

TECHNOLOGY DEVELOPMENT PROGRAM

Smart Manufacturing



Intelligent Schedule Learner

Design and development of digital twins with intelligent simulators for real-time shop floor decision support



Issue Being Addressed

- ▶ The proficiency of the scheduler plays a crucial role in generating production schedules; however, during the unavailability of an expert scheduler, the schedule quality suffers significantly
- ▶ Due to the dynamic shop floor conditions, the scheduler's logics are generally not very well defined, therefore converting them into a real-time shop floor program

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

- ▶ It is a combination of simulation and modeling
- ▶ Simulator gets inputs from the digital twin to analyze the current state of the system and provides the outputs to the digital twins

CPS Relevance

- ▶ It is composed of digital versions of physical entities that are networked together and share the required data and information in real time

Impact & Benefits

- ▶ These can be integrated with the laboratory scale production setups
- ▶ The system and its components are integrated with the manufacturing management HMI application for managing the production process

Team

- ▶ Mr. Jaideep Singh
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- ▶ Co-PI: Prof. Bhupesh Lad,
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- ▶ CHANAKYA Ph.D. Fellowship

Targeted Customers & End Users

- ▶ Press-shops
- ▶ Tool and die making units
- ▶ High pressure die casting units
- ▶ Heat treatment shops

Commercialization Status

- ▶ Recently collaborated with SMC Corporation Pvt Ltd and Mahindra & Mahindra Limited