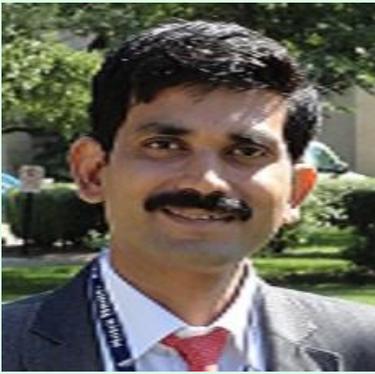


ASHRAE Undergraduate Program Equipment Grant



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FUNDING: ASHRAE UG EQUIPMENT GRANT \$4092

MODULAR AND RECONFIGURABLE DIGITAL TWIN BASED TEMPERATURE AND FLOW MONITORING SETUP FOR THERMAL SYSTEMS

Sardar Patel College of Engineering, Mumbai

OUR IDEA AND PROJECT

This project began with the thought of thermal systems, like heat exchangers etc. in mind, and how it is difficult to optimize their efficiency while in operation due to the obstacles faced in monitoring them continuously.

Developed UG equipment is a smart monitoring system for double pipe heat exchanger that integrates real-time sensor data with a digital twin model to observe and analyze thermal system performance. It continuously measures critical parameters such as temperature and flow rate,

enabling accurate visualization and condition monitoring of the system. The setup is modular, making it easy to add or replace sensors and components as per different thermal applications. Its reconfigurable design supports flexible deployment across various industrial and laboratory thermal setups. Overall, the project enhances efficiency, fault detection, and predictive maintenance through data-driven thermal monitoring. This was made possible by the kind support of ASHRAE.

