



Let Us Do Science (LuDoS) Embarking Scientific Temper in the High School Children

Project Objectives

- Enhancing Science Education – Encouraging practical-based learning for high school science teachers.
- Hands-on Experience – Equipping teachers with experimental techniques and simulations to enhance classroom engagement.
- Bridging the Gap – Empowering teachers with innovative methodologies to strengthen science education.
- Science Outreach – Organizing exhibitions and demonstrations to inspire young minds.
- Target Reach: 6000 students (exhibitions), 200 teachers

Key Components

- Experimental Learning Kits – Affordable science experiments to enhance Teaching.
- Two-Day Workshops (LuDoS) – Training for high school teachers by distinguished scientists.
- Science Exhibitions – Interactive experiments and models to inspire students.
- Open Labs – Campus-based hands-on experience for students

Budget Summary

Sanctioned Body : DST - National Council for Science and
Technology Communication (NCSTC)

Sanctioned amount: Rs. 25,79,000/-

Duration: 01 Year
(2024 -2025)

~ Dr. K Naveen Kumar
Associate Professor
CSE-GST

Expected Outcomes

- Enhanced science teaching methodologies.
- Greater student engagement in STEM subjects.
- Improved awareness of scientific research and innovation.
- Strengthening STEM education in underprivileged schools.
- So far 13 exhibitions conducted in government secondary schools ..





AR/VR-Based Comprehensive Simulation for Article Life

Cycle Management

Problem Statement

- Training naval personnel on Article handling, testing, and maintenance involves significant risks due to the hazardous nature of live equipment. Traditional training methods pose safety concerns and require substantial logistical efforts. There is an urgent need for a safer, cost-effective, and immersive training solution to enhance operational readiness.

Project Overview

- This project, a collaboration between INS Kalinga and Gandhi Institute of Technology and Management (GITAM), aims to develop a Virtual Reality (VR) training platform that simulates the Article life cycle management process. The VR simulation will allow personnel to interact with Article components, testing equipment, and operational workflows in a risk-free

Budget Summary

Sanctioned Body : INS KALINGA

Sanctioned amount: Rs. 19,60,968 /-

Expected Outcomes

- Enhanced Training Efficiency - Hands-on experience without real-world risks.
- Cost-Effective & Scalable - Reduces reliance on actual Article handling.
- Improved Safety - Minimizes exposure to hazardous operations.
- Operational Readiness - Standardized procedures for better preparedness.



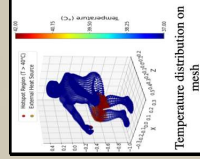
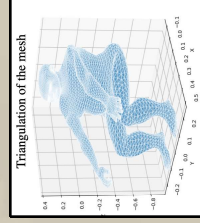
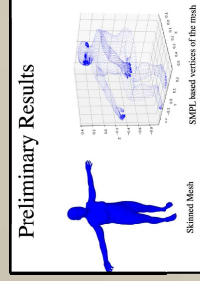
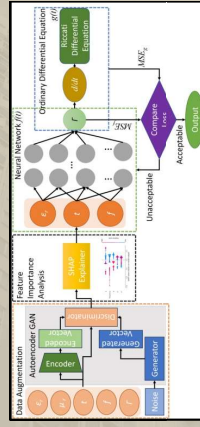
~ Dr. Mandava Kranthi Kiran
Assistant Professor
CSE-GST



Computational Anthropomorphic Model for Dosimetry Studies for Emerging Millimeter Wave based Applications

Project Objectives

- To create a generic anthropomorphic model that can be used for various millimeter wave applications
- To implement the computer aided techniques and simulations for analyzing the physio-electrical properties and their changes with the use of millimeter wave in biomedical applications.
- To analyze the performance of a computational model with the existing physical phantom counterparts
- To improve the performance and uncertainty of the model using physics informed learning



Expected Output and Outcome of the proposal

- Software to load the required input vector from the user (frequency, application, body part, selection of model (optional), electrical properties, etc.)
- Depending upon the given input, the data pre-processing will be automated.
- The learning-based module will be used to implement the multi-scale computational model.
- Report generation and data visualization of the output data It is expected that the accreditation laboratories can use the output of the project before recommending any technology for commercial/clinical trial.



~ Dr. Naina Narang
Associate Professor
CSE-GST

STUDENTS INVOLVED:

NIDADAVOLU NEHA
THOTAPALLY RAJU
YARKAREDDY SUKUMAR REDDY
G MIDHUNISHA
SAMHITH VIJAYAKRISHNA KOLLA
ROHIT PAUL TELAGATHOTI

Publications

- 1.N. Narang and G. Lingam, "Design of a Novel Explainable Adversarial Autoencoder Model for the Electromagnetic Analysis of Functional Materials Based on Physics-Informed Learning," in IEEE Access, vol. 12, pp. 166044-166057, 2024, doi: 10.1109/ACCESS.2024.3495732
- 2.Lingam, Greeshma and Narang, Naina, A Novel Millimeter-Wave Simulation Based Breast Cancer Detection Framework Using a Deep Belief Network with Fuzzy Restricted Boltzmann Machines. Available at SSRN: <https://ssrn.com/abstract=4961157> or <http://dx.doi.org/10.2139/ssrn.4961157>.
- 3.N. Narang and G. Lingam, " Design of a Physics-Informed Learning Model for the Electromagnetic Modeling of Functional Materials," in IEEE MAPCON 2024 to be held on December 9 - 13, 2024. (Presented)
- 4.N. Narang, "AI-based 3D Anthropomorphic Model for Electromagnetic Exposure Assessment at Millimeter Wave Frequencies", URSI-RASC 2025 (Communicated)

BUDGET SUMMARY

SANCTIONED BODY : BROAD AREA OF
RESEARCH: ELECTRICAL ELECTRONICS &
COMPUTER ENGINEERING (ENGINEERING
SCIENCES)
DST NO: SUR/2022/001610
DST SERB
SANCTIONED AMOUNT: RS. 18,70,260 /-
DURATION: 3 YEARS
(07-12-2023 TO 06-12-2026)