





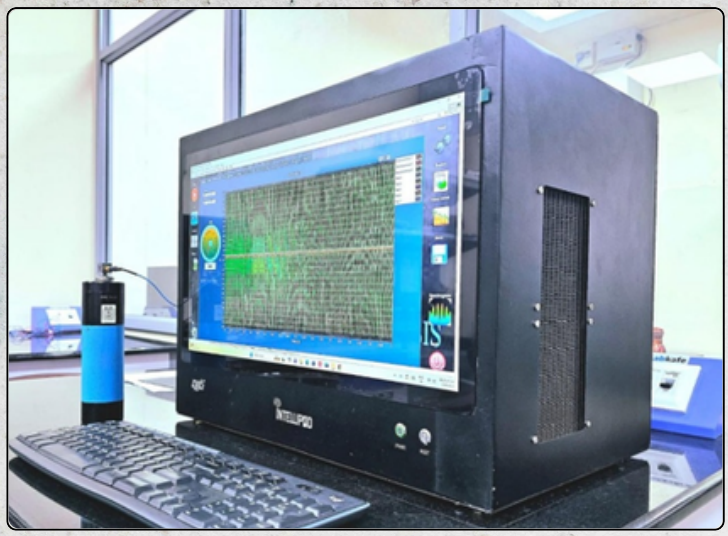
The Science OF MAKING...

VOLUME (खंड) 3 ISSUE (अंक) 1 JULY(जुलाई) 2026

TECHNICAL ACHIEVEMENTS

DESIGN & DEVELOPMENT OF SMART SIGNAL CAPTURING & SIGNATURE ANALYSIS DEVICE – INTELLIPOD

The Smart Manufacturing Cell (SMC) Group at CMTI has successfully developed IntelliPOD v2.0, a next-generation modular edge computing and multi-signal data acquisition platform designed for intelligent condition monitoring, predictive maintenance, and digital manufacturing applications. IntelliPOD v2.0 integrates high-speed data acquisition, real-time control, industrial communication, embedded processing, and AI/Digital Twin deployment capabilities within a single expandable architecture. The platform supports a wide range of sensing and control functionalities, including IEPE vibration measurement, strain-gauge bridge acquisition, analogue and digital I/O, CAN bus communication, waveform generation, trigger-based acquisition, camera interfacing, and wireless connectivity through Wi-Fi and 4G/5G networks. Unlike conventional data acquisition systems, IntelliPOD v2.0 combines sensing, control, communication and edge intelligence in a unified platform, enabling real-time analytics and autonomous decision-making at the source. The system provides a laboratory-to-industry transition framework for developing and validating machine health monitoring, fault diagnosis, prognostics, and Remaining Useful Life estimation solutions. The platform has significant application potential across manufacturing, automotive, and aerospace sectors, including machine tool health monitoring, spindle and servo-drive diagnostics, drivetrain analysis, structural health monitoring, actuator condition assessment, and edge-based predictive maintenance. The indigenous development of IntelliPOD v2.0 strengthens CMTI's capabilities in Industry 4.0, smart manufacturing, and intelligent maintenance technologies while providing a versatile platform for advanced research, technology development, and industrial deployment.



INTELLIPOD V2.0 (ADVANCED VERSION)

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DEVELOPMENT AND DEPLOYMENT OF A SMART CONTROL SYSTEM FOR A CONVENTIONAL OIL-FIRED FURNACE



Oil-Fired Furnace at NIAMT Ranchi & Smart Control system



Smart Control system



Dashboard Displaying an ongoing Heat Treatment Cycle

CMTI has successfully carried out the installation, commissioning, and handover of a smart control system for a conventional oil-fired heat treatment furnace at the National Institute of Advanced Manufacturing Technology (NIAMT), Ranchi. The project transformed the conventional oil-fired furnace into an Industry 4.0-enabled system through the integration of advanced sensors, real-time monitoring, automated control, and data acquisition capabilities.

The upgraded system enables precise temperature monitoring and automated execution of programmed heat treatment cycles through accurate fuel flow control, resulting in improved process consistency, energy efficiency, and traceability. Continuous monitoring of critical furnace parameters minimizes manual intervention, supports data-driven decision-making, and demonstrates the effective digital modernization of conventional heat treatment equipment.

EVENTS/CELEBRATIONS

INTERNATIONAL YOGA DAY CELEBRATION AT CMTI

CMTI celebrated International Yoga Day 2026 with great enthusiasm, reaffirming its commitment to promoting physical fitness, mental well-being, and a healthy work-life balance among its employees. The celebration featured a guided yoga session conducted by experts from Patanjali Shikshana Samithi, who led participants through a series of yoga asanas and breathing exercises. The experts also highlighted the numerous benefits of regular yoga practice, including improved concentration, stress management, enhanced flexibility, and overall physical and mental wellness. Employees from across the organization actively participated in the session, embracing the principles of mindfulness and holistic health. The event served as a reminder of the importance of incorporating yoga into daily life and reflected CMTI's continued commitment to fostering a healthy, positive, and productive workplace.







DR. B. R. AMBEDKAR JAYANTI CELEBRATION AT CMTI

CMTI commemorated the 135th Birth Anniversary of Bharat Ratna Dr. B. R. Ambedkar on 24th June at the CMTI Auditorium. The programme paid tribute to the visionary social reformer, eminent jurist, and principal architect of the Constitution of India, whose ideals of equality, justice, and inclusive development continue to inspire the nation. The celebration was graced by Dr. D. Shivashankar, President, Karnataka SC & ST Government Employees' Federation, and Dr. Radhakrishna Pallakki, noted Director, Producer, and Actor from the Kannada film industry, as the Chief Guests. The dignitaries delivered insightful addresses highlighting Dr. Ambedkar's remarkable contributions to social justice, education, constitutional values, and nation-building. The event witnessed enthusiastic participation from CMTI employees, who joined in paying homage to Dr. Ambedkar and reaffirming their commitment to the values of equality, integrity, and social harmony that he championed.







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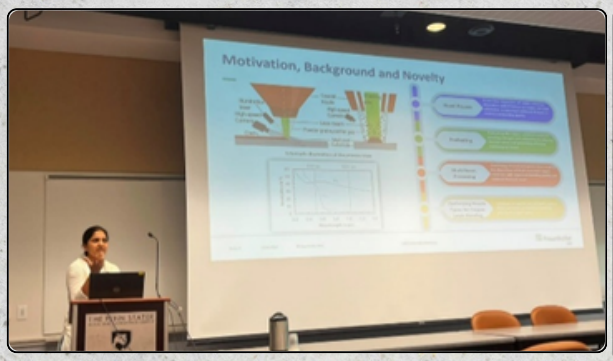
MOUS/NDA

M/s. CMTI and M/s. Mechximize Digitech Pvt. Ltd. entered into the NDA in connection with “Manufacturing Services” on 18th June 2026.

RESEARCH PAPER PRESENTATION/CONTRIBUTORY TALKS

CMTI SHOWCASES ADVANCED ADDITIVE MANUFACTURING RESEARCH AT ASME NAMRC 54, USA

Dr. Anusha Epparla (Scientist C) presented a research paper titled “Influence of a Hybrid Multi-Wavelength Laser Strategy on the Process Stability and Metallurgical Characteristics of Copper Laser Metal Deposition” in 54th North American Manufacturing Research Conference (NAMRC 54), ASME Manufacturing Science and Engineering Conference (MSEC), hosted by Penn State University, USA, from 14–18 June 2026. The research introduces an innovative multi-wavelength laser beam strategy for laser metal deposition of copper, addressing the challenges of processing highly reflective materials by improving laser–material interaction and enhancing deposition quality. NAMRC 54 provided an excellent platform for knowledge exchange with leading researchers, academicians, and industry experts in advanced manufacturing, including additive, subtractive, sustainable, and digital manufacturing technologies. The conference also facilitated networking with researchers from academia and industry, enabling the exchange of ideas and the establishment of new professional collaborations with the global manufacturing research community. Dr. Anusha and CMTI gratefully acknowledge the Anusandhan National Research Foundation (ANRF) for providing financial support through the ITS Scheme. Participation in NAMRC 54 has strengthened CMTI's international research engagement and provided valuable exposure to cutting-edge developments in advanced manufacturing, which will further support ongoing research and technology development initiatives at the institute.







EVENTS/ WORKSHOPS ATTENDED

PARTICIPATION IN THE MAHA INSTRUMENTATION MISSION DESIGN WORKSHOP AT T-WORKS, HYDERABAD

Dr. K. Manjunath (Scientist-B), C-MNTM, represented CMTI at the MAHA Instrumentation Mission Design Workshop held at T-Works, Hyderabad, on 16–17 June 2026. The workshop focused on finalizing the draft call document for the MAHA Instrumentation Mission, including the definition of technology verticals, sub-domains, the i-Node framework, co-funding strategy, and overall budget. During the deliberations, he provided inputs on indigenous instrumentation requirements for the manufacturing sector and contributed to discussions on aligning these needs with the Mission framework. He also participated in collaborative sessions with representatives from academia, industry, and research organizations, supporting the development of a consensus-driven roadmap for the Mission.






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EVENTS/ WORKSHOPS ATTENDED

CMTI OFFICIALS PARTICIPATE IN MAKERS OF BHARAT PUNE EDITION 2026

Mr. Krishna Rathod (CH, PP&BD) and Mr. Bishnu Prasad Sahu, In-charge (Business Development), represented CMTI at the Makers of Bharat Pune Edition Multi-City Industrial Leadership Series 2026, organized by MESHmix Media at the Sheraton Hotel, Pune, on 17th June 2026. The event brought together industry leaders, innovators, and professionals to discuss emerging trends, technological advancements, and strategies for strengthening India's manufacturing ecosystem.










CMTI SCIENTIST DELIVERS TECHNICAL TALK AT AUTODESK FUSION SUMMIT 2026

Mr. Abhishek Suchak (Scientist-C) was invited as the Chief Guest and Panellist at the Fusion Summit, organized by Autodesk on 19th June 2026. During the event, he delivered a technical talk on “Smart Manufacturing/Industry 4.0 and its Practical Applications”, highlighting the latest advancements and practical applications of digital manufacturing technologies. The summit brought together over 90 participants, including industrialists, academicians, and freelancers, providing a platform for knowledge exchange and industry interaction. The event focused on advanced CAD/CAM solutions, smart manufacturing, and the growing role of artificial intelligence in the manufacturing sector.





TRAINING PROGRAMMES

THREE-DAY TRAINING PROGRAMME ON “ADDITIVE MANUFACTURING – DMLS, DMD MACHINE”



CMTI organized a three-day training programme on “Additive Manufacturing” from 17th to 19th June 2026 at Bengaluru. Coordinated by Mr. A.R. Vinod (Scientist-D & GH-AM), training was designed to provide participants with a comprehensive understanding of Additive Manufacturing (AM) technologies and their industrial applications. Over the three days, sessions covered a wide spectrum of topics including various Additive Manufacturing technologies, Metal Additive Manufacturing, Microstereolithography, Design for Additive Manufacturing, In-situ Process Monitoring and Control, Standardization and Characterization of AM Feedstock Materials and Parts, and Post-processing for AM Components. The programme included expert lectures, laboratory demonstrations on metal AM processes, in-situ monitoring systems, smart manufacturing technologies, and guided visits to the characterization and post-processing facilities. Participants from Infosys, Bengaluru, QAE (N), Kochi, Applied Materials, Bengaluru and BEML, KGF attended the programme.

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SUPER ANNUATION

FAREWELL - MR. PRAKASH VINOD JOINT DIRECTOR ON HIS SUPERANNUATION

Mr. Prakash Vinod, Joint Director and Centre Head, C-SMPM, superannuated from the services of CMTI on 30th June 2026 after his dedicated and distinguished career. Throughout his tenure, he made significant contributions to the advancement of manufacturing technologies, institutional growth, and the successful execution of various strategic initiatives. His leadership, technical expertise, and commitment have been instrumental in strengthening CMTI's research and development capabilities. The CMTI fraternity expresses its sincere gratitude for his invaluable service and wishes him good health, happiness, and a fulfilling post-retirement life.







UPCOMING TRAINING PROGRAMMES

1. "Industrial Test Measurement & Data Acquisition – Labview training (Hands on)", Course Code: 5102, from: 03rd – 04th August 2026
   Click for more information

2. "Ultraprecision Machining and Advanced Surface Finishing Process – DTM, AFM, Laser Polishing", Course Code: 4206, from: 05th – 07th August 2026
   Click for more information

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