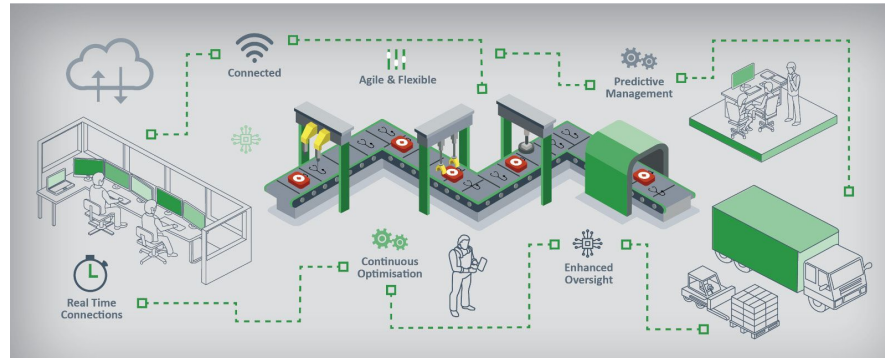


Optimal Sensor Placement in a Smart Factory for Digital Twin Generation on Mobile Robot Movement

Made by: Ataulhaq Akbar

Motivation

- The US is attempting to move its manufacturing capabilities back from overseas
- In order to stay competitive the US will need to use two technologies: digital twins and mobile robots



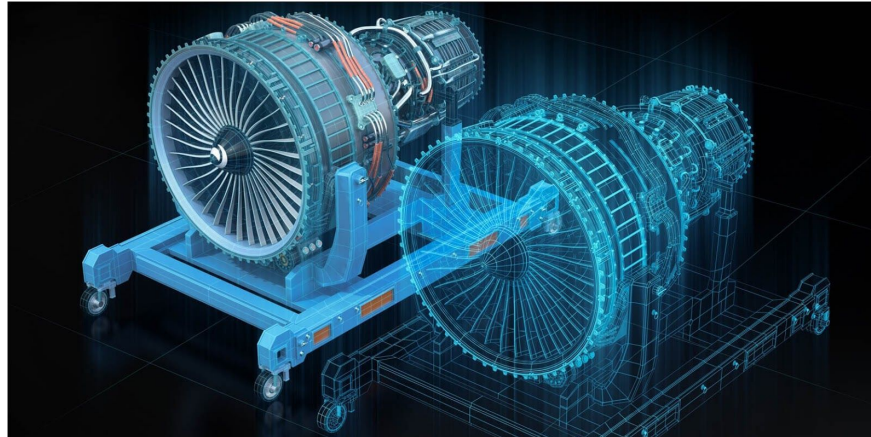
Problem statement: mobile robots

- In a smart factory robots are everywhere
- To ensure safety of workers, make robots follow a path when workers are less likely to be there



Problem Statement: digital twins

- Simulation of factory can improve efficiency and cost effectiveness, but sensors can be expensive
- Finding the optimal placement and amount of sensors





Dataset description (MERLSense dataset)

- MERL stands for Mitsubishi Electric Research Labs
- This dataset is about smart homes but is very applicable for a smart factory
- It has over 200 sensors in two floors
- Data was collected over two years (between 2006 and 2008)
- Tracklets and are organized by:
 - Beginning timestamp and ending timestamp
 - Beginning sensorID and ending sensorID

Map

