

Ideation Phase

Define the Problem Statements

Date	20 September 2022
Team ID	PNT2022TMID26592
Project Name	Hazardous Area Monitoring for Industrial Plant powered by IoT
Maximum Marks	2 Marks

Customer Problem Statement:

- The main limitation of the current industry standard sensors is they are fixed in a single position. Thus the plant management does not have access to the working personnel's immediate surroundings. Hence the first problem we encounter is selecting sensors suitable for the working personnel to wear around the plant, so that the device doesn't cause a hindrance to the job carried by the personnel.
- **The** most polluting industries in the world are pesticides pollution from agriculture and storage, waste water treatment in industries, tanning industries, and coal mining. Industrial plants, such as chemical works and metal-smelting plants, release SO₂, H₂S, NO₂, and CO into the atmosphere. Tall chimney stacks may be used to carry gases and particles to a high altitude and thus avoid local pollution, but the pollutants return to Earth, sometimes hundreds of kilometer from the original source
- The main objective mentioned is to detect the temperature using a wearable sensor and the information be relayed back to a central command station. An immediate obstacle we encounter is the distance. We have to choose a communication device that can transmit for sufficiently long distances around the plant and at the same time it must be able to penetrate through the industrial structures like Boilers in the plant.
- The sensor converts the physical quantity into the voltages, when concentration increases the input voltage to microcontroller through sensor is also simultaneously increases.

Problem Statement (PS)	I am	I'm trying to	But	Because	Which makes me feel
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The Device must be wearable.	Working Personnel	Complete the work assigned	There exists a high risk of poisoning and fire hazard	Of the Industry	Insecure, under-confident
The Distance of transmission from the sensor is varying.	Designer	Find the communication technique	The environment varies depending on the Industry	Of the nature deployment	Searching for an amicable solution.
Apart from Temperature there might exist poisonous gases.	Supervisor	Monitor the hazard in the area in my supervision	It depends not only on temperature but also on gases present	Risk of Leakage Risk of circuit	In need of a system to monitor the gases in industries
The Data traffic is high	Database manager	To find ways to ensure the data is collected	Traffic is high	Use of large number of sensors	To find proper database management system.

