

Ideation Phase


Brainstorm & Idea Prioritization Template

Date	19 September 2022
Team ID	PNT2022TMID11664
Project Name	Gas Leakage Monitoring and Alerting system for industries
Maximum Marks	4 Marks

Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem-solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Step-1: Team Gathering, Collaboration and Select the Problem Statement



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

🕒 10 minutes to prepare
🕒 1 hour to collaborate
👤 2-8 people recommended

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➔ Before you collaborate
A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

🕒 10 minutes

A Team gathering
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B Set the goal
Think about the problem you'll be focusing on solving in the brainstorming session.

C Learn how to use the facilitation tools
Use the Facilitation Superpowers to run a happy and productive session.

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1 Define your problem statement
What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕒 5 minutes

PROBLEM

Gas Leakage Monitoring & Alerting System for Industries has all the features as explained below

Key rules of brainstorming

To run a smooth and productive session

- 😊 Stay in topic.
- 💡 Encourage wild ideas.
- 👂 Defer judgment.
- 👂 Listen to others.
- 🗣️ Go for volume.
- 👁️ If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping:

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP
You can select a sticky note and fill the space of another to make it bigger. Keep it as a reminder.

This project helps the industries in monitoring the emission of harmful gases

The sensors are widely used to detect the essence of propane, iso-butane, LPG, and even smoke.

When you have a gas detection system, you can monitor the number of gases in your environment.

Catalytic diffusion sensors are the most widely used devices for the detection of combustible gases and vapors. These sensors start with the wire being wound into coils.

In several areas, the gas sensors will be integrated to monitor the gas leakage. If in any area gas leakage is detected the admins will be notified along with the location.

A catalytic bead LEL sensor senses a combustible gas through flameless combustion that occurs with the help of electrically produced heat and a catalyst material coating on the sensing bead.

Electrochemical sensors are used in the detection of toxic gases and work by producing electrode signals.

For that sake, an alarm unit is used to vibrate an alarm which is a buzzer. Buzzer gives an audible sign of the presence of LPG volume.

The sensor has the advantage to combine a sensitivity response time. If the LPG sensor senses a gas leak from the workplace or home, sensor output goes to active low (logic-0) condition.

In the web application, admins can view the sensor parameters.

Three Types of Gas Detectors: Portable gas detectors, Fixed gas detectors, Gas detection tubes (Colorimetric detection devices)

The Arduino UNO turns on the LCD and buzzer. It even turns on the GSM modem after that, it continues to send messages SMS to mobile numbers specifically mentioned in the program of the source code for alert danger to the people.

Gas detectors can be used to detect combustible, flammable, and toxic gases and oxygen depletion. This type of device is used widely in industry and can be found in locations.

Arduino UNO is used in the project; low signals are overlooked by the Arduino and gas leakage is been noticed by the Arduino.

Using a 4 gas monitor can protect your workers in any environment by assessing the four main gases: Oxygen (O2), Carbon Monoxide (CO), Hydrogen Sulfide (H2S), Methane (CH4), or other combustible gases you're checking for.

The presence of hazardous LPG gas leakage in a domestic, workplace, also, stored gases container gas which exhibits ideal characteristic is use.

3

Group Ideas

Take turns sharing your ideas while clustering similar or related notes as you go. In the last 10 minutes, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

20 minutes

IOT SYSTEM

Catalytic diffusion sensors are the most widely used devices for the detection of combustible gases and vapors. These sensors start with the wire being wound into coils.

Electrochemical sensors are used in the detection of toxic gases and work by producing electrode signals.

In other words, a CB LEL sensor detects gas through the actual burning of the gas

DETECTION AND INDICATION

The Arduino UNO turns on the LCD and buzzer. It even turns on the GSM modem after that, it continues to send messages SMS to mobile numbers

The sensor has the advantage to combine a sensitivity response time. If the LPG sensor senses a gas leak from the workplace or home, sensor output goes to active low (logic-0) condition.

INTRUDER'S ALERT

The Arduino UNO turns on the LCD and buzzer. It even turns on the GSM modem after that, it continues to send messages SMS to mobile numbers specifically mentioned in the program of the source code for alert danger to the people.

For that sake, an alarm unit is used to vibrate an alarm which is a buzzer. Buzzer gives an audible sign of the presence of LPG volume.

Electrochemical sensors are used in the detection of toxic gases and work by producing electrode signals

Step-3: Idea Prioritization:

4

Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

⌚ 20 minutes

