Proposed solution

Problem statement

Gas is a highly flammable chemical that consists of mixture of propone and butane . LPG is used for cooking at home , restaurant , and certain use for industry . They have certain weaknesses that make the gas leakage occur . The leakage of gases only can be detected by human nearby , it cannot be detected . But sometimes it cannot be detected by human that has a low sense of smell . Thus, this system will help to detect the presence of gas leakage.

      Furthermore , gas leakage can cause fire that will lead to serious injury or death and it also can destroy human properties . This system was developed by using IOT to give real-time response to the user and alert through message.

Idea / Solution description

Unidentifiable gas leaks give rise to explosions that are harmful to the employees working in a hazardous environment. There comes a need to install smart systems to accurately identify combustible, flammable, and toxic gases, along with detecting oxygen depletion in industrial premises for improved safety. A gas detection system is a basic requirement for safety in industries like oil and gas, hotels, and places where flammable gases are used in abundance. An IoT-powered gas detection solution uses gas sensors to identify the presence of toxic gases such as CO2, CO, and NOx in industrial facilities. especially in the oil and gas industry, where many gaseous products like propane, butane, and hydrogen are manufactured at a greater level. Hence, the chances of gas explosions are higher as these gases are easily combustible in the oxygen-rich environment. Apart from these, toxic gases like hydrogen sulphide (H2S) are produced during refining processes that might harm the workers' health. Thus, it becomes a necessity to keep a real-time check on gas production. If these toxic gases are released untreated, their harmful contaminants result in air pollution and acid rain .

Novelty / Uniqueness

The Internet of Things aims towards making life simpler by automating every small task around us. As much as IoT helps in automating tasks, the benefits of IoT can also be extended to enhancing the existing safety standards. Safety, the elementary concern of any project, has not been left untouched by IoT. Gas leaks in open or closed areas can prove to be dangerous. The traditional gas leakage detector systems, though they have great precision, fail to acknowledge a few factors in the field of alerting people about the leakage. Therefore, we have used the IoT technology to make a gas leakage detector for industry that has Smart Alerting Techniques involving Sending Text Messages to the Concerned Authorities. Our main aim is to propose a gas leakage system for industry where each flat has gas leakage detector hardware. This will detect harmful gases in the environment and alert industry members via an alarm and notification via the IBM cloud server.

Social Impact / Customer Satisfaction

Safety plays a critical role in today's world and it is vital that certain solutions are implemented in places of work and living. Whether toxic gas, working or living in hazardous conditions demand certain safety protocols.

      Keeping gas levels in check helps save lives and enables businesses to conduct their operations in compliance. This project helps industries in monitoring the emission of harmful gases. Therefore, we can avoid the gas leakage and fire accident in the industry.

Business Model (Financial Benefit)

Gas leakage leads to various accidents resulting in both material loss and human injuries. The risk of explosion, firing, suffocation are 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, worn out regulators and lack of awareness in handling gas cylinders. The gases or propane is a flammable mixture of hydrocarbon gases used as fuel in many applications like homes, hostels, industries, automobiles, vehicles because of its desirable properties which include high calorific value, less smoke, less soot, and meager harm to the environment In our project, we used the IOT system to detect gas leakage. So, we can find the leakage easily and rectify it. Hence, the industry can prevent the fire accident.

we can avoid fires caused by gas leakage and save them from significant financial losses.

Scalability of Solution

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In the future, we can develop this current system into a wireless gas detection system. So we can use it anywhere.