

# Project Charter

## Project Title

Mining Workers Safety Helmet using IOT

## Organization

Thiagarajar College of Engineering

## Start Date

- January 8<sup>th</sup> 2024

## End Date

- April 30<sup>th</sup> 2024

## Project Champion

- Pudumalar S (Assistant Professor)

## Project Description and Justification

The purpose of this project is to develop a mining worker safety helmet that utilizes Internet of Things (IoT) technology to enhance the safety and well-being of workers in mining environments. The smart helmet will be equipped with various sensors and connectivity features to monitor and prevent accidents, track worker location, and provide real-time data analytics for proactive safety management.

### Justification:

1. This project aims to develop a mining worker safety helmet leveraging IoT technology for enhanced safety in mining environments.

2. Equipped with sensors and connectivity features, the smart helmet monitors conditions, prevents accidents, and tracks worker location in real-time.
3. Its proactive safety management approach prioritizes worker well-being and operational efficiency through continuous monitoring and data analytics.

## High Level Requirements

- The mining worker safety helmet must integrate IoT technology, including sensors and connectivity features, to enable real-time monitoring, communication, and data transmission, incorporating a fall detection system, gas leak detection, and temperature sensors.
- Requirements also include accident prevention features, location tracking capabilities, durability, compliance with safety standards, efficient battery management, and documentation/reporting functionalities.

## Success Criteria & Who Measures It

- The success criteria for the mining worker safety helmet project involve the development of a fully functional IoT-enabled helmet with integrated sensors for fall detection, gas leak detection, and temperature monitoring.
- Success will be measured by the helmet's ability to effectively prevent accidents, provide real-time location tracking, and offer data analytics for proactive safety management.
- The project team, including engineers, safety experts, and end-users, will collectively assess the success based on the adherence to project milestones, the functionality of the implemented features, and the overall improvement in worker safety and well-being in mining environments.

## Stakeholders List

- Mining workers
- Health and safety department
- Regulatory authorities
- Research and development teams
- Project team members

## Project Budget

- Rs.2000

## Milestones

1. Project initiation and team formation - [8/1/24] (Already Completed)
2. Research and technology selection - [22/1/24] (Already Completed)
3. Helmet design and prototyping - [15/2/24]
4. Sensor integration and connectivity implementation - [1/3/24]
5. User interface development and testing - [16/3/24]
6. Final helmet prototype completion - [2/4/24]
7. Testing and validation - [17/4/24]
8. Documentation and reporting - [22/4/24]
9. Project review and handover - [29/4/24]

## Assigned Project Manager, Responsibility and Authority Level

- Raja Rajeswari is the assigned project manager. She will report to project sponsor , project partner liaison and hod of the department during the planning phase of the project and upon conclusion to report project success. She is also responsible for planning, executing, and closing the project, ensuring that it meets its goals, stays on schedule, and stays within budget

## Risks

- Uncertainty regarding technological feasibility and challenges in incorporating features
- Technical challenges during sensor integration and connectivity
- Shortened battery life and inadequate power management in IOT utilities used in helmet
- Budget constraints that may limit the extent of development

## Conclusion

By developing a mining worker safety helmet leveraging IoT technology, this project aims to significantly enhance worker safety in the mining industry. Through location tracking, gas leak detection, temperature detection and fall detection system, the smart helmet will enable proactive safety management and reduce the occurrence of accidents and injuries. Successful implementation of this project will contribute to a safer working environment for mining workers and establish a new benchmark in mining safety practices.

## Signatures

Raja Rajeswari R	Harini S	Rithika S
		