



MECHATRONICS  
ENGINEERING  
ASSOCIATION



# MECHATRONICS ENGINEERING

May-Oct 2022  
Newsletter

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**MAY**

2022

# **Patent Published on Smart Home System**

May 6, 2022

Mr. R. Raffik published a patent titled “Design and Construction of a Smart Home System with LabVIEW”. The patent, filed under Application Number 202241023349, introduces an innovative approach to integrating smart home technologies using LabVIEW for seamless functionality and user control.

# **Yugam 2022 Workshops and Competitions**

May 16-17, 2022

A series of engaging workshops and competitions were organized as part of Yugam 2022:

- Industrial Automation Workshop: Coordinated by Mr. R. Raffik, with Mr. T. Suresh and Mr. K. Murugesan as resource persons. 14 external students participated.
- Robotic Simulation Software Workshop: Coordinated by Mr. R. Raffik, along with students Kirthika and Karthick Raja. Mr. A. Ramkumar served as the resource person, with 10 participants.
- Hydramatics Competition: Coordinated by Mr. T. Suresh with students Nandhitha, Rangesh Sriram, and Saravanamani. 10 external participants took part.

## **Drone Racing League**

May 20-21, 2022

Mr. R. Raffik and students Jayalakshmi, Rangesh Sriram, and Saravanamani coordinated this dynamic competition during Yugam 2022. The event attracted 24 external participants who showcased their drone flying and racing skills.

## **Robot Soccer**

May 20-21, 2022

Another thrilling event coordinated by Mr. R. Raffik with students Dakkshesh, Manoj, Rangesh Sriram, and Saravanamani. This competition witnessed 25 participants competing in a high-energy robot-controlled soccer game.

## **Workshops at Madras Institute of Technology (MIT), Anna University**

May 28, 2022

Third-year students participated in national-level workshops at MIT:

- “IoT with ESP”: Attended by Purushothaman S (19BMC029).
- “Robotic Control Systems”: Attended by Deena S (19BMC021), Muhsin Al Ramadan S (19BMC036), and Venkatram S (19BMC208).

# **Faculty Involvement in Curriculum Development**

May 30, 2022

Dr. M. Saravana Mohan participated in Anna University's syllabus subcommittee meeting for affiliated institutions, contributing to the curriculum of Mechanical Engineering programs.

## **Jury Roles at Yugam 2022**

May 30, 2022

Faculty members Dr. B. Sabitha and Mr. R. Raffik served as jury members for the paper presentation event, while Mr. R. Raffik also judged the UAV Hackathon, showcasing faculty expertise and involvement in technical competitions.

## **Paper Submissions by Faculty**

Mr. R. Raffik submitted multiple research papers, including:

- "Optimized Retrofitting Process for Automated Contactless Public Urinal Cleaning System".
- "Semi-Automatic Cyclo-Cable for Bicycle Riders on Steepest Roads".
- "Carbon-Based Nano-Materials for Tribology Applications".

# Journal Publications

Mr. R. Raffik published two papers in Scopus-indexed journals:

- “Design and Multiperspectivity-Based Performance Investigations of H-Darrieus Vertical Axis Wind Turbine” in the International Journal of Low Carbon Technologies.
- “Investigation on PID Controller Usage for UAV Stability Control” in Materials Today: Proceedings.

**JUNE**

2022

## **Educational Fair by Dina Thanthi in Trichy**

June 6-7, 2022

Dr. M. Saravana Mohan, HOD of Mechatronics, guided students during the education fair organized by Dina Thanthi at Taj Marriage Hall, Chathiram Bus Stand, Trichy. The event, inaugurated by Shri. Mookapillai, Managing Director of Mangal and Mangal, offered career counseling and guidance to over 300 students.

## **Seminar on Indigenization in the Indian Air Force**

June 8, 2022

Dr. M. Saravana Mohan participated in a seminar organized by the Indian Air Force at BRD5, Sullur Air Base. The session focused on the indigenization requirements and roadmap for enhancing operational capabilities and local manufacturing in the Indian Air Force.

## **Industry-Academia Interaction for R&D**

June 11, 2022

Dr. M. Saravana Mohan met with representatives from Kannan Tools and Dies, Sri Subaha Ganesh Industrial Estate, Coimbatore. The meeting aimed at fostering collaborations for research and development in product innovation and providing internship opportunities for students.



## **Mercy Home Visit**

June 13, 2022

Mr. J. Sivaguru and his team organized an outing for 16 children from Mercy Home (HIV-positive kids) to Black Thunder amusement park, Coimbatore. This thoughtful initiative aimed to bring joy and create memorable experiences for the children.

## **Faculty Development Program on Defence Technology**

June 20-22, 2022

Mr. P. Magudapathi, Mr. R. Saravanan, and Mr. K. Murugesan attended an FDP on "Defence Technology" organized by the Department of Mechanical Engineering at Kumaraguru College of Technology. The program focused on advancements in defense-related technologies and their applications in engineering.

## **Guest Lecture on EV Adaptation**

June 21, 2022

Dr. M. Saravana Mohan participated in a guest lecture titled "Benchmarking and its Relevance for EV Adaptation" organized by the SSEM Institution Chapter at Kumaraguru College of Technology.

## **Industry-Academia Interaction on Electric Vehicles**

June 21, 2022

Dr. M. Saravana Mohan met with Mr. Sandeep Singh, Vice President of Business Development at Caresoft Global Pvt Ltd, to discuss electric vehicle technologies and launch the Smart E-Mobility Chapter initiative.

## **IEEE Seasonal School on Image, Video, and Audio Processing**

June 23-28, 2022

Faculty members, including Dr. K. Akila, Dr. B. Sabitha, Mr. A. Ramkumar, and Mr. J. Sivaguru, participated in this seasonal school organized by Kumaraguru College of Technology. The program explored cutting-edge pattern recognition techniques in multimedia processing.

## **NIDHI PRAYAS Program at IIT Hyderabad**

June 27, 2022

A team of Mechatronics, Textile, and ECE students mentored by Dr. M. Saravana Mohan and Mr. R. Raffik secured a ₹10 lakh financial grant under the NIDHI PRAYAS Program at iTIC Incubator, IIT Hyderabad. This initiative supports innovative prototypes and product development.

## **Research Publications**

Mr. R. Raffik published papers in Scopus-indexed journals:

- "Metaheuristics-Based Modeling and Simulation Analysis of New Integrated Mechanized Operation Solution and Position Servo System" in Mathematical Problems in Engineering.
- "Single-Input Single-Output System with Multiple Time Delay PID Control Methods for UAV Cluster Multi-agent Systems" in Security and Communication Networks.

Dr. B. Sabitha published a paper titled "A Hybrid Swarm Intelligence Approach for Reactive Power Dispatch in Power Systems" in Advances in Engineering Software.

## **Paper Submissions**

Dr. M. Saravana Mohan submitted a paper on "Investigation on Joint Dynamic Properties of Nanoclay-Based Redundant SCARA Robots".

**JULY**

2022

# Community Engagement with Underprivileged Students

July 5, 2022

Mr. J. Sivaguru and his team organized a recreational outing for children from underprivileged backgrounds. Sixteen children were taken to a local amusement park for a day of fun and activities. This initiative aimed to provide these children with an enjoyable experience, fostering a sense of inclusion and bringing smiles to their faces through thoughtful community service.



# **Workshop on Robotics and Industrial Automation**

July 15-20, 2022

A technical workshop focusing on robotics and industrial automation was conducted by Mr. R. Raffik and Mr. R. Saravanan. The session provided participants with insights into the latest robotics technologies, including robotic arm control, automation processes, and integration of IoT systems in industrial setups. Participants engaged in practical demonstrations and learned advanced techniques for implementing automation in industrial operations.

# **Faculty Training on Hybrid System Modeling**

July 23-27, 2022

Dr. M. Saravana Mohan led a specialized training program for faculty members, delving into hybrid systems modeling for robotic applications. The sessions emphasized combining artificial intelligence with mechanical systems for enhanced operational efficiency. The training also introduced participants to new research methodologies and the practical applications of AI in designing robust robotic frameworks.

# Industry Collaboration on EV and Smart Manufacturing

July 21, 2022

Dr. M. Saravana Mohan, Head of the Mechatronics Department, met with Sandeep Singh, Vice President of Business Development at Caresoft Global Pvt Ltd. The meeting focused on fostering academia-industry partnerships in electric vehicle (EV) technology and smart manufacturing. Discussions revolved around potential projects, internships for students, and knowledge exchange initiatives aimed at equipping students with industry-relevant skills in advanced technologies.



# **National-Level Robotics Hackathon Success**

July 28, 2022

A student team from the Mechatronics Department, mentored by Dr. M. Saravana Mohan, participated in the National Robotics Hackathon. The team developed an innovative robot designed for industrial logistics, focusing on automating goods movement with precision and efficiency. Their project secured a position in the top 5, reflecting their ingenuity and ability to tackle real-world problems with cutting-edge technology.

## **Educational Seminar on Power Systems**

Dr. B. Sabitha conducted an educational seminar on applying artificial intelligence in resolving power system challenges. The session, attended by over 50 participants, highlighted the potential of AI in optimizing reactive power dispatch and the role of unified power flow controllers in modern grids.

## **Research Publications**

Mr. R. Raffik published a paper in Mathematical Problems in Engineering, titled "Advanced Dynamics and Optimization in Multi-agent Robotics." The research explores the integration of dynamic modeling and optimization techniques for enhanced performance in robotic systems, with practical implications in manufacturing and logistics.



**AUGUST**

2022

# **National FDP on Automation and Smart Manufacturing**

April 25 - 29, 2022

Faculty members Mr. T. Suresh and Mr. R. Raffik attended a five-day National Faculty Development Program on "Automation and Smart Manufacturing." The program, organized by IIT Delhi, Automation Industry Association, Anna University Chennai, and Janatics India Pvt. Ltd., provided an in-depth understanding of the latest advancements in industrial automation and smart manufacturing systems, including their practical applications in modern industries.

# **FDP on Hyperspectral Remote Sensing by ISRO**

April 25 - 29, 2022

Dr. A. Vasuki attended a five-day National FDP on "Hyperspectral Remote Sensing," conducted by the National Remote Sensing Centre, ISRO, Hyderabad. The program covered cutting-edge technologies in remote sensing, equipping participants with advanced skills to analyze hyperspectral data for diverse applications in environmental and resource management.

**SEPTEMBER**

2022

# Seminar on Cybercrime Awareness

September 6, 2022

Mr. Sabari Ram (20BMC035) attended a seminar focused on raising awareness about cybercrime and cyber forensics at Kumaraguru College of Technology. The session provided insights into safeguarding digital identities and understanding cyber threats in modern times.

# Guest Lecture on Electrify and Automate

September 14, 2022

A guest lecture by Mr. Laxman Subramanian, Global Source Manager at Apple, USA, was organized by Mr. R. Raffik. The lecture highlighted advancements in electric and automated systems, offering students a glimpse into global practices and cutting-edge technologies in mechatronics.



# **Workshops on Future UAVs and Industrial IoT**

September 15, 2022

Students participated in workshops at Sri Krishna College of Engineering and Technology and Aeromodeller Club:

- Mr. Vijay Anandh (21BMC051) attended a workshop on Industrial IoT and Automation.
- Mr. Kathiravan (20BMC018) and Mr. Vineeth (20BMC216) participated in a workshop titled Future on UAVs, gaining insights into the design and application of unmanned aerial vehicles.

# **Participation in Ansys Academic Innovation Conference**

September 16, 2022

Dr. M. Saravana Mohan attended the Ansys Academic Innovation Conference, organized by ARK Info Solutions in Coimbatore. The event showcased the latest innovations and tools in simulation technologies, with applications across engineering disciplines.

# Industry Visits to Foster Research and Training

September 19, 2022

Dr. M. Saravana Mohan and the KCT team visited:

- Robotics Research Lab at IIT Madras to explore research opportunities.
- Pravartak Technologies Foundation at IIT Madras Research Park, meeting with Dr. M. J. Shankar Raman, CEO, to discuss projects, internships, and startup support.
- Equad Engineering Services to collaborate on skill training and internship placements.



# Guest Lecture on Die Casting Process

September 19, 2022

Mr. K. Murugesan and Mr. J. Sivaguru organized a guest lecture by Mr. Praveen Kumar Ramasamy, Proprietor of Dhaswa Engineering Works, Coimbatore. The session provided III-year students an in-depth understanding of die casting processes and industry applications.



# National-Level FDP on Electric Vehicle Simulation

September 23, 2022

Faculty members Dr. B. Sabitha and Mr. P. Magudapathi participated in a week-long Faculty Development Program on electric vehicle simulation using ANSYS at PSG College of Technology, Coimbatore.

# Vidiyal – YRC Firefighting Camp

September 22, 2022

Mr. J. Sivaguru coordinated a one-day firefighting camp at Tholampallayam Government Higher Secondary School. The camp introduced students to emergency response techniques and fire safety measures, equipping them with valuable life-saving skills.





# Industry Interaction with Whirlpool Corporation

September 19, 2022

Mr. J. Sivaguru met with Mr. Ganesan Ponnusamy, Senior Engineer at Whirlpool Corporation, to discuss collaboration opportunities and the latest industry trends in appliance manufacturing.

## Research Contributions

Dr. M. Saravana Mohan published a book chapter in Springer titled “Aluminium–Steel Composite Foam in Joint Dynamic Performance of Redundant Articulated Robot Components.”

Faculty members published seven papers in Scopus-indexed journals, including:

- “Effect of Ni and Si Addition on Electrical and Tribological Behavior of Cu-Zn Alloy” by Mr. R. Saravanan.
- “Optimization of Target Acquisition and Sorting for Multi-Manipulators” by Mr. R. Raffik.

## **Internships**

Multiple students, including Cibi Aravinthan (19BMC027) and Abhishek M (19BMC048), undertook internships at prominent companies like ZOHO, Hirotec India Pvt. Ltd., and IIT Hyderabad, gaining practical industry experience.

## **Alumni Interactions**

Alumni, including Sanjay Vishnu (15BMC030) from Intel and Apoorva Nair (17BMC012) from Continental, visited the department, sharing their professional journeys and inspiring current students.

**OCTOBER**

2022

## **Participation in National-Level Competitions**

October 17-18, 2022

Mr. R. Jairish (21BMC016) represented the department in the SAEISS Dr. G. P. Electric Two-Wheeler Design Competition 2022 held at SRM Institute of Science & Technology, Chennai. The event, organized by SAE India, challenged participants to innovate and design electric vehicles tailored for efficiency and sustainability.

## **Collaboration with ZF Wind Power**

October 20, 2022

Dr. M. Saravana Mohan and the KCT team held discussions with officials from ZF Wind Power at Kumaraguru College of Technology to explore potential collaborations in wind energy technology, including research projects and internships for students.



## **Workshop on Battery Management**

October 20, 2022

Mr. J. Sivaguru attended a workshop on "Intelligent Battery Management for Electron Economy" organized by PSG Tech. The session delved into advancements in battery management systems for sustainable energy solutions.

## **Social Outreach at Gandhi Memorial**

October 28, 2022

Mr. J. Sivaguru organized a visit to Mahatma Gandhi Memorial, Podhanur, accompanied by 59 students. During the visit, he delivered a lecture on Gandhism, emphasizing the relevance of Gandhi's values in modern times and inspiring students to adopt these principles in their lives.

## **International Paper Presentation**

October 30, 2022

Dr. M. Saravana Mohan presented a paper titled "IoT-Based Speed Limiter Accident Avoidance System" at PSG College of Technology during an international-level event. The research proposed IoT-enabled solutions for enhancing road safety through intelligent accident prevention mechanisms.

# **Social Outreach Program at Othimalai Hills**

October 30, 2022

Mr. J. Sivaguru organized a social outreach initiative at Othimalai Hills. The team cleaned up plastic waste in the area and planted tree saplings to promote environmental conservation and community awareness about eco-friendly practices.



## **Publications and Contributions**

- Mr. R. Raffik published a paper titled “An AHP-TOPSIS Approach for Optimizing the Mechanical Performance of Natural Fiber-Based Green Composites” in Advances in Materials Science and Engineering.
- Faculty members submitted three papers to Scopus and WoS-indexed journals, reflecting active research participation.

## **Internships**

Multiple students, including Cibi Aravinthan (19BMC027) and Muhsin Al Ramadan (19BMC036), continued internships at renowned organizations like ZOHO, Hirotec India Pvt. Ltd., and IIT Hyderabad, gaining hands-on industry experience.

## **Workshops Attended**

- Ms. Mahima Swetha M (20BMC025) completed an online course on the “Design of Fixed Wing UAV” from September 1 to October 29, 2022, gaining expertise in UAV design principles.
- Students Mr. T. Pragadeeswaran (21BMC031) and Mr. B. Madhana Adithya (21BMC025) attended a drone-building workshop during Srishti 2k22, a national-level symposium held at PSG College of Technology.

