BMS INSTITUTE OF TECHNOLOGY & MANAGEMENT

Autonomous Institute Under VTU, Accredited by NBA and NAAC
Yelahanka, Bengaluru-560119.

Name of the Club:

IEEE Antennas and Propagation Society(APS) and Microwave Theory and Technology Society (MTTS) BMSIT Student Branch

Date of Formation:

19th October 2024

Coordinator:

Dr. Anitha V R, ECE

Objective:

To advance the theory, design, and practical applications of antennas, propagation, microwaves, and millimeter-wave technologies.

Frequency of Meeting:

Two team meetings per month, and an Annual General Meeting with all APS+MTTS members.

Social media link:

LinkedIn:https://www.linkedin.com/in/ieee-bmsitm-antennas-and-propagation-society-530583334/

Instagram: https://www.instagram.com/aps_mtts_bmsit/

Roles and Responsibilities:

We are a community passionate about exploring, sharing, and innovating in the fields of antennas, electromagnetics, microwaves, and wireless systems. Members engage in hands-on projects, research discussions, workshops, and technical events related to RF design, satellite links, radar systems, and emerging mm Wave and THz technologies. We aim to connect BMSIT to global advancements through collaborative learning and cutting-edge developments in antenna and microwave engineering.

One Year Activities conducted:

Mission SPECTRUM

On December 20, 2024, BMSIT&M hosted *Mission Spectrum*, a spy-themed technical event by IEEE AP-S MTT-S BMSIT in collaboration with the ComSoc Chapter. Participants became Signal Operatives, decoding signals, designing circuits, and transmitting countermeasures to stop a cyber-attack. The four rounds included a timed quiz on ASK modulation and RC circuits, Morse code decoding with Audacity, unlocking schematics via passcode, and assembling an RF transmitter to send a counter-signal. The first team to transmit successfully won, making *Mission Spectrum* an exciting blend of signal processing, hardware design, and problem-solving

Newsletter

Started on June 3rd 2025, Our weekly newsletter for the college infoboard is a bite-sized, research-backed publication that breaks down complex tech and engineering topics into simple, engaging content. From cutting-edge wireless communication to real-world applications of AI and antennas, each edition helps students stay informed about emerging technologies and industry trends. It sparks curiosity, supports academic growth, and connects classroom concepts with practical innovation—all in just a few minutes of reading or listening.

IEEE Open Day

On March 21st 2025, Antennas and Propagation Society(APS) and Microwave Theory and Technology Society (MTTS)BMSIT&M showcased its initiatives at the IEEE COMP-SIF 2025 Open Day at BMS Institute of Technology and Management. We showcased various types of antennas, ranging from monopole to dipole designs, highlighting their structure and applications. Additionally, we demonstrated an RF energy harvesting system, which captures ambient radio frequency signals—like those from Wi-Fi or cellular networks—and converts them into usable electrical energy to power low-power devices.. Live hardware demos offered hands-on experiences, and Dr. Prasant Misra, Chair-Elect of the IEEE Bangalore Section, visited our stall and shared valuable insights. We also distributed APS+MTTS merchandise, engaging students and professionals and reaffirming our commitment to advancing communication technology.

Photos

Newsletter

Edition #1 MAY 2025

BMSIT&M IEEE APS+MTTS INTEL DROP:

NEWSLETTER

@aps_mtts_bmsit

ISSUE #I – "WHY ANTENNAS AREN'T JUST RODS ANYMORE"

WHAT'S THE CONCEPT?

When people hear "antenna", they think of a rod. But in modern electronics – especially at higher frequencies – antennas take on wild, unexpected shapes.

Why?

Because the shape of the antenna controls the shape of the energy it sends out.

At low frequencies (like FM radio), a long metal rod is fine. But at microwave or millimeter-wave frequencies (like 5G, radar, or satellites), signals behave more like light – and we can bend, focus, and shape them using carefully designed geometries. That's why antennas look like spirals, fractals, patches, or grids. It's not random – it's physics.

REAL LIFE ANALOGY:

Imagine shouting through a cardboard tube. You can aim your sound in a direction.Now imagine building a cone-shaped speaker – you'll focus your sound even more.

Antennas work the same way. If you shape the surface or the current paths, you shape the beam.

I. WHAT IS AN ANTENNA?

An antenna converts electrical signals into electromagnetic waves (and vice versa). It's the mouth and ear of any wireless system.

Top destinations By BMSIT&M IEEE APS+MTTS

WHERE DO YOU SEE THIS:

- Smartphones – For compact 5G antennas with faster, targeted signals.
- Satellites – To steer beams precisely
- Cars – Used in radar systems
- Wearables – Embedded in fabrics

BUILD CHALLENGE

DESIGN AND MODEL A NEXT-GENERATION ANTENNA SYSTEM USING ARTIFICIAL MATERIALS (LIKE METAMATERIALS OR METASURFACES) FOR USE IN COMPACT, HIGH-SPEED DEVICES SUCH AS DRONES, WEARABLES, OR NANOSATELLITES

DIVE DEEPER:

Smart Antennas with Artificial Materials How metamaterials reshape antennas for precision and efficiency -https://www.youtube.com/watch?v=6WFj-CKldv4

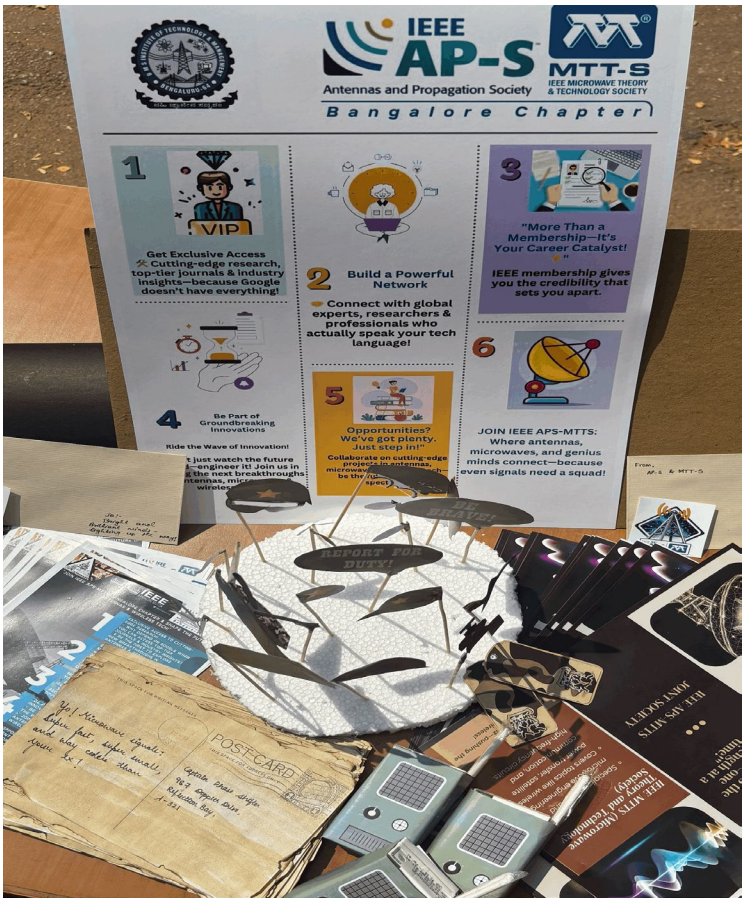
Quick Meta-Magic Fast facts on metasurfaces in action-https://www.youtube.com/shorts/_tLZpcmXu5U

Student Projects & Simulations GitHub repos for building and simulating smart antennas-https://github.com/youxch/Inverse-design-of-patch-antennas https://github.com/youxch/Inverse-design-of-metasurfaces

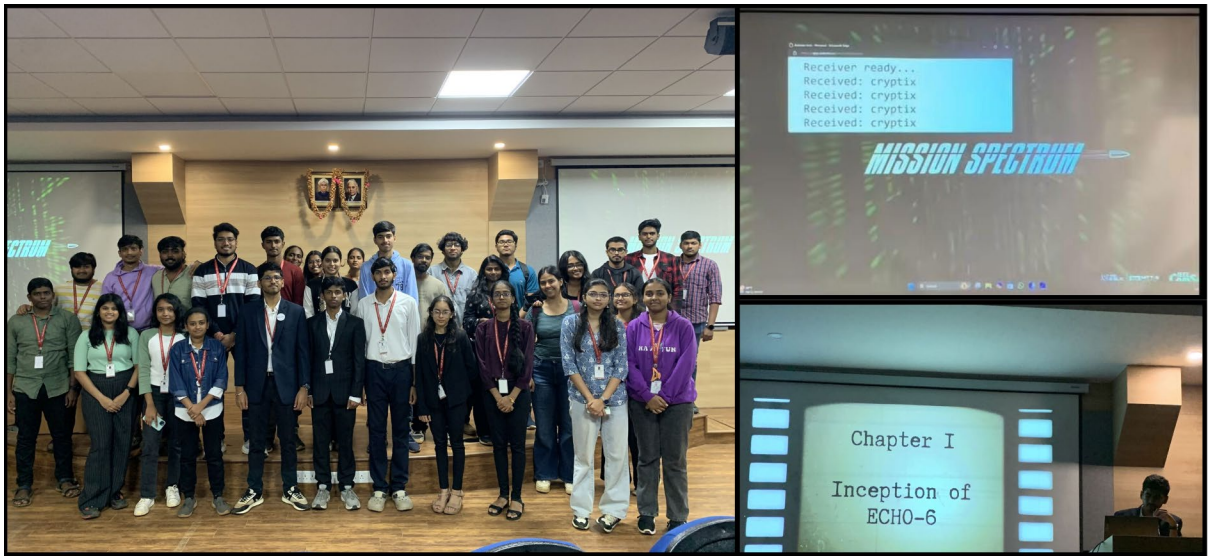
Next IntelDrop Preview: How are Nanoantennas working at optical frequencies.

BMSITANDM-IEEE-APS-MTTS | BMSITAPS@GMAIL.COM | @APS_MTTS_BMSIT

IEEE Open Day



Mission Spectrum


Receiver ready...
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MISSION SPECTRUM
Chapter I
Inception of
ECHO-6