Name of the Society:

IEEE Engineering in Medicine and Biology Society(EMBS) BMSIT&M Student Branch

Date of Formation: October, 2024

Coordinator:

Dr. Asha G Hagargund

Objective:

The IEEE Engineering in Medicine and Biology Society (EMBS) aims to advance medicine and biology by applying engineering sciences and technology to improve human health.To promote the application of engineering principles to medicine and biology through projects, technical activities, and innovations aimed at improving healthcare.

Frequency of Meetings: 4 team meetings per month, and an Annual General Meeting with all EMBS Execom and VolCom members.

Social media link:

LinkedIn: https://www.linkedin.com/company/ieee-embs-bmsit/

Instagram: https://www.instagram.com/embs_bmsit?igsh=YzJ5cXE3aDY5aXUz

Roles and Responsibilities:

The EMBS field of interest is the development and application of engineering innovations to healthcare, medicine, and biology to provide effective solutions to biological, medical, and healthcare problems. The field encompasses the development of mathematical theories, including data science, machine learning, artificial intelligence (AI), physical, biological, and chemical principles, computational models and algorithms, synthetic and systems biology, devices, and systems for clinical, industrial, and educational applications. It encourages students to participate in innovative projects and technical activities related to healthcare applications. The society also supports research, interdisciplinary learning, and professional development by facilitating collaboration among students, faculty members, and industry experts.

Activities conducted:

EVENT NAME : COMP-SIF 2025
DATE: 22nd March 2025
LOCATION: BMSIT Campus,Yelhanka ,Bengaluru
PRTICIPANTS : Students
PRIZE POOL: Goodies(Stickers,Bookmarks &Chocolates)

DESCRIPTION:
The Second IEEE International Conference on Computing for Sustainability and Intelligent Future (Comp-SIF 2025) served as a global platform for researchers and academicians to present and discuss emerging technologies. Along with the conference, an IEEE Open Day was organized on 13th March, featuring an interactive BCI-controlled headset demonstration. The working of the Brain-Computer Interface was explained to participants, followed by a fun response-controlled game to enhance engagement. The demonstration attracted significant interest and highlighted practical BCI applications.

EVENT NAME : IMPULSE 2025
DATE: 19th March 2025 -2nd june 2025
LOCATION: BMSIT Campus,Yelhanka ,Bengaluru
PRTICIPANTS : Students
PRIZE POOL: Internship completion certificates

DESCRIPTION:

IMPULSE 2025 was a structured technical internship and prototyping initiative organized by the IEEE Engineering in Medicine and Biology Society (EMBS) Student Branch Chapter at BMS Institute of Technology and Management. The program was designed to encourage interdisciplinary student teams to work on real-world biomedical and engineering-focused problem statements and develop functional prototypes.

Participants worked in teams of four and selected curated problem statements provided by the organizing committee. These problem statements covered healthcare-centered engineering domains such as assistive technologies, AI-driven healthcare diagnostics, biomedical signal processing, brain–computer interfaces, mental health systems, and IoT-based remote monitoring solutions.

The event followed a multi-stage evaluation process. Teams first presented their proposed technical approach during a screening round, where feasibility, innovation, and clarity of solution design were evaluated. Approved teams then proceeded to the development phase after obtaining IEEE EMBS membership.

During the development phase, participants actively designed, implemented, and tested their solutions using software, hardware components, sensors, datasets, machine learning models, and biomedical signals. IEEE EMBS provided funding support and mentorship to assist teams in building functional prototypes.

Two structured review checkpoints were conducted to track progress. Review 1 focused on prototype planning, system design, and early implementation status, while Review 2 served as the final evaluation, where teams demonstrated completed prototypes and explained execution quality, creativity, and real-world impact.

The program concluded with the successful completion of prototypes and the award of internship completion certificates to all qualifying participants, marking IMPULSE 2025 as a hands-on, research-oriented, and industry-relevant learning experience
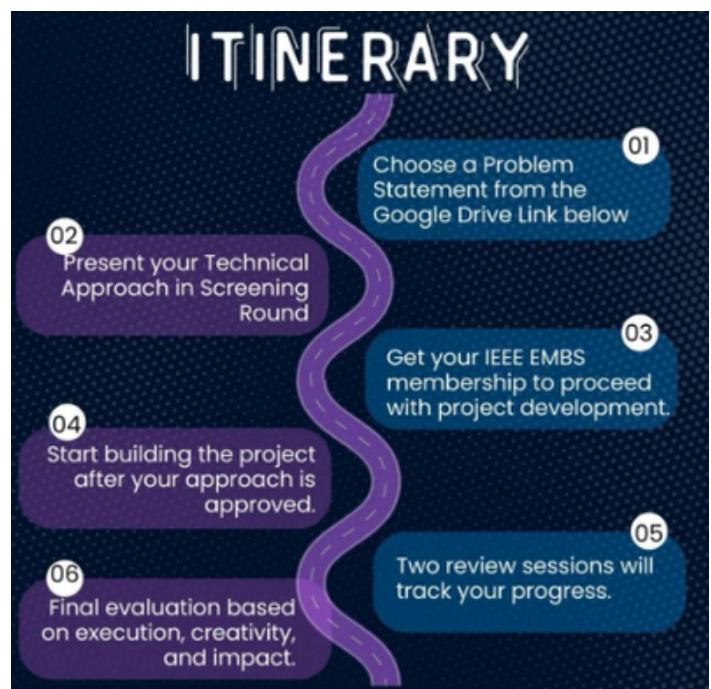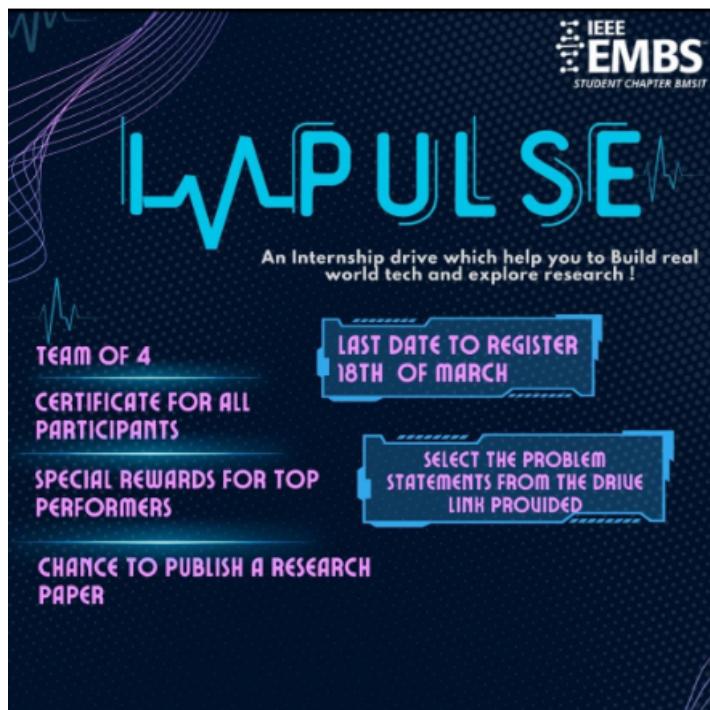
EVENT NAME : SenseCrypt: Decode To Build
DATE: 23rd May 2025
LOCATION: Seminar Hall 1 ,Academic Block ,BMSIT&M
PRTICIPANTS : Students
PRIZE POOL: INR 5,000

DESCRIPTION:

The IEEE EMBS Student Chapter of BMSIT&M organized a unique full-day technical event titled "SenseCrypt: Decode To Build." The event aimed to challenge students to think beyond theoretical knowledge and explore real-world biomedical problem-solving through an engaging two-phase format.

The first phase featured a custom-built web-based quiz designed with three escalating levels: easy, medium, and hard. The quiz tested students' analytical aptitude and biomedical reasoning, with questions ranging from logic puzzles to interpreting biosignals such as ECG graphs. Teams earned "crypt-coins" for each correct answer, which acted as both a scoring mechanism and a strategic currency for the next phase.

After a short break, the top five teams progressed to the second phase — a live auction. Using their earned crypt-coins, teams bid for specialized hardware components such as sensors and modules. Each team was also provided a base kit including an Arduino Uno, breadboard, and jumper wires. The challenge was to conceptualize and build a working prototype related to biomedical or health-tech applications using the auctioned components. The projects were evaluated based on innovation, technical execution, biomedical relevance, integration of components, and overall creativity.

The event saw excellent participation from students across departments, who showcased strong interdisciplinary collaboration. Teams demonstrated impressive problem-solving skills under pressure, while also gaining hands-on experience in embedded systems and healthcare technology. The top two teams were awarded performance-based prizes, and the event concluded with encouraging feedback from participants and evaluators alike. "SenseCrypt" proved to be a dynamic and impactful initiative that aligned perfectly with the IEEE EMBS vision of bridging healthcare and technology.
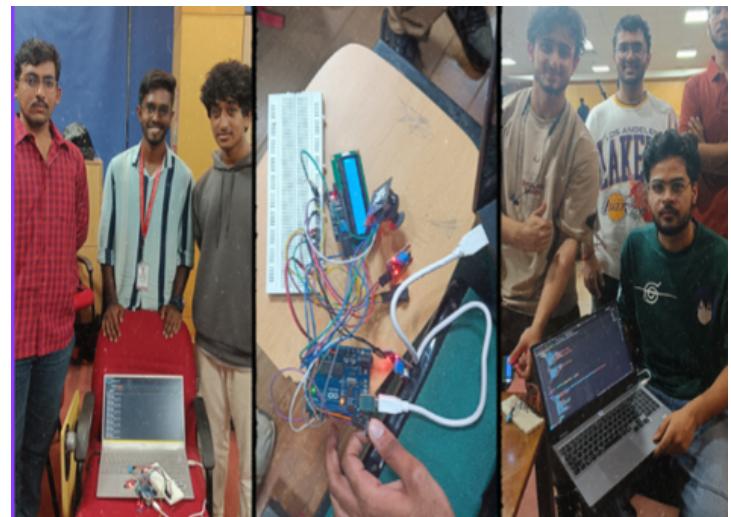
EVENT NAME : MediVerse 2025
DATE: 15th Nov 2025 -16th Nov 2025
LOCATION: APJ Abdul Kalam Lab ,BMSIT&M
PRTICIPANTS : Students from different institutions
PRIZE POOL: INR 50,000

DESCRIPTION:

MediVerse 2025 was a 24-hour, puzzle-based, in-person technical competition organized by the IEEE Engineering in Medicine and Biology Society (EMBS) Student Branch Chapter at BMS Institute of Technology and Management. The event was designed to combine biomedical engineering concepts with logical reasoning, pattern recognition, and team-based problem solving.

Participants worked in teams and were challenged to solve a sequence of interconnected puzzles inspired by real-world biomedical engineering topics. These included wearable health technologies, biomedical signal patterns similar to ECG and EEG signals, basic concepts of artificial intelligence in disease detection, structured data interpretation, and symbolic and cipher-based decoding techniques.

The puzzles required participants to carefully analyze data, observe changes in signal patterns over time, identify hidden relationships in visual layouts such as grids, shapes, and color patterns, and apply step-by-step logical reasoning. Many challenges were layered, meaning that solving one puzzle revealed clues or keys required to progress to the next stage. This structure encouraged teamwork, discussion, and systematic problem-solving.

The event consisted of an online qualification round followed by a 24-hour on-campus final round. The final round tested participants' ability to sustain focus, collaborate effectively, and apply technical and logical thinking continuously over an extended duration. The overall objective of MediVerse 2025 was to provide hands-on exposure to problem-solving approaches commonly used in biomedical engineering while creating an engaging and collaborative learning environment.