**MSME IDEA HACKATHON 2.0 (Theme Based)**

**Details of Incubatee**

* Incubatee Name : LATHIKA R
* Aadhaar Number :787468901444
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**Details of Idea**

* **Title of proposed idea / innovation:**

Gas leakage detector with MQ2 using IoT

* **Define the problem and its relevance to today's market / society / industry need.**

Gas leakage leads to various accidents resulting in both material loss and human

Injuries. The risk of explosion, firing is based on their physical properties such toxicity, flammability, etc. The number of deaths due to explosion of gas cylinders has been increasing in recent years. The reason for such explosion is due to substandard cylinders, old valves, regulators and lack of awareness in handling gas cylinders. The LPG or propane is a flammable mixture of hydrocarbon gases used as fuel in many applications like homes, hostels, industries, automobiles, vehicles.

* **Describe the Solution / Proposed / Developed**

This project mainly focuses on the detection of gas leakage and providing security when the user is around or away from home. The system is SMS and Call based and uses GSM module for providing alert against gas leakage to users hence cost effective and more adaptable. The system comprises of MQ2 sensor for detecting gas leak interfaced to Arduino that will give an alert to user. This will enable the user to take precaution of explosion which may result on Liquefied Petroleum Gas (LPG) cookers like loss of properties, injury or even death.

* **Briefly explain newness/uniqueness of the innovation (max. 1500 words):**

This project Gas leakage detector uses MQ2 sensor. This sensor is used to detect the gas like LPG, CO, propane, etc. This sensor has high sensitivity and fast response time, measurement can be taken as soon as possible. We used GSM Module to communicate with the user by sending an alert through message and call. This module supports voice calls and data transfer speeds of up to 9.6 Kbits/get-together with the transmission of SMS.

* **How your proposed / developed (product / process / service) solution is different from similar kind of product by the competitors if any.**

In the existing system, the user will receive only the SMS. In the proposed system, In addition we added the feature of alerting the person through making a call. This will be an immediate intimation of the problem raised in the particular place.

* **Whether the idea involves use of existing intellectual property or not, give brief detail there of:**

**Details of existing IP:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Patent Application Number | Date of Filing (DD-MM-YYYY) | Name of the Inventor | Title of the Invention | STATUS (Filed / Published / Granted/ Licensed) | If Published, Issue No., Page No., and date | International Classification Number |
| - | - | - | - | - | - | - |

**Brief detail:**

Gas leakage leads to various accidents resulting in both material loss and human injuries.

To avoid these problems we design the gas leakage detector using MQ2 sensor using IoT. This device has the MQ2 gas sensor, it is used to sense the gas leakage with the help of Arduino. Whenever the excess gas is leaked, The alert message and call will be automatically send to the user with the help of GSM module and Arduino. This sensor enabled solution to prevent the high risk of gas explosions and avoid the hazardous consequences.

* Specify the potential areas of application in industry/market in brief (max. 1500 words):

Gas leak detector system ensure safety of workplace by alerting the presence combustible gases, exposure to toxic gases in a particular area. In commercial and residential applications, gas leak detectors are primarily used for detection of propane gas leak from appliances, Gas pipe fittings, and propane tank. The areas such as industry, home and in many places there is an accident due to gas leakage.

* **Briefly provide the market data for the potential idea/ innovation (max. 1500 word**s**):**

|  |  |
| --- | --- |
| **Market Size** | Nowadays gases are used in various sectors like industries, medical,  home, etc.. Several hazardous gases which if leaked can be dangerous for the workers working in that area. Government across different countries are formulating and implementing various regulations for the safety of the workers and the workplace from gas leakage which is expected to boost the growth of the gas leak detectors market in the near future. |
| **Market growth rate** | Gas leak detectors market research shows that global demand enjoyed year-on -year growth of 4.8% in 2021 to reach sales of 6.6 million units. Industrial gas leakage detectors grew up 4.9% to 4 million units. |
| **Profitability** | In existing project, there are drastic method to detect the gas leakage. In our project, we introduce the simple method which is useful to use in our working environment itself with the help of some simple hardware equipments. |
| **Product and Consumer type** | Product: Hardware  Consumer type: People who use gases |

* **Name and Affiliation details of Mentors (Industry / Institution):**

Dr.P.Pandiaraja

Associate Professor – CSE

M.Kumarasamy College of Engineering

Thalavapalayam, Karur – 639 113.

* **Experience and Qualification of Mentors:**

Experience:14 Years

Qualification: M.E, Ph.D.

* **Contact Details of Mentors:**

Dr.P.Pandiaraja

Department of Computer Science and Engineering,

M. Kumarasamy College of Engineering,

Karur, Tamil Nadu – 639113.

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Phone: 9994346695

* **Current Development Status of innovation:**

The initial set up of our project was completed. But, still hardware implementation is in process.

**Expected time of completion of idea:**

The estimated time to complete our project will take up to 1 month.

* **Financial Requirements:**

|  |  |  |
| --- | --- | --- |
| **Sl. No.** | **Description** | **Expected Expenditure** |
| 1 | The cost of purchase of raw materials | 15,000. |
| 2 | The cost of contingencies | 10,000. |
| 3 | Product development cost | 20,000. |
| 4 | Other expenditure | 10,000. |
| Total | | 55,000. |

Please give activity-wise break-up as mentioned below

|  |  |  |  |
| --- | --- | --- | --- |
| Particular / Items | Total Idea project cost (Rs. In lakh) | Amount GOI assistance (Rs. In lakh) | Incubatee share (Rs. In lakh) |
| 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. | 0. 35,000 | NIL | NIL |
| Charges for mentor/handholding supporting team  Max (3.00) lakh. | 0. 10,000 | NIL | 0.5000 |
| 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. | 0.10,000 | NIL | NIL |
| Total Cost | 0.55,000 | NIL | 0.10,000 |

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

|  |  |  |
| --- | --- | --- |
| S.No. | Name of the Students | Aadhaar Number |
| 1 | LATHIKA R | 787468901444 |
| 2 | JANANI M | 618783431513 |
| 3 | DHARANI S | 440986463189 |
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|  |  | |
| **Signature of the Inventor** | **Signature of the HoD** |
|  |  |
|  | **Signature of the Principal** |