



**MUFFAKHAMJAH COLLEGE OF ENGINEERING & TECHNOLOGY, Road
No.3, Banjara Hills,
Hyderabad-500034**



Extended Proforma for submission of idea of Incubatee by HI

All details need to be furnished here beforehand and need to copy and paste in the entries of the extended proforma at MSME Portal

*** All entries are mandatory.**

****Consider the character count while mentioning the details to avoid missing of important details.**

Incubatee Name: Subiya Siddiqua

Email Id: siddiquasubiya4@gmail.com

Phone Number: 6281237046

Aadhaar Number: 449338721626

Name in Aadhaar: Subiya Siddiqua

1.9 Category: OBC

1.10 Address: 154 SRT, Chandulal Baradari Colony, Bahadurpura, Hyderabad

2. Details of Idea:

2.1 Title of proposed idea/innovation: HazardHalt

2.2 Whether the idea involves use of existing intellectual property or not, give brief detail there of: The idea does not require any existing intellectual property

2.3 Briefly explain newness/uniqueness of the innovation:

The uniqueness and newness of the integrated Gas Leakage Detection System lie in both household and industrial level, and the several safety features being merged into one single, automated package, which is rarely encountered in conventional systems. Here are the distinctive aspects:

1. Integrated System of Detection, Alert, and Prevention:

The system is fully integrated into one package and includes detection, alert, and

prevention. Traditional gas detectors can only detect leaks while this system adds on alerting the occupants via SMS and calls as well as auto shut off and exhaust fan. This reduces the need for safety systems and complete protection.

2. Calls, SMS, and real-time alerts

The system uses SMS and phone call alerts and it is an improvement over most systems that only use audible alarms. They are alerted instantly, and this even applies when they are miles away from the premises. This makes their response time to be faster.

3. Gas Supply Automatic Cut-off

This system comes with an auto cut-off valve that cuts the gas in case of leaking; thereby adding a proactive form of safety. As opposed to conventional systems that alert but continue to leak gas, this system stops.

4. Exhaust Fan Activation for Instant Ventilation:

Automatic activation of an exhaust fan for ventilation of the area is a novelty feature. It not only confines the concentration of gas but also decreases the possibility of ignition by removing leaked gas quickly.

2.4 Concept & Objective:

A gas leakage detection system that can sense the presence of dangerous gases in the environment and alert the users about the prevailing conditions can provide a much-required preventive measure by shutting the gas supply or arousing alarms to avoid mishaps.

The system makes use of gas sensors, which are constantly monitoring the surroundings by sensing concentrations of gases in the air. Once it reaches a predetermined threshold, the system will trigger an alarm or alert through the buzzer, notifications, or even automated safety measures such as gas shut off. Further features may include SMS alerts and calls. This setup ensures timely detection and prevention of gas-related accidents in households or industries.

2.5 Specify the potential areas of application in industry/market in brief:

- Residential Buildings:** This will prevent houses from encountering hazardous conditions by detecting a leak from cooking gas cylinders and appliances, preventing them from causing any kind of accident in houses.

- Industrial Plants:** This system can monitor and prevent dangerous gas leaks in chemical, petroleum-based, and manufacturing industries.

- Commercial Kitchens:** Restaurants and hotels can use this to avoid any kind of accidents related to gas in their kitchens, thus saving the staff and their customers.

•**Automotive Industry:** Used in garages or service stations where vehicles are kept that have LPG, avoiding a leakage of gas.

2.6 Briefly provide the market data for the potential idea/ innovation:

•**Rising Safety Awareness:** There will be an increasing need for reliable gas detection systems in houses, industries, and public spaces as the safety hazards associated with gas leaks in commercial, residential and industrial sectors are increasing day by day.

•**Government Regulations:** Several countries have drafted very strict rules and regulations for using gas in residential, commercial, and industrial sectors, which creates a demand for advanced detection systems to serve safety compliances.

•**Industrial Safety Requirements:** Oil & gas, chemical, and manufacturing industries have hazardous gases as an inherent component. As a result, the detection and prevention systems in such industries are becoming more complex to prevent costly accidents and ensure worker's safety.

•**Increased Urbanization:** More people are moving into the urban land with lofty residential and commercial buildings; thus, the requirement for integrated safety systems and gas detection solutions is increasing.

2.7 Name and details of Mentors:

1. Dr.S.Fouzia Sayeedunnisa
Associate Professor,IT Department,MJCET

2.Dr.Gouri R Patil
Associate Professor,Head,IT Department,MJCET

3.Mr.Syed Azhar Ali
Assistant professor, IT Department,MJCET

2.8 Experience and Qualification of Mentors:

1. 19 years experience, PhD
2. 24 years experience, PhD
3. 15 years experience, M.Tech

2.9 Contact Details of Mentors:

1. 9885063255
2. 9550811786
3. 9573210322

2.10 Current Development Status of innovation: Prototype**2.11 Expected time of completion of idea:** 1 year

2.12 Idea Sector: Miscellaneous Sector (Environment, Forests, Water & Sanitation; Foods, Beverages, FMCG, Consumer Goods; Infrastructure, Construction, Housing; IT, ITES, Electronics, White Goods, Telecommunication; Metals, Engineering, Machinery, Automation and Transportation, Automotive, E Vehicles, Railways, Aviation, UAV and any other sub-sector)

3. Financial requirements:

For Students full assistance upto 15 lakhs.

For MSME Owned and Other Women Incubatee it is 85% of the amount in Particular Section.

Particular/Item	Total idea project cost (Rs. In lakh)	Amount GOI assistance (Rs. In lakh) 85%	Incubatee share (Rs. In lakh) (15%)
Technology related Expenditure towards machine usage charges etc., Electricity charges, Procurement of raw material , testing/Calibration charges, other charges essential for development of idea Max (10.00) lakh.	(10.00) Lakh	(10.00) Lakh	00
Charges for mentor/handholding supporting team Max (3.00) lakh.	(3.00) Lakh	(3.00) Lakh	00
Travelling Expenses or any other item not covered as above may be allowed as per need for development of the idea Max (2.00) lakh.	(2) Lakh	(2) Lakh	00

4. Please give name of other students/Entrepreneurs associated with this project/idea, if any (in the periodical order):

a) Name: Isra Sayeeda

Aadhar No/Udhyog Aadhar No//Udyam Registration:418018717466

b) Name:Mariam Shakeel Ali

Aadhar No/Udhyog Aadhar No//Udyam Registration: 650596751069

c) Name: Yasmeen Masarath

Aadhar No/Udhyog Aadhar No//Udyam Registration: 865648436883

d) Name: Sumaiyya Wasi

Aadhar No/Udhyog Aadhar No//Udyam Registration: 730838572234

5.Summary of the idea. This is the section reviewers read to understand the technical solution. Please state the solution clearly. Reviewers may ask: What is the actual technical advancement or improvement provided by this solution?

The gas leakage detection system starts with the activation of a sensor that observes the LPG concentration once it settles. This triggers data to an Arduino if gas levels overshoot beyond a safe threshold; there are multiple responses like SMS/Call alerts through a GSM module to alert users remotely, LCD display for local alarms, and a buzzer for an audible alarm. In addition, a servo motor automatically cuts off the supply of gas, whereas an exhaust fan disperses all the collected gas which is no longer a hazard. All the safety actions are automated and get triggered on time by the system.

6. a) Is it a new concept? No

b) Prior art on the concept, if any

Prior LPG gas includes detectors belonging to the MQ series in case of leaks with alarms, and separate home/plant systems in addition to automated setups closing valves and activating ventilation. Industrial systems offer multi-gas monitoring, offering safety alerts for complex environments.

7. Main Problem Being Addressed in the Project (Every solution targets a certain problem. Please use this section to highlight the specific problem the solution addresses. This section can be as short or as long as needed to describe the precise problem the solution addresses)

It includes undetected LPG leak safety hazards that may cause fires, explosions, or poisoning. In this case, the system detects real-time gas presence through alarms and messages by SMS when the threshold levels of gases are attained in hazardous conditions. The system also encompasses preventive actions such as shutting gas valves and activating ventilation for better prevention of accidents since some areas lack high advanced monitoring.

8. Background for getting the idea?

a. Who is it for?

The LPG detection system targets:

- Homes: It protects the family from gas leaks.
- Businesses : Protects restaurants and hotels.
- Industries: Accidents in the factories handling LPG will be prevented by early safety actions being detected.

b. What will it do?

Our work aims to monitor the real-time of LPG, activates alarms at unsafe gas levels, sends out SMS/calls for speedy action, and automates safety measures like closing off valves and starting ventilation to avoid accumulation of gases.

c. Any unique features? Explain?

The system will be able to send live SMS/call alerts for a remote monitoring system, and the safety actions are automated by reducing human intervention. Scalability also extends to homes or industries by adjusting to the sensor units and alert systems.

9. How simple or complex will the idea's execution or implementation be? What are the risk factors involved in executing the idea?

The idea's execution is moderately complex due to hardware development. Risks include technical challenges in sensor design, manufacturing quality and cost control.

10. How soon could the idea be put into operation? (TRL of prototype)

TRL-4 and need around a year to make perfect prototype

11. How much investment would you need for prototyping of the Idea?

15 lakhs

12. (a) How do you intend to protect your idea (i.e. your intellectual property or IP)?

Status of IPR

We plan to protect our hardware based idea through patents for unique component and design.

(b) Related Background. This section is used to highlight information that can be used by the reviewers or patent attorney to help put the solution in proper context. You can think of this section as something similar to the introduction section of an academic publication. This section is specifically reserved for other people's work (please include competitive work) as well as your past work that you believe will aid the reviewers in understanding the technical landscape. Data related to or supporting your solution should not be in this section, it should be in Section III: "How is this Solution Made and Used."

LPG detection forms the important basis for home and industrial safety. Catalytic sensors are sensitive but vulnerable to poisoning, whereas infrared sensors offer accuracy with higher cost. Leading companies Honeywell and Dräger also have developed multi-gas detectors while IoT-enabled sensors improve real-time monitoring. It is indispensable to adhere to NFPA and IEC standards, however more research studies are needed to develop low-cost yet reliable solutions.

13. How is this project made and used: Please describe in as much detail as possible how the innovation is implemented. This includes details on how you actually make,

assemble, synthesize, or build the solution and details on how the solution is used once it is made. Reviewers will ask: How does the technical innovation actually work – or – what is the detailed process to achieve the technical innovation? Please help convince the reviewers with supporting statements using as much of the following that is available: your thoughts, logic, supporting literature, and/or experiments.

Our hardware-based LPG gas detection system would be based on established sensor technology, RF communication, and hardware design principles. We analyzed several similar products and came across areas of improvement, particularly about safety measures. Our team comprises a combined strength of hardware development capabilities to improve on these gaps and provide a better solution that can be safer and more reliable.

14. Upload Block diagram/ flow chart/ Circuit Diagram/Pictures:

(Mandatory) [Upload only pdf, File size should not exceed 5 MB]

(Mandatory) For Students : Need to upload Student ID with duration of course and bonafide certificate by HI certifying that the student is currently enrolled in the course} Student ID card and Bonfide must be in one pdf ile.

Declaration



I declare that:

1. I have read the entire scheme guidelines and shall abide by all the requirements stipulated therein for seeking financial assistance.
2. I hereby declare that information given above is true to the best of my Knowledge and that I have not withheld/distorted any material fact.
3. Any information/ documents that may be required to be verified shall be provided immediately before the concerned authority.
4. I hereby declare that I have not availed any financial assistance for this purpose from any other scheme from any Central/ State govt. agency.
5. In case the Idea is approved, Host Institute would undertake to make facilities available to carry out the development arrange for the submission of periodic progress reports and other information that may be required by the Ministry.
6. I certify that the accounts of the funds received and spent will be kept and made available on demand, as per scheme guidelines.
7. I certify that the funds will be used only for Idea development as per activities defined in Scheme Guidelines & no funds out of this grant will be utilized for any other activity/production purposes.

Name of the Incubatee:Subiya Siddiqua

Date:25nd October 2024

Place:Hyderabad