**LITERATURE SURVEY**

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**Gas Leakage Monitoring And Alerting System** **For Industries**

**Abstract:**

The Internet of Things aims to simplify life by automating all of the little tasks that we encounter. As much as IoT aids in task automation, its advantages can also be extended to improve current safety requirements. IoT has not been immune to the fundamental worry of any project, safety. Gas leaks can be fatal and harmful, whether they occur in open or closed spaces. Despite their high level of precision, conventional gas leak detection systems overlook a few important aspects in warning the public of a leak. In order to create a Gas Leakage Detector for society that has Smart Alerting Techniques that involve text messaging the appropriate authority, we used the Internet of Things (IoT) technology.

**Introduction:**

The Internet of Things aims to simplify life by automating all of the little tasks that we encounter. As much as IoT aids in task automation, its advantages can also be extended to improve current safety requirements. Safety has always been a top consideration when planning a home, a building, an industry, or a city.

It can be exceedingly dangerous for some gases to be present in the environment at higher concentrations. These gases may be hazardous after surpassing the stated concentration limits, combustible under specific temperature and humidity circumstances, or even contribute to local air pollution issues like smog and poor visibility, which can lead to serious accidents and have a negative impact on people's health.

The majority of civilizations have fire safety measures. But it can be used even after a fire has started. We developed a system using sensors that can detect gases like LPG, CO2, CO, and CH4 in order to have control over such situations. This device will be able to identify gas leaks and inform users via loud alarms as well.

This device can alert the user if there are excessive amounts of dangerous gases present in the surroundings. System can send a message to society administrators informing them of the situation before an accident occurs.

Gas detector sensors, an Arduino board, an ESP8266, and a cloud server make up the system. All flat member users can be registered on our system by a single society authority person. The administrator of the society can enter information on each flat's users, including their user name, phone number, and flat sensor information. Each sensor's threshold value can be set by society admin. Each flat can be equipped with system hardware.

The value per time can be sensed using sensors. Values can be sent from the system to a cloud server. The sensor values' existence at the threshold value can be checked by the server. The server can instruct the hardware to buzz the alert if the sensor value can exceed the limit. Additionally, the server notifies the user.

**Literature Survey:**

To detect and quantify methane gas in the vicinity of flammable gas stockpile locations, a technology was developed. The instrument measures the quality of the air and water, taking into account every parameter that could deviate due to a gas leak in the water or the air.

While the temperature, pH, and electrical conductivity of the water are being monitored, the sensors measure the amount of CH4 and CO2 gas in the air. An Arduino UNO microcontroller controls the apparatus and sends measurement results to the Raspberry Pi 3's database.There have been several improvements in pipeline leak detection proposed. This comprises infrared thermography, ground penetrating radar, optical fibre sensors, acoustic emission, and vapour sampling.

For data gathering, a system with sensors attached to an Arduino uses LabVIEW as the GUI (graphical user interface).

A thorough list of sensors for flammable, poisonous, and combustible gases has been compared, along with any potential benefits and drawbacks. One such illustration is the SB-95 sensor, which successively monitors variations in the concentrations of methane and carbon monoxide gas and changes its resistance as necessary. Variations in voltage on the load resistor are conveyed together with variations in filament resistivity.

Metal oxide sensors have a lengthy reaction time as well as an even longer recovery period. For the purpose of measuring the gas concentration, these sensors must remove the gas by drilling a hole in the pipe. Making holes could be risky because of leaks.

On the other hand, ultrasonic sensors don't have the aforementioned drawbacks and can measure gas concentration quickly with a low cost and small size.

A thorough investigation has been conducted on the potential health effects of gases such hydrogen sulphide, carbon monoxide, and methane. The operation of the sensor and how optical alarms and buzzers are activated when the sensed values of the SB-95 sensor rise above the threshold are described in detail. The table provides information on the sources and maximum flammable concentrations of hydrocarbons and hydrogen sulphide gas.

Although both forms of gas leaks have frequent sources, hydrocarbon leaks are more prone to explosions because of their shorter range of flammability than hydrogen sulphide. The toxicity of hydrogen sulphide is estimated to be 50 ppm, which can seriously affect people's health and potentially result in death from prolonged exposure.

**Conclusion:**

In this study, we employ IOT technologies to raise the bar for current safety regulations. The goal of creating this prototype was to revolutionise environmental safety by eliminating any major or minor hazards brought on by the release of hazardous and dangerous gases into the environment. We created a Gas Leakage Detector for society using IOT technology, and it has the ability to perform data analytics on sensors and Smart Alerting techniques that send text messages to the relevant authorities. Using gas sensors, this system will be able to identify any gases present in the surrounding area. This will shield us from the main detrimental issue.