy College of Technology Tiruchengode - 637 215	Performance Evaluation of Fly Ash/ Slag Based Glass Fibre Reinforced Geopolymer Concrete	R. Ranjith	ECV-052	7500/-
68.	Ms. R. Malathi Assistant Professor (Sr.Gr) Dept. of Civil Engg., Sri Ramakrishna Institute of Technology Coimbatore - 641 010	Experimental Study on Removal of Heavy Metals from Industrial Waste Water by using Activated Carbon (Prosopis Juliflora)	M. Ram Kumar S. Sathyan K. Philip	ECV-053	7500/-
69.	Dr. B. Venkatesan Assistant Professor Dept. of Civil Engineering & Structural Engineering Anna University, Regional Campus - Tirunelveli Tirunelveli - 627 007	Experimental Study on Reinforced Cocnrete using Partial Replacement of Fine Aggregate by Steel Slag and Coarse Aggregate by Walnut Shell	V.J. Lijina	ECV-054	7500/-
70.	Dr. G. Gnanapragasam Associate Professor Dept. of Civil Engineering IFET College of Engineering Villupuram – 605 108	Mini domestic sewage treatment plant for individual house	L. Tamilselvan V. Sriram S. Nandhini	ECV-055	7500/-
71.	Dr. P. Gajalakshmi Associate Professor Dept. of Civil Engineering B.S. Abdur Rahman Crescent Institute of Science and Technology Vandalur,Chennai-600048	Application of Bio medical waste for the development of sustainable concrete	K.N. Krishnaprasad	ECV-056	7500/-

72.	Ms. R.K. Sangeetha Assistant Professor Dept. of Civil Engineering Kongu Engineering College Erode - 638 060	Study the load carring capacity of paver blocks with partial replacement of cement by rice husk	S.R. Kaveya P. Karthik S. Gokul	ECV-057	7500/-
73.	Mr. S. Elayaraja Assistant Professor Dept. of Civil Engineering PSG Institute of Technology and applied Research Coimbatore - 641 062	Development of Site Specific Remedial Measures for the Recent (2019) Landslide in Nilgiris	G. Sahithya P. Indhu A. Asheeka	ECV-058	7500/-
74.	Mr. V. Raguraman Assistant Professor Dept. of Civil Engineering Sri Guru Institute of Technology Coimbatore – 641 110	Partial Replacement of OPC By Tamarind Fruit Shell Ash	K. Mohan Raj M. Rajesh Kumar S.V. Tino	ECV-059	7500/-
75.	Dr. S. Mariaamalraj Assistant Professor Dept. of Biotechnology Kamaraj College of Engineering and Technology Virudhunagar - 625 701	Design and fabrication of domestic wastewater recycler and herbal based drinking water purifier	U. Kavya G. Ramya Y. Swathi	ECV-060	7500/-

Computer Science and Engineering

76.	Dr.S.Saudia Assistant Professor Centre for Information Technology and Engg. Manonamaniam Sundaranar University Tirunelveli- 627 012	An automated tool for recognition of Videos in Tamil for relevant English subtitles generation	G.Natarajan I.Saravanan C.Subbu	CSE-001	7500/-
77.	Dr. M. Paulraj Principal Dept. of CSE Sri Ramakrishna Institute of Technology Coimbatore - 641 010	Design and Devlopment of Mehndi Applier Machine	U. S. Madhumitha T. S. Manoj Babu K. Vismitha	CSE-002	7500/-
78.	Dr. J. Yogapriya Dean Dept. of CSE Kongunadu College of Engineering and Technology Trichy - 621 215	Prediction of Learning Disabilities in Public School Childern	R. Yeshwanth S. Aravind Kishore B. Srija E. Mathumitha	CSE-003	7500/-
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Mechanical Engineering

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309.	Mr. S. Balamurugan Assistant Professor Dept. of Mechanical Engg KSR Institute for Engineering and Technology Tiruchencode - 637 215	Design and analysis of I.C.Engine piston with ceramic coating	V. Bharath E. Boopathi Raja K.M. Boopathy K. Chandrasekar	EME-002	7500/-

310.	Mr. S. Sivaselvan Assistant Professor Dept. of Mechanical Engineering N.S.N. College of Engineering and Technology Karur - 639 003	Design and fabrication of multipurpose mini CNC machine controlled by lab view software	B. Subashkrishna C. Tamilselvan N. Tamilselvan	EME-003	7500/-
311.	Mr. S. Thiagarajan Assistant Professor Dept. of Mechanical Engineering Easwari Engineering College Chennai - 600 089	Design and fabrications of automatic solar tracking system with panel cleaning mechanism	G. Ragav Thilak G.R. Niranjan Harikumar J. Prasanth	EME-004	7500/-
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316.	Mr. S. Arulkumar Assistant Professor Dept. of Mechanical Engineering Dr. Mahalingam College of Engg and Technology Coimbatore - 642 003	Smart stair climbing wheelchair	V. Rahavan	EME-009	7500/-
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321.	Dr. M. Edwin Assistant Professor Dept. of Mechanical Engineering University College of Engg. Kanyakumari - 629 004	Ecofriendly reversible flat bed dryer operated with producer gas from agro waste for agricultural products drying	D.I. Dinesh Saravan P. Arvind P. Surjith F.L. Libin	EME-014	7500/-
322.	Mr. N. Venkatachalapathy Assistant Professor Dept. of Mechanical Engg. PSN Engineering College Tirunelveli - 627 152	Design and fabrication of adjustable wheelchair for disabled person	U. Amal Dev R. Palpandian S. Ilayathalapathy	EME-015	7500/-
323.	Dr. D. Sangeetha Assistant Professor (Sr Gr) Dept. of Mechanical Engineering Anna University College of Engineering Chennai - 600 025	Fabrication and Characterization of inconel 718 wave springs by SLM technique for automative applications	K.B. Deepalakshmi M. Dhamini P.L. Lakshmanan	EME-016	7500/-
324.	Dr. N. Baskar, Mr. S. Karthikeyan Professor, Assistant Professor Dept. of Mechanical Engg. Saranathan College of Engineering Trichy - 620 012	Design and fabrication of friction welding joint on aluminium alloy grade 6351	P. Praveen Kumar V. Prethish N. Ragunath R. Sabareeswaran	EME-017	7500/-
325.	Dr. R. Ganesh Assistant Professor Dept. of Mechanical Engineering Parisutham Institute of Technology and Science Thanjavur - 613 006	Design and fabrication of self circulating fluidized bed biomass gasification	R. Aravindhan S. Pradeep Kumar T. Ramanathan	EME-018	7500/-
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327.	Dr. S. Manoj Assistant Professor Dept. of Mechanical Engineering SRM TRP Engineering College, Trichy - 621 105	Portable UV treated RO straw	B. Subash R. Suriya Prakash S. Siva S. Vigneshwaran	EME-020	7500/-

328.	Mrs. J. Megala Associate Professor Dept. of Mechanical Engineering S.A. Engineering College Chennai - 600 077	Mission for blind people	S. Vijay K. Shyam Prakash R. Praveen Kumar	EME-021	7500/-
329.	Mr. S. Suresh Assistant Professor Dept. of Mechanical Engineering Einstein College of Engineering Tirunelveli - 627 012	Design and implementation water as fuel in automobile	E. Arunmani srikanth S. Divakara M. Lakshmanan M. Madhan Kumar	EME-022	7500/-
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340.	Dr. V. Muthukumar Professor Dept. of Mechanical Engineering Saveetha Engineering College Chennai - 602 105	Development of economic ,energy efficient and eco friendly cooling system for solar panels	D. Vasantha Kumar Mr. Neeruganti Ramana Pasuvula Manjunath Reddy	EME-033	7500/-
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348.	Mr. A. Aruljothi Assistant Professor Dept. of Automobile Engineering Karpaga Vinayaga College Of Engineering and Technology Kanchipuram - 603308	Hybrid vehicle with regenerative charging system	R. Suriya G. Sundararaman B. Hari Prasath K. Aravindhan	EME-041	7500/-
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353.	Mr. M. Kathirselvam Assistant Professor Dept. of Mechanical Engineering K.S. Rangasamy College of Technology Tiruchengode - 637 215	Smart Trolley	S.Bharathkumar S.P.Dhivakar G.Hari R.Karthikeswaran	EME-046	7500/-
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356.	Dr.V.Ganesh Asst.Professor Dept.of Automobile Engineering Sri Vengateshwara College Of Engineering Sriperumbudur - 602117	Design and fabrication of load adaptive braking system on a two wheeler	V.Raghuraman S.Gokul A.Manoj kumar N.Dhivakkar	EME-049	7500/-
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358.	Mr. K. Thirumalai Kannan Assistant Professor Dept. of Mechanical Engineering SNS College of Engineering Coimbatore - 641 107	Smart water guard	S. Ayyasamy S. Balamurugan R. Berdin M. Chidambara Selvan	EME-051	7500/-
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362.	Dr. G. Shanmugasundar Associate Professor Dept. of Mechanical Engineering Sri Sairam Institute of Technology Chennai - 600 044	Design and fabrication of solar powered surveillance drone for women safety	Abhishek G Shanker V.S. Vinoth Abhilash K. Vijayalayan S. Jayaraman	EME-055	7000/-
363.	Dr. S. Sundaram Professor&Dean Dept. of Mechanical Engineering Muthayammal Engineering College Rasipuram - 637 408	Design and implementation of automatic smart irrigation system for farmers using IoT technology	P. Aravindhan N. Bhaarath Kumar R. Dinesh R. Jayapal	EME-056	7500/-
364.	Mr. G. Vignesh Assistant Professor Dept. of Mechanical Engineering Karpagaam Academy of Higher Education Coimbatore - 641 021	Design and fabrication of portable separator cum recycling unit for zinc-carbon (AA&AAA) batteries	S. Karthick R. Mohamed Tharick D. Mohanraj S. Surendrakumar	EME-057	7500/-
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366.	Mr. S. Bhagavathi Shankar Assistant Professor Dept. of Mechanical Engg. Amrita College of Engineering and Technology Kanyakumari- 629 901	Design and fabrication of semi-automatic stretcher cum wheel chair for medical need	S. Sujith Y. Calvin Paul Singh C. Esaimani R. Venkatesh	EME-059	7500/-
367.	Mr. Nair Ajit Venugopalan Assistant Professor Dept. of Mechanical Engg., Velammal Institute of Technology Thiruvallur - 601 201	Automatic toilet cleaner	T. Selvaganapathy A. Bala Subramanian Shaik Naib Rasool	EME-060	7500/-
368.	Dr. G. Kannan Professor Dept. of Mechanical Engg., IFET College of Engineering Villupuram- 605108	Household incinerator	M. Aravindhan T.D. Manimaran E. Kishore	EME-061	7500/-
369.	Mr. R. Jaison Assistant Professor Dept. of Mechanical Engineering Francis Xavier Engineering College Tirunelveli - 627 003	Design and fabrication of composite roofing tiles using coir bamboo and cement composite	L. Varadharajan R. Siva Subramanian C. Soma Sundaram D. Rajesh Tamilselvan	EME-062	7500/-
370.	Dr. S. Karthikeyan Professor &Head Dept. of Mechanical Engineering Syed Ammal Engineering College Ramanathapuram-623 502	Solar power based production of oxyhydrogen (HHO) for cooking purpose	G. Mukeshkumar R. Krishna Moorthi N. Murasolimaran N. Nambu Prasath	EME-063	7500/-

371.	Dr. V. Savithiri Professor and Head (Lab Affairs) Dept. of Mechanical Engineering St. Joseph's Institute of Tech., Chennai- 600 119	Design and development of fixture for PEM Fuel cell assembly	S. Barath B. Abimanyu	EME-064	7500/-
372.	Mr. M. Arulraj Assistant Professor Dept. of Mechanical Engineering Coimbatore Institute of Engineering and Technology Coimbatore - 641 109	Development of metal-matrix composite from industrial / agricultural waste materials	R. Surya Prakash A. Venkatesh S. Marimuthu T. Sudharsan	EME-065	7500/-
373.	Dr. B.R. Ramesh Bapu Professor & Dean Dept. of Mechanical Engineering Chennai Institute of Tech. Chennai-600 069	Design & Fabrication of hospitality robot for in-house aged patients in hospitals	P. Kamikkiya M. Saranya V. Sathuryaa	EME-066	7500/-
374.	Mr. P.Selvan Assistant Professor Dept. of Mechanical Engineering Mepco Schlenk Engineering College Virudhunagar- 626005	Emhancing the heat transfer rate for the specially designed heat exchanger in a solar collector using hybrid nano fluid	A. Abishek M. Manikandan Mohamed Faizal S Harikumar S	EME-067	7500/-
375.	Mr. M. Visvam Assistant Professor Dept. of Mechanical Engg., MIET Engineering College Trichy- 620007	Design and fabrication of fume arrester using peanut shell biofilter for Arc welding application	S Anwar kaleem J Mohamedkhalith S Athief R Jafar Hussain Ahamed	EME-068	7500/-
376.	Mr. M. Vijaya Kumar Assistant Professor Dept. of Mechanical Engg., M. Kumarasamy College of Engineering Karur - 639 113	Single Spherical wheel mobile robot	M.Piraveen A.Sridharan M.Vigneshwaran	EME-069	7500/-
377.	Mr. A. Karthikeyan Associate Professor Dept. of Aeronautical Engineering Excel Engineering College Namakkal - 637 303	Design and fabrication of smart drone for feeding and cleaning in zoo	Anmol Krishna Mohan chaudhary Moaz Hussain C Deepan A. Latshathipathi	EME-070	7500/-
378.	Mr. P.V. Inbanaathan Assistant Professor Dept. of Production Engineering Sri Sairam Engineering College Chennai - 600 044	Power generation from waste heat using micro organic rankine cycle for small scale industries	I.Jebin Joshua K. Jeya Vignesh V.Aravind R. Manikaraj	EME-071	7500/-
379.	Mr.N. Ramachandran Assistant Professor Dept. of Mechanical Engineering Sri Krishna College of Engineering and Tech., Coimbatore - 641 008	Automatic fire fightng robot with smart camera	R. Palanivel B. Nirmal P. Nishanth Kalathil	EME-072	7500/-

380.	Mr. I. Rajkumar Assistant Professor Dept. of Mechanical Engineering Kalasalingam Academy of Research and Education Krishnankoil-626126	Copra Heater	A.Aswin Singh J. Sashikrishnan RM. Subramanian M. Soma Sundaram	EME-073	7500/-
381.	Mr. A. Shyam Assistant Professor Dept. of Mechanical Engineering Gojan School of Business and Technology Chennai-600 052	Portable solar refrigeration system- A novel food and vaccines preservation technology	A Amit Jain M Sakthivel K Sampathkumar R Wilson	EME-074	7500/-
382.	Mr. G. Muralidharan Assistant Professor Dept. of Aeronautical Engineering Surya Group of Institutions Vikravandi - 605 652	Alternative fuels for green aviation	K Dinesh Kumar N Prathip Raj R Srirama Subramania Moorthy T. R. B. Greetharan	EME-075	7500/-
383.	Mr.J.Jenix Rino Assistant Professor & Head, Dept. of Mech. Engg., Stella Maris College of Engg., Aruthenganvilai Kanyakuamari- 629 202	Study on influence of nanofiller in glass fiber reinforced polymer matrix composite	Leo Abijith Antony Jemson Dhas T.Liban Shajith J.Abison	EME-076	7500/-
384.	Mr. A. Gowrishankar Assistant Professor Dept. of Mechanical Engg. Paavai College of Engineering Namakkal-637018	Thermal desalination using diesel engine exhaust waste heat	V S Navinesh S Praveen A Preethkumar D Sathya	EME-077	7500/-
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386.	Dr. V.A. Nagarajan Assistant Professor Dept. of Mechanical Engineering University College of Engineering Nagercoil-629004	Reuse of textile waste for the development of light weight composite panels for multistoried building	Akash R Faris Mohamed.S Saravanan. N.A J Sugan	EME-079	7500/-
387.	Dr.A.R.Suresh Head, Dept. of Mech. Engg. Kathir College of Engineering, Wisdom Coimbatore – 641 062	Mobile Solar Tunnel Dryer	M.Gowtham I.Johnpaul Newton P.Abiud	EME-080	7500/-
388.	Dr. M. Muthukannan Assistant Professor Dept. of Mechanical Engg. SSM Institute of Engg and Technology Dindigul-624002	Extraction of bio oil through electronic waste	S Akshar Ali S Gangatharan V Johnson M Karthik	EME-081	7500/-

389.	Prof.K.Arulkumar Assistant Professor Dept. of Mech Engg Excel College of Engineering and Technology Namakkal 637303	Optimization of hand gesture in pick and place robot arm	Allwin Joseph Anand.R Dinesh Kumar.K Felix Britto.N	EME-082	7500/-
390.	Mr. V. Dinesh Babu Assistant Professor Dept. of Aeronautical Engineering Nehru Institute of Engineering and Technology Coimbatore - 641 105	Coherent Flying Object	Vasudev U Tamil Selvam K B	EME-083	7500/-
391.	Dr. J. Ajith Kings Assistant Professor Dept. of Mechanical Engineering St. Xavier's Catholic College of Engineering Nagercoil - 629 003	Design and fabrication of novel photo-bioreactor and microalgae cultivation using polluted air and waste water	Shambu S Krishna Pranav V N Stalin Vijay P Vivek S	EME-084	7500/-
392.	Dr. L. Anoj Kumar Associate Professor Dept. of Mechanical Engg. Jansons Institute of Technology Coimbatore - 641 659	Shredding of areca powder from disposal areca leaf for manure and food for cattle	Jayavarthanavel E Karthik M Muthuraj K Divisharan PS	EME-085	7500/-
393.	Mr. P. Manickavasagam Assistant Professor Dept. of Mechanical Engg. Nandha College of Technology Erode - 638 052	Solid waste management system for hot water generation using incinerator for ladies hostel application	Loganathan R Deepak M Dhivagar G Arunkumar S	EME-086	7500/-
394.	Mr. K. Karthik Assistant Professor Dept. of Mechanical Engineering Coimbatore Institute of Technology Coimbatore - 641 014	Optimization of process parameters of abrasive waterjet machining on SS 304	David Smith Sundarsingh Gopi Karthick R M Harivignesh M Praveen	EME-087	7500/-
395.	Ms. J.Deepika Assistant Professor Dept. of Mechatronics Engg., M.A.M. School of Engineering Tiruchirappalli - 621 105	Smart grid deployment in digital energy meter and theft control using internet of things	K Gowsalya A Abinas Kumar R Arun Kumar	EME-088	7500/-
396.	Mr. N. Arul Assistant Professor Dept. of Mechanical and Automation Engineering SNS College of Technology Coimbatore - 641 035	Development of agricultural multifunctional seed sower fertilizer sprayer & Weeding	J Ajai Milton M Aushman Sam Jebakumar V Jayasuriya S Sanjaikumar	EME-089	7500/-
397.	Dr. B. Ramesh Professor Dept. of Mechanical Engg., Sri Muthukumaran Institute of Technology	Automation of Pneumatic paper cutting machine	R Harish R Logannathan	EME-090	7500/-

	Chennai - 600 069				
398.	Mr K Nehru Asst. Prof. Dept. of Aeronautical Engg. SNS College of Technology Coimbatore - 641035	Morphing of an airplane wing acompanying electrorheological fluid structured actuators	Salamon Rago A Peratchi Selvan s Yogaselvan B	EME-091	7500/-
399.	Mr.S.Sathish AP/Mechatronics Engg. Mahendra College of Engg., Minnampalli Salem - 636106	Design and Fabrication of Accelerometer based hand gesture controlled robot	Antrouse.C Karthikeyan.S Purnima.T Zabiullah.R	EME-092	7500/-
400.	Dr Balakarthikeyan Asst. Prof. Dept. of Mechatronics Rajalakshmi Engineering College, Chennai	Disabled friendly battery operated four wheeled autonomous vehicle	Aravind sairam S R Ashok S Mohan Kumar Pooja N	EME-093	7500/-
401.	M.Vignesh Kumar Asst.Professor Dept.of MECH-ENGG KCG College Of Tech., Chennai – 600097	Agrobot in tomato farms	J.Hexin Joseph K.Gokulakrishnan Eban David	EME-094	7500/-
402.	Mr. L S Narenthira Assistant Professor Dept. of Mech Engg MIET Engg College Trichy-620007	Remote operated trash skimmer for lake	R Mangaiyarkarasi J Mohammed Aslam A Mohammed Jifri M Mounika	EME-095	7500/-
403.	Dr R Ramadoss Professor, Dept. of Mech. Engg. Eswari Engineering College Chennai-600089	Design and fabrication of motorized flyer for disaster management	S Aadarsh Rao Aravindha Narayanan M R Balachandar	EME-096	7500/-
404.	Mr.T.Tamilanban Asst. Prof.of Mech Engg., St.Josph's College of Engg. Chennai-602117	Double sided table fan with 360 degree rotations	A Mohammed Nadeem	EME-097	7500/-
405.	Dr.R.Parthasarathi Associate Professor Dept.of Mechanical Engg. V.S.B.Engineering College Karur - 639111	Rotating gate power generator	R.Vasanthakumar P.Surya R.Siranjeevi P.Ramakrishnan	EME-098	7500/-
406.	Mr P.Sivakumar Asst. Prof. of Mech Engg., SNS College of Engg., Coimbatore -641107	Design and fbrication of used vegetable oil powered burner	R Suresh S Suryamoorthy M Tamilarasan V Tamilarasan	EME-099	7500/-
407.	Dr. G. Karthikeyan Assistant Professor Dept. of Mech Engg University College of Engg Pattukottai-614701	Experimental investigation of Al6061/ZrO2 metal matrix composites	D Sakthivel A Ranjith Kumar A Santhosh Kumar S Nithish Kumar	EME-100	7500/-

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DOTE CAMPUS, CHENNAI - 600 025

STUDENT PROJECT SCHEME 2022-2023
UTILISATION CERTIFICATE

(TWO COPIES)

1. Name of the guide and address : **Dr.G. SHANMUGASUNDAR**
Professor and Dean R&D
Department of Mechanical Engineering
Sri Sri Ram Institute of Technology
Chennai -44.

2. Name of the student(s) :
S. Hari Skandan
S. Bharath Ganesh
S. Yuvaraj

3. Title of the project :

" DESIGN AND DEVELOPMENT OF AMPHIBIOUS VEHICLE (HBYV-1) FOR HUMAN RESCUE AT HIGH FLOODED AREAS "

4. Project code : **EME - 0750**

It is certified that a sum of **Rs.7500 (Seven thousand five hundred Only)** Sanctioned by the council for carrying out above mentioned student project has been utilized for the purpose for which it was sanctioned and sum of **Rs NIL** remaining unutilized is refunded.

Signature of the guide

Signature of the HOD

Dr.S.MURALI M.E., M.S., Ph.D.,
Professor & Head of the Department
Department of Mechanical Engineering
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Signature of the Principal
With SEAL

Dr.K.PALANI KUMAR
PRINCIPAL
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