

Project Design Phase-I
Proposed Solution Template

| | |
|---------------|--|
| Date | 19 September 2022 |
| Team ID | PNT2022TMID53674 |
| Project Name | Project - Industry specific intelligent fire management system |
| Maximum Marks | 2 Marks |

Proposed Solution Template:

| S.No. | Parameter | Description |
|-------|--|---|
| 1. | Problem Statement (Problem to be solved) | The main goal of a fire alarm system is to give people advance notice of a fire so they can escape and take swift action to reduce or completely extinguish the fire's effects as soon as feasible. |
| 2. | Idea / Solution description | <ul style="list-style-type: none">• The exhaust fans are turned on based on the temperature readings and if any gases are present.• Sprinklers will be activated automatically if a flame is detected.• The authorities and the fire station are notified of any emergency alerts. |
| 3. | Novelty / Uniqueness | <ul style="list-style-type: none">• When the fire begins to spread, the temperature rises, and if any gases are present, the exhaust fans are activated.• If a flame is detected, the sprinklers will activate automatically and send a message to higher authorities and the fire station.• Our proposed system provides a solution for secure transmission of the real time data obtained from the sensors to the IBM cloud rather than using the networking devices like ZigBee, LORA, GSM modules which causes the interference of data obtained from multiple users.• Our product is cost effective, since for communication to higher officials we have a web dashboard rather using hardware devices.• Design and implementation of highly scalable product. |

| | | <ul style="list-style-type: none"> All the IOT end devices are controlled using standalone rechargeable batteries so that the product would last for a long span. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------------------|---|---|------------|---------------|------|---------|---------------------|-------|-------|---------------|-------|------------------|-----------------|------|--------------|--------------|------|--------|-------|------|-------------|---|-------|---------|-------------|-------|-----------|--------|-------|
| 4. | Social Impact / Customer Satisfaction | <ul style="list-style-type: none"> Customer experience can be identified through client feedback provided by customers who use our kit and provide feedback. Prevents Pollution. | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5. | Business Model (Revenue Model) | <table border="1"> <thead> <tr> <th>COMPONENTS</th><th>SPECIFICATION</th><th>COST</th></tr> </thead> <tbody> <tr> <td>Nodemcu</td><td>ESP8266 WIFI Module</td><td>₹ 375</td></tr> <tr> <td>DHT11</td><td>0 °C to 50 °C</td><td>₹ 175</td></tr> <tr> <td>Gas Sensor (MQ2)</td><td>300 – 10000 ppm</td><td>₹120</td></tr> <tr> <td>Flame Sensor</td><td>760nm-1100nm</td><td>₹ 45</td></tr> <tr> <td>Buzzer</td><td>95 dB</td><td>₹ 75</td></tr> <tr> <td>Exhaust fan</td><td>1900 RPM Speed, 150 mm Sweep and 22 W Power Consumption</td><td>₹ 500</td></tr> <tr> <td>Battery</td><td>9 V / 3.7 V</td><td>₹ 225</td></tr> <tr> <td>Sprinkler</td><td>2 inch</td><td>₹ 460</td></tr> </tbody> </table> <p>TOTAL COST: ₹ 1975</p> | COMPONENTS | SPECIFICATION | COST | Nodemcu | ESP8266 WIFI Module | ₹ 375 | DHT11 | 0 °C to 50 °C | ₹ 175 | Gas Sensor (MQ2) | 300 – 10000 ppm | ₹120 | Flame Sensor | 760nm-1100nm | ₹ 45 | Buzzer | 95 dB | ₹ 75 | Exhaust fan | 1900 RPM Speed, 150 mm Sweep and 22 W Power Consumption | ₹ 500 | Battery | 9 V / 3.7 V | ₹ 225 | Sprinkler | 2 inch | ₹ 460 |
| COMPONENTS | SPECIFICATION | COST | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nodemcu | ESP8266 WIFI Module | ₹ 375 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DHT11 | 0 °C to 50 °C | ₹ 175 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Gas Sensor (MQ2) | 300 – 10000 ppm | ₹120 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Flame Sensor | 760nm-1100nm | ₹ 45 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Buzzer | 95 dB | ₹ 75 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Exhaust fan | 1900 RPM Speed, 150 mm Sweep and 22 W Power Consumption | ₹ 500 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Battery | 9 V / 3.7 V | ₹ 225 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sprinkler | 2 inch | ₹ 460 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6. | Scalability of the Solution | With the help of our software, automated real-time decision-making is possible in a setting where hundreds of thousands of sensors are constantly providing data through a web dashboard without interfering with each other. | | | | | | | | | | | | | | | | | | | | | | | | | | | |