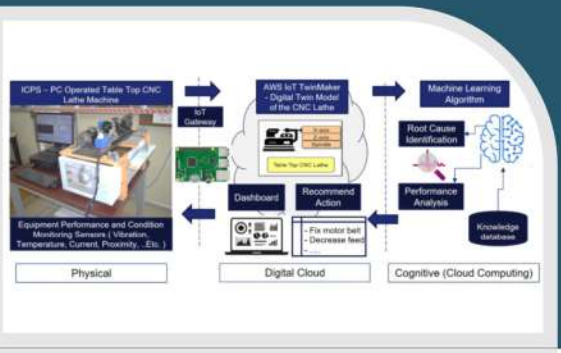
IITI DRISHTI CPS Foundation

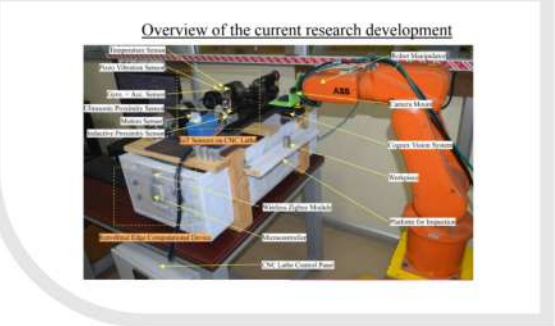
TECHNOLOGY DEVELOPMENT PROGRAM

Smart Manufacturing



SmartTwin of CNC Lathe

AI-based approach with digital twins for real-time performance, analysis, and prognostics of ICPS



Issue Being Addressed

- Inadequate real-time performance monitoring hinders system optimization
- Insufficient prognostic capabilities result in unexpected downtime and costs

Key Feature of The Technology/Product /App Which Is Being Developed

- AI-based analytics enable real-time performance monitoring and analysis
- Digital twins facilitate accurate system modeling and predictive maintenance
- Prognostic capabilities enable early detection and prevention of system failures

CPS Relevance

- Combines IoT sensors, digital twin modeling, and AI algorithm for proactive maintenance of cost
- The approach represents a shift from reactive to proactive, data-driven maintenance practices

Impact & Benefits

- Empowers industries with sustainable practices, reducing environmental impact and fostering inclusive growth
- Enhanced efficiency reduces energy consumption, promoting sustainability and environmental conservation

Team

- **Mr. Deep Patel**
  Ph.D. Scholar
- **PI: Prof. Sreekumar M**
  Professor, Centre for AI, IoT and Robotics
- **IIITDM Kancheepuram**

- **CHANAKYA Ph.D. Fellowship**

Targeted Customers & End Users

- Industrial sectors
- Manufacturing energy
- Transportation
- Equipment manufacturers

Commercialization Status

- Prototype ready, applied for the patent, testing of prototype for deployment is required