Project Design Phase-I

Proposed Solution Template

Date	19 September 2022
Team ID	PNT2022TMID01159
Project Name	Hazardous area monitoring for industrial power plants using IOT.
Maximum Marks	2 Marks

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)	* The environment air flow pattern will also determine the gas concentration in the area. Suffocation could happen to a person due to the decrease in oxygen concentration caused by the gas displacing air in the environment. Worst scenario could happen i.e. explosion if the gas concentration is between Lower Explosive Limit (LEL) and Upper Explosive Limit (UEL), with sufficient amount of oxygen and source of ignition.
2.	Idea / Solution description	* The data acquisition process was conducted at the same time in real environment conditions. * The developed software consists of, data acquisition, analyse and control. The data acquisition program will enable system to collects sensor's responses data. Acquired data is transmitted through Wi-Fi to base nose for analysed. If the acquired data exceeds the pre-set threshold value, an alarm system will be activated by the base node that will alert the plant's staff. A water sprinkler system and exhaust fan will also be activated to reduce gas concentration in the environment. The result will be used to control gas concentration in the area.

3.	Novelty / Uniqueness	The system's experiments were repeated for seven days from 9 am to 5 pm. In order to associate the risk of fire/explosion and toxicity with the use of flammable gas cylinders, all safety procedures were followed during the experiment.
4.	Social impact/Customer Satisfaction	* Customer satisfaction is of great importance for every company, as it can be highly connected with its performance. * Using the results of this study, natural gas providers will have the chance to frame their future actions in order to keep their industrial customers satisfied.
5.	Business Model (Revenue Model)	• Existing business model systematisations are not sufficient to characterise the business models of the energy system transformation. • There is no exhaustive overview of currently existing energy business models. • There is no adequate approach to describe the effects of the energy system transformation on the interactions between business models and the structure of the energy industry. As a conclusion, our own business model framework is developed based on the existing business model frameworks and current business models.

6.	Scalability of the Solution	Scalability of shale also reduces risks wells do not last long – usually about two years – but capital requirements are low and lead-times short. Producers do not need to rely on long-term predictions of prices to inform their investment decisions. Furthermore, equipment used in extraction can be used in both oil and natural gas production. More importantly, in oil markets, scalability has further limited unilateral or cartelized market power. * The use of wireless sensors for data collection and analysis helps to avoid the hassles of complex wiring in remote and hard-to-reach locations in the manufacturing plants. Moreover, the installation of such wireless sensors requires significantly lesser time, which facilitates complete automation of the plant in a matter of days.