Project Design Phase-II
Technology Stack (Architecture & Stack)

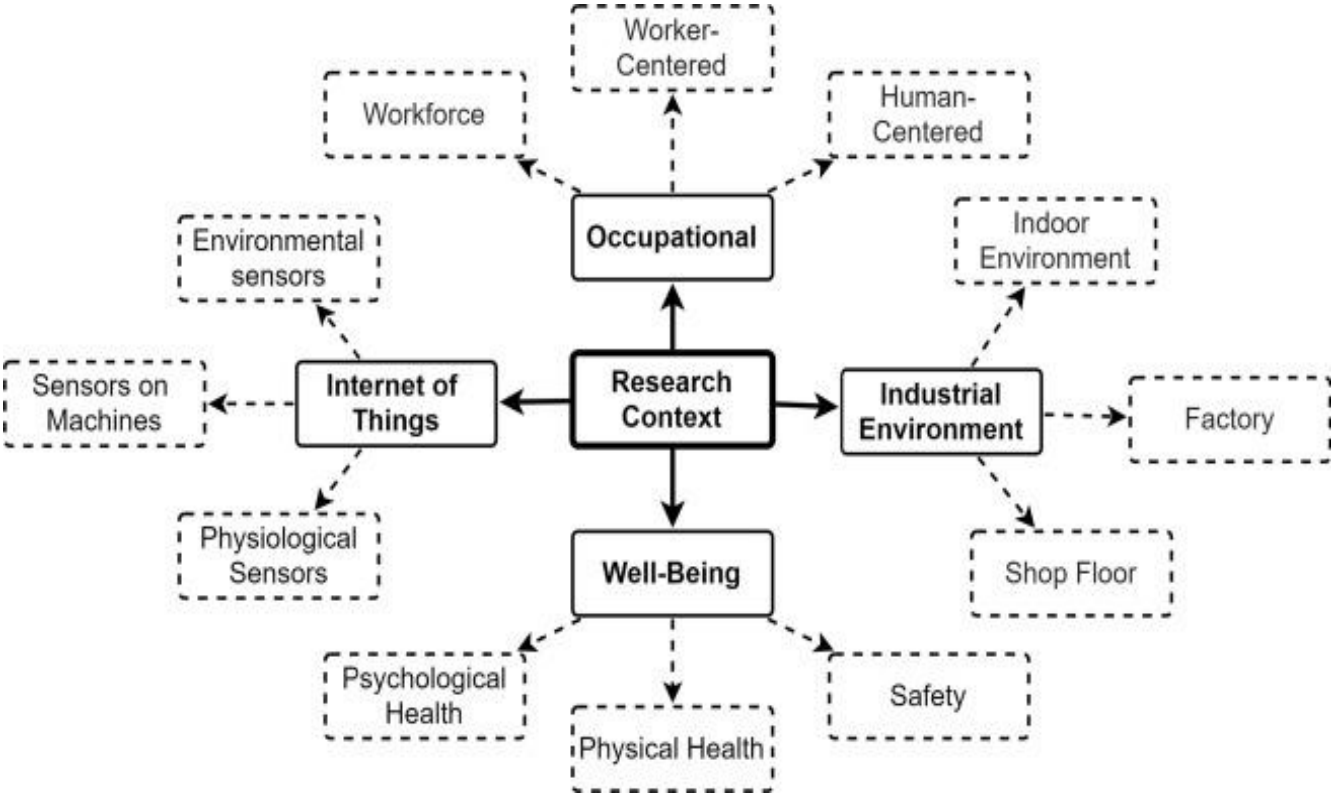
Date	06 May 2023
Team ID	NM2023TMID15400
Project Name	Industrial Worker Health and Safety System based on the Internet of Things

Technical Architecture:

An Industrial Worker Health and Safety System based on the Internet of Things consists of wearable devices, environmental sensors, motion sensors, and location tracking devices that collect data. This data is transmitted through a network infrastructure, processed and analyzed in the cloud, and presented to users through mobile/web applications for real-time monitoring, alerting, and reporting. Integration with existing systems and interoperability with third-party devices and platforms are also supported.

Industrial Worker Health and Safety System based on the Internet of Things

Architecture :



GUIDELINES :

1. Wearable devices and sensors should be used to monitor workers' health and safety parameters.
2. Deploy environmental sensors to track workplace conditions such as temperature, humidity, and air quality.
3. Motion sensors can detect worker movements and identify potential accidents or risky situations.
4. Utilize location tracking devices to monitor workers' whereabouts in real-time, both indoors and outdoors.
5. Ensure a reliable network infrastructure for seamless connectivity and data transmission.
6. Collect and aggregate data from IoT devices and sensors for analysis and further processing.
7. Use cloud-based platforms and analytics to identify patterns, anomalies, and potential risks.
8. Implement real-time communication channels to notify supervisors or safety personnel during emergencies.
9. Provide intuitive mobile or web applications for workers, supervisors, and safety personnel to access real-time data and historical records.
10. Integrate the IoT system with existing enterprise systems and support interoperability with third-party devices and platforms.

Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Real-time Monitoring	IoT sensors and devices can continuously monitor workers' vital signs, biometrics, and exposure to hazardous conditions, providing real-time alerts and notifications to prevent accidents or health risks.	Technology used
2.	Predictive Maintenance	IoT sensors can monitor machinery and equipment conditions, detecting anomalies and predicting maintenance requirements, thus minimizing the risk of equipment failure and ensuring worker safety.	Technology used
3.	Risk Assessment and Management	IoT data can be analyzed to identify trends, patterns, and potential risks, enabling proactive risk assessment and management strategies to be implemented.	Technology used

S.No	Characteristics	Description	Technology
4.	Incident Investigation and Reporting	IoT data can be used for incident reconstruction and analysis, facilitating accurate reporting, investigation, and subsequent corrective actions.	Technology used
5.	Health and Wellness Management	IoT wearables can track workers' physical activity, stress levels, and sleep patterns, promoting employee wellness programs and ensuring better overall health and productivity.	Technology used