**Project Design Phase-I**
**Proposed Solution**

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| Date | 15 October 2022 |
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| Team ID | PNT2022TMID21717 |
| Project Name | **Gas leakage monitoring and alerting system** |

**Proposed Solution:**

| S. No. | Parameter | Description |
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| 1. | **Problem Statement (Problem to be solved)** | ➢ Leaks are thought to be extremely harmful because they have the potential to build up to an explosive concentration. The suggested solution is utilised to construct an effective system and an application that can watch for leaks and notify the workers. |

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| 2. | **Idea / Solution description** | ➢ The gas sensors will be fitted at different locations to track gas leaks.<br>➢ The suggested system initiates an automatic control response upon 0.001% LPG leakage Detection.<br>➢ With the help of a stepper motor-driven mechanical handle, the valve can be closed automatically.<br>➢ By employing a relay and stepper motor in tandem to cut off the house's electric power, we are able to increase human security. We are also employing a GSM module to send an alarm message via SMS (Short Messaging Services) to the users informing them of the LPG leak, and a buzzer is given to notify the neighbours in case the customers are not there. |
| 3. | **Benefit of this System** | ➢ The key benefit of this system over the manual approach is that it completes every step automatically and responds quickly.<br>➢ And the buzzer will work efficiently to reduced the level of hazardous range due to the leakage. |
| 4. | **Novelty / Uniqueness** | ➢ User friendly and easy to operate<br>➢ Instigating the study of CCD technology for visible-range natural gas detection<br>➢ Buzzer will have more alerting range |
| 5. | **Social Impact / Customer Satisfaction** | ➢ It is economical<br>➢ Simple installation and the efficient results are guaranteed and ensured. |

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| 6. | **Business Model (Revenue Model)** | ➢ Energy security is currently one of the objectives in actual practise due to the broad deployment of the urban natural gas industry.<br>➢ The analysis of the pressure, temperature, and flow rate of gas leakage over time under steady-state and dynamic settings was done using the gas leakage model.<br>➢ Because everyone can understand how to utilise the product, it is simple for them to use it correctly for their safest organisation. |
| 7. | **Scalability of the Solution** | ➢ Setting up quick communication tools with the closest fire station and other relief station to ensure the quickest reaction in the event of an accident and in the emergency situations.<br>➢ Even when there is a greater gas leak, the product detects precise readings and successfully warns the workers and will help the people to alert more quickley. |