

Project Design Phase-I
Proposed Solution Template

Date	20 May 2023
Team ID	NM2023TMID02223
Project Name	Industrial Workers Health and Safety System based on Internet of Things

Proposed Solution Template:

Project team shall fill the following information in proposed solution template.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Workplace safety is a serious concern for organizational context because of the alarming rate of occupational injuries and fatalities. International Labour Organization (ILO) (2020) reported that over two million people succumb to work-related fatal diseases and injuries, and around 6000 people die due to workplace accidents and diseases every day. Such occupational injuries and incidents also have severe destructive consequences for employees' behaviours and performance outcomes and organizations' long-term success. One of the main reasons behind these injuries and fatalities at the workplace is the lack of leadership role towards the employee safety and low
2.	Idea / Solution description	When you take full advantage of available IoT tools and devices, you are utilizing its data-sharing and information management capabilities in every arena possible – not only when it comes to machines or technology, but with workers too. For this reason, wearable technology is a significant aspect of IoT solutions in the workplace. With the accessibility, immediacy, and integration of wearable technology such as mobile and smart devices, it's easier than ever before to streamline parallel or differentiating business processes in order to improve workplace health and safety. With IoT integrations implemented into your organizational process and safety management system, you'll gain:

3.	Novelty / Uniqueness	<p>A novel approach to analysing different crucial criteria in various industrial sectors is explained carefully in this work. In this unique approach, accident reduction model technique is applied to determine the respective weights of three main criteria and seventeen sub-criteria as a way of enriching the decision-making process while in a problem. A survey was initiated in different industrial sectors to obtain reliable data for the research. The results show that the main criteria 'human safety' acquired a weight of 72.5% while the respective weights of primary criteria machine security and work environment safety fall to 8.9 and 18.4%. The weight of the main criteria, human safety indicates that the sub-criteria such as eye protection, manual lifting, material handling practices, firefighting drills, training and safety officers are implemented to a greater extent in most of the surveyed industries.</p>
4.	Social Impact / Customer Satisfaction	<p>The Internet of Things (IoT) has the potential to significantly impact the health and safety of industrial workers. By integrating IoT devices, sensors, and data analytics into workplace environments, companies can create a more connected and intelligent health and safety system. Here are some of the social impacts of an IoT-based health and safety system for industrial workers:</p> <p>Enhanced Safety Monitoring: IoT sensors can continuously monitor workplace conditions, equipment, and worker activities in real-time. This allows for the early detection of hazards, such as abnormal temperatures, gas leaks, or machine malfunctions. By providing timely alerts and warnings, the IoT system can prevent accidents and injuries, thereby improving worker safety.</p>
5.	Business Model (Revenue Model)	<p>The business model of an industrial worker's health and safety system based on the Internet of Things (IoT) can vary depending on several factors, including the specific industry, target customers, and the scope of the solution. Here's a general outline of a possible business model:</p> <p>1. Hardware and Sensors: The IoT-based health and safety system requires the installation of hardware components such as sensors, gateways, and devices. The business model may involve selling or leasing these hardware components to industrial organizations. This can include upfront costs or a subscription-based pricing model.</p>

		<p>2. Software and Platform: Along with the hardware, the system relies on software and a cloud-based platform to collect, analyze, and manage the data generated by the IoT devices. The business model can involve charging a recurring fee for the software license, access to the platform, and ongoing maintenance and support services.</p> <p>3. Data Analytics and Insights.</p> <p>4. Customization and Integration:</p>
6.	Scalability of the Solution	<p>The scalability of an industrial workers health and safety system based on the Internet of Things (IoT) depends on various factors, including the design of the system, infrastructure requirements, and the ability to handle increasing volumes of data. Here are some considerations for the scalability of such a solution:</p> <ol style="list-style-type: none"> 1. Device Connectivity: 2. Software and Platform: 3. Data Analytics and Insights: 4. Subscription or Usage-based Pricing <p>By considering these factors, an industrial worker's health and safety system based on IoT can be designed and implemented in a scalable manner. Scalability enables the solution to grow and adapt with the organization's needs, accommodate increasing data volumes, and deliver reliable and effective health and safety capabilities for industrial workers.</p>