

## **LITERATURE SURVEY**

**PROJECT TITLE** : **IoT BASED GAS LEAKAGE DETECTION AND MONITORING**

**STUDENTS**

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**LITERATURE 1:**

**Latest Trends of Integration of Gas Leakage and Fire Detection Using IoT: A Survey**

The integration of gas leakage and fire detection using IoT applications offer in solving the transparency issue such as in communication and accountability. Due to existing of the advanced controller, the method is more effective than the classic system in terms of data collection from sensors which will be coded with python in a particular file, and for the ecology circumstances. A mechanical malfunction of the gas containing the equipment is the most frequent source of explosions and fires associated with gas leaks. When the malfunction happens, the gas may spill, causing fires which produce gases that burn. In addition to causing headaches, people might also experience irregular breathing due to a natural gas leak. This project indicates a literature review of integration of gas leakage and fire detection using Internet-of-Things (IoT) systems. Commonly, the Raspberry Pi and Arduino Uno are used to establish this system. Next, different types of sensors will be compared and reviewed in terms of number of gases and chemicals that can be detected. This project expects that using MQ 2 sensor is better than MQ 5 in detecting the certain gases and for the activation of alarm. MQ 5 gas sensors can be replaced with a MQ2 sensor as it detects a much wider spectrum of gases and chemicals.

**LITERATURE 2:**

**Gas Leakage with Auto Ventilation and Smart Management system Using IoT**

In the evolving smart home, the issue of gas spillage and fire is still remaining as a significant hindrance for designing a comprehensive, safe and sustainable kitchen model. On the other hand, security has also been significant challenge in this digital era. In urban areas, most of the kitchens are very small and it doesn't contain proper ventilation system. In such case, Spillage

of gas increases the risk of fire accident, suffocation or a blast. To eradicate this challenge, smart management system viz. gas leakage detection and fire detection system should be developed. In this project, Arduino UNO microcontroller was utilized to build a smart gas detection system with many usable sensors (MQ2, IR Fire Sensor) and actuators (air fan, buzzer). When gas spillage is recognized, the client will be intimated through SMS and at the same time they will receive notification via blynk application. The proposed system can detect fire, gas leakage and it also has the ability to take further steps and decrease gas concentration via auto air ventilation and extinguish fire with water. This method will help to improve the safety and reduce the death toll and reduce the damages that occur to the surrounding environment.

### **LITERATURE 3:**

#### **Gas level detection and automatic booking notification using IOT:**

Now a day's LPG is a major cooking fuel as it is cost effective also. So, it is the most preferred fuel source. LPG cylinder has to be pre-booked every time. This booking process is not much efficient nowadays, because users of LPG have increasing day by day. Due to large pool of requests every day the system cannot record every request and serve. This project cares about this issue and gives additional effectiveness to it. As this project monitor's the gas level in the cylinder and if the gas level is lesser than certain level then it automatically sends a notification to both user and the gas agency using mobile network. This project uses microcontroller-based system in which a weight sensor or load sensor are used to find the gas level in the cylinder. This reading is passed to LCD module to show the gas content in the cylinder. If the gas level is less than the fixed value then GSM module sends the notification to the mobile and also informs the gas agency to record the booking on confirmation with customer. This project also ensures safety near the cylinder by detecting if any gas leakage and if any fire occurs. If any of these detected a buzzer will ring and also an exhaust fan will be turned on. The user will also be notified regarding this.

### **LITERATURE 4:**

#### **A Smart Natural Gas Leakage Detection and Control System for Gas Distribution**

#### **Companies of Bangladesh using IoT:**

This project proposes a smart mobile based model of gas leakage detection and control for gas distribution system of Bangladesh using IoT, called as smart natural gas leakage detection and control system (SNLDCS). The proposed SNLDCS has been implemented in both software and

hardware modules. The existing researches are about Liquefied Petroleum Gas (LPG) leakage detection that are used for cylinder gas. Hence, these models are not suitable for gas distribution companies of Bangladesh where natural gas leakage is being controlled from remote places. But the proposed model can quickly detect natural gas leakage by continuous monitoring and can control gas leakage by a smart phone from anywhere. The experimental results confirm that, implementation of SNLDCS model in gas distribution system in Bangladesh can provide the quickest detection and rapid resolve of gas leakage. As a result, it will increase safety, decreases system loss and reduces Greenhouse Gas (GHG) emission in the air.

### **LITERATURE 5:**

#### **Development of LPG Leakage Detection Alert and Auto Exhaust System using IoT:**

Security play a significant part in this day and age and it is fundamental that acceptable wellbeing frameworks are to be actualized in spots of schooling and work. Gas spillage is the significant issue in private premises, mechanical area, homes and so forth. To stay away from this mishap because of spillage, a gas recognition unit will be introduced. The principle target of this examination work is to recognize gas spillage and control it consequently after the location of Liquefied Petroleum Gas (LPG) spillage. Utilize this work changes the current security model introduced in enterprises and this framework in homes and workplaces. The valve is naturally shut utilizing a solenoid valve and the gas spillage is forestalled. Simultaneously, the fumes fan is turned on naturally. Liquid Crystal Display (LCD) will show that there is LPG spillage and an alarm message will be shipped off the client by means of an application in their cell phone utilizing IoT. For discovery of LPG spillage, the gas sensor has been utilized which is exceptionally touchy to gas like butane and propane. The benefit of this computerized location and alarming framework over the manual strategy is that it offers snappy reaction time and exact identification of a crisis and thusly driving quicker dispersion of the basic circumstance. In addition, a fixed load cell helps to determine the weight of the LPG and once it reaches a low level, booking of LPG can be done using the application.