Suresh Angadi Education Foundation's

ANGADI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Savagaon Road, Belagavi – 590 009.

Approved by AICTE, New Delhi &Affiliated to Visvesvaraya Technological University, Belagavi)

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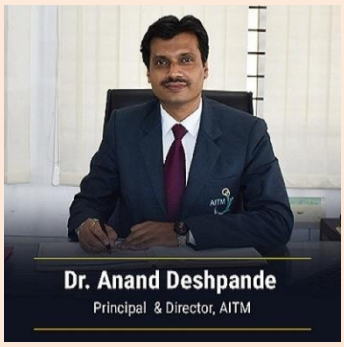
E- Newsletter

Department of Electronics and Communication Engineering

First Quarter E – Newsletter -2022-23

Head of the Institute	Message
	An Institute is assessed on the basis of the Academic ambiance and outcome of the system in terms of performance and achievements of the students and staff in teaching-learning, research, innovation, Placements, and results. AITM has been known for its Academic credentials coupled with holistic growth in all directions. The new generation of competent minds must imbibe knowledge and practically they should comprehend the art of balancing brilliant technical, managerial communication, and interpersonal skills, nest. The Institute has achieved a series of milestones with the help of brilliant students, dedicated staff, and encouraging Management. We promise a wonderful experience of rich Academic and Excellent facilities coupled with professional practices and blended with an affectionate concern for our Students.
Head of the Department	**Message**
 Mr. Raviraj Chougala HOD	Welcome to the department of Electronics and Communication Engineering at Angadi Institute of Technology and Management, Belagavi. The Department was established in the year 2009 with the aim of providing leadership in the field of Electronics & Communication Engineering with an intake of 60 students. The department is located in a sprawling environment with a state of art facilities and highly qualified faculty. The department works with the objective of addressing critical challenges faced by the Industry, Society and the Academia. Perhaps even more important is our unceasing commitment to our students, helping them to learn, grow, develop, and achieve their goals in their pursuit to excel in their professional career.

Institute Vision and Misssion

Vision:

To become a premier institute committed to academic excellence and global competence for the holistic development of students.

Mission:

M1: Develop competent human resources, adopt outcome-based education (OBE) and Implement cognitive assessment of students.

M2: Inculcate the traits of global competencies (such as domain expertise, Accountability, ethics, problem solving ability, communication skills, leadership Qualities and life-long learning) amongst the students.

M3: Nurture and train our students to have domain knowledge, develop the qualities of global professionals and to have social consciousness for holistic development.

Department Vision and Mission

Vision:

To impart quality and responsive education in Electronics and Communication Engineering for the overall development of students to meet the global challenges.

Mission:

M1: Adopt a transformative teaching-learning pedagogy to empower our students with domain knowledge and practical skills in resonance with technological developments.

M2: Impart multi-disciplinary knowledge, and train our students to develop the relevant professional competency skills.

M3: Create a cogent ambiance to comprehend the technical and management principles, and the efficacy of life-long learning.

Association activity on "Intel India STEM Skills program for women on VLSI Technology"

The department of Electronics and Communication Engineering organized an association activity on Intel **India STEM Skills program for women on " VLSI Technology"** on 25th November 2022 at 10 am. Mr. Sachin Kumar Patil, Senior Consultant, Technology and Innovation has given session on importance of VLSI Technology and job opportunities in the VLSI domain. **Very large-scale integration or VLSI** is a process in which millions of MOS transistors are combined and integrated on a single semiconductor microchip. With the global semiconductor revenue crossing USD 440 Billion in 2020, there is an increasing need to design and produce highly efficient and specialized chips that can power new age technologies such as AI/ML, IOT, AR/VR, Cloud etc., which are increasingly becoming mainstream instead of remaining niche technologies. Growth in consumer electronics, computing devices, post pandemic, smart phones, intelligent vehicles etc., has further increased the demand. The students from ECE, AI & DS and

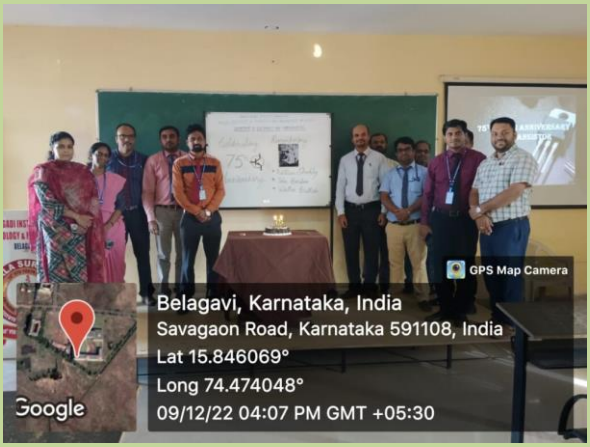
EEE attended the session along with HOD, Mr. Raviraj Chougala, Event coordinator Mr. Sriram Kulkarni and all the department faculties.

Industrial visit to GTTC

Department of Electronics and Communication Engineering staff took their students of 3rd semester for their industrial visit to GTTC, Belagavi on 9th of November 2022. Students visited different labs like IOT, automation, SAP, Robotics, 3D printing lab and Electronics lab and gained an exposure on the same. Accompanied by them were Head of the department Raviraj Chougala, Placement coordinator Sriram K.V. Instructor Pramod Badiger and attender Sampat K.

75th anniversary of Transistor Celebration

Department of Electronics and Communication Engineering staff along with their students celebrated the 75th anniversary of Transistor invention on 09-12-2022. Remembered the great inventors William Shockley, John Bardeen and Walter Brattain who were the people behind the invention of transistor. Prof. Raviraj Chougala, HOD, discussed the importance of transistor. Mr. Mahalingappa H., Semester V student, presented a seminar on Transistor invention. Cake cutting ceremony was held as part of the celebration.



AICTE Activity for final year students:

Final year students of the department visited Shindoli for their AICTE activity on PEVAC (A Pre- Election Voter Awareness Campaign) on 24-12-2022. PEVAC is aimed at sensitizing voters about the importance of participating in the electoral process. Mr. Aravind Jadhav, Asst. Prof. accompanied the students. Students spread awareness about the importance of voting to the villagers.

Awareness program on "Intellectual Property Rights"

Angadi Institute of Technology and Management-AITM, Belagavi in association with National Intellectual Property Awareness Mission (NIPAM), an ambitious mission of the Govt. of India, organized an Awareness-program on “Intellectual Property Rights” on March 1st, 2023. Dr. Abhishek Singh, Examiner of Patents and Design, NIPAM- Officer, Patent Office, Intellectual Properties (Min. of Commerce & Industry) was the resource person for the program. Sir briefed about the Intellectual Properties and its various aspects. Including the understanding of technical details, filing procedures, strength of the rights and further the working of Indian Intellectual Property Offices.

All the HOD's, faculty and students of AITM participated in the program. Prof. Gururaj R. Kulkarni, Kapila Coordinator organized the program.

ROBO- YATRA

AITM Skill Lab in association with Electronics and Communication Department has organized “Robo Yatra- interactive session on Robotics” by Holoworld on 5th January 2023.

The key speakers for the session were Dr Thotreingam Kasar, Chief Research Officer, Mr. Prashanth PS, Vice President, Holoworld, and Mr. Deepak. The topics covered are - Introduction to Robotics, Demo of Flagship product “HOLOSUIT”, BYOR demo, Humanoid Experience, Augmented Reality/Virtual Reality experience. The HODs, Faculty, and Students from ECE, CSE, and AI&DS departments took part in this session.

Ingenious 2023- Project Exhibition

On the occasion of "National Science day", Department of Computer Science and Engineering & Department of Electronics and Communication Engineering , Angadi Institute of Technology and Management -AITM, Belagavi successfully organized Project Exhibition "Ingenious 2023" on 28th February 2023.

The exhibition was inaugurated by our chief guest Dr. D. H. Rao, Professor and Academic Advisor, AITM in the presence of Dr. Spoorti R. Patil, Director, SAEF, Shri. Raju Joshi, Administrator, SAEF, Dr. Anand Deshpande, Principal & Director, AITM, Prof. Dhanashree Kulkarni, HOD, CSE Department, Prof. Raviraj Chougala, HOD, ECE Department , all staff and students of AITM.

Major objective of organizing this exhibition was to provide the platform and unleash the potential of the students by showcasing their innovative projects. Students from all the departments participated with great fervor and enthusiasm. The Winners of the project exhibition were felicitated with Trophies and exciting cash prizes and certificates for all the participants.

Student Articles

“Lighten Up” - Deep Space Communications via Faraway Photons

"Certainly, the duty of the present is to work for the future ...
I am your eyes and I say to you: Courage”

Future human and robotic expeditions into deep space must count on the fastest, most efficient means of communication with mission managers on Earth. Hence the requirement of high-definition imagery, live video captured and data transfer through the satellites as a solid source should travel through the gulf of space and guide on mission-critical updates during the long-duration journeys to the far away destination called solar system. The requirement is aimed

towards the development of deep space communication using photons – fundamental particle of visible light or also called as the energy packetswhich is going to increase the efficiency of communication from 10 to 100 times.

AIM- To improve communication performance over the current state without indulging the increase in the mass, volume or power , the NASA is running its new project at the 'Jet propulsion Laboratory' , California which is to develop the laser communication to meet this goal.

PRICIPLE- "The use of laser source for communication booststhe connectivity speeds or the transmission speed for future researches and explorationson solar system. The precursor technology demonstration will advance future high-resolution scientific instruments, live-streaming of hd videos and telepresence -- the use of virtual reality technology to remotely monitor and control machinery across deep space distances."

The DSOC project is developing key technologies that are being integrated into a deep space worthy Flight Laser Transceiver (FLT), high-tech work that will advance this mode of communications to Technology Readiness Level (TRL) 6. Reaching a TRL 6 level equates to having technology that is a fully functional prototype or representational model.DSOC architecture is based on transmitting a laser beacon from Earth to assist lineofsight stabilization to make possible the pointing back of a downlink laser beam. The laser onboard the Psyche spacecraft,

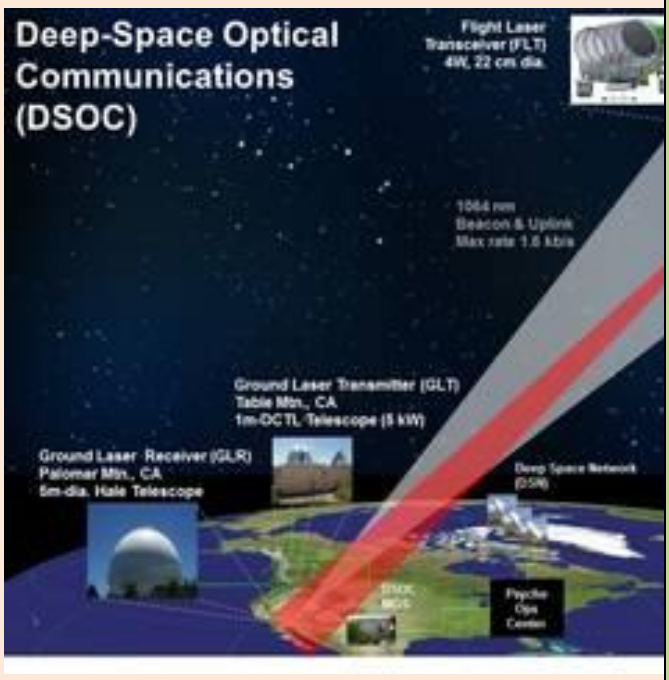
SCIENTISTS VIEW-

Biswas says- It is based on a master-oscillator power amplifier that uses optical fibers.The laser beacon to DSOC will be transmitted from JPL's Table Mountain Facility located near the town of Wrightwood, California in the Angeles National Forest. DSOC's beaming of data from space will

be received at a large aperture ground telescope at Palomar Mountain Observatory in California.

"I am very excited to be on the mission," says Biswas who has been working on the laser communications technology since the late 1990s. "It's a unique privilege to be working on DSOC."

DSOC operates after 60 days of launch, given checkout of the Psyche spacecraft post-liftoff. The test-runs of the laser equipment will occur over distances of 0.1 to 2.5 astronomical units (AU) on the outward-bound probe. One AU is approximately 150 million kilometers—or the distance between the Earth and sun.



The spacecraft will be launched in the summer of 2022 to 16 Psyche, a distinctive metal asteroid about three times farther away from the sun than is the Earth. The planned arrival of the probe at the main belt asteroid will take place in 2026.

Elkins -Tanton-says that bringing robotic and human spaceflight closer together is critical for humankind's space future. "Having our robotic mission test technology that we hope will help us eventually communicate with people in deep space is excellent integration of NASA missions and all

of our goals," .In designing a simple, high-heritage spacecraft to do the exciting exploration of the metal world Psyche, "I find both the solar electric propulsion and the Deep Space Optical Communications to feel futuristic in the extreme. I'm proud of NASA and of our technical community for making this possible," Elkins-Tanton concludes.

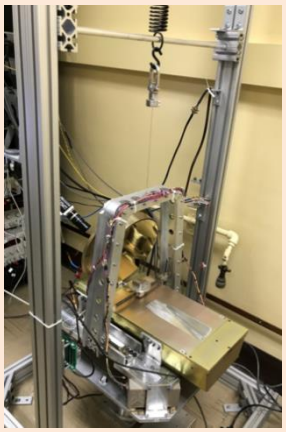


fig.2- DSOC Optical Transceiver Assembly (OTA) suspended from gravity off-load and integrated to Isolation Pointing Assembly (IPA) struts in test configuration .

"Laser communications is going to augment that capability tremendously. The ability to send back from Mars to Earth lots of information, including the streaming of high definition imagery, is going to be very enabling."

As a "game changing" technology demonstration, DSOC is exactly that. NASA STMD's Game Changing Development program funded the technology development phase of DSOC. The flight demonstration is jointly funded by STMD, the Technology Demonstration Missions (TDM) program and NASA/ HEOMD/Space Communication and Navigation (SCaN). Work on the laser package is based at the Jet Propulsion Laboratory (JPL) in Pasadena, California.

By Vaishnavi Shetty
ECE Department

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