IOT ENABLE SURVEILLANCE AND ALERTING FOR LPG CONTAINER

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Sensors, Internet of Things, LPG cylinder Monitoring, Gas leak detection, Fire detection, Automatic prebooking, Real-time updates, Safety

Introduction:

These days liquid petroleum gas (LPG) is widely used in many fields, especially in household purposes. The leakage of LPG may lead to severe casualties. So there is a risk of increased accidents, with rise in its usage. So it's necessary to have a system which continuously monitors the LPG cylinder. This project has an effective way of monitoring the gas quantity in the container and also to detect any leakage to notify the user by means of internet through IOT module. With the raising demand for LPG, users have to be compelled to pre book their LPG cylinder a minimum of a month before the delivery of the new LPG cylinder. Most of the days, users find it difficult to figure out what quantity of LPG left at intervals the cylinder and this causes tons of bother to them. The principal participants in the LPG industry – producers, suppliers, traders, marketers, equipment manufacturers, transporters and installers – all have responsibilities in the area of safety. They should collaborate to ensure the efficient discharge of their responsibilities. Because of the wide range of LPG applications, and the variations in the scale of usage, there are many categories of consumer. These range from households (often the largest single category) to industrial or chemical complexes where LPG may be only one of many hazardous products on site. Now a day"s every one want a facility which reduce their efforts, time and provide a way to do their work more easily. For cooking food we all use LPG gas. It produced in 1910 by „Dr. Walter Snelling". LPG is a mixture of commercial propane and commercial butane having saturated as well as unsaturated hydrocarbons. LPG having versatile nature so its demand raise day by day. In INDIA gas distributer uses IVRS, SMS or ONLINE booking for LPG which are time consuming methods in fast running life. We find uneducated people are not able to do these task and busy schedule people they haven't sufficient time to do all the activity. Also safety plays the important role. As we all know that many accidents happen due to gas leakage. So to avoid these difficulties to develop project. We design a project by considering a safety issues and also provide Easy way for LPG booking. In the project MQ-6 gas sensor is use to sense the leakage gas. After that leakage motor will close the regulator and through GSM message is send to the user.

Objectives:

- Detection of leakage occurring by an LPG cylinder.
- Monitoring the level of gas left in the cylinder used in households , restaurants , Industries, etc.
- Detection of fire LPG cylinder and sending indication through a notification to householdpeople.

Methodology:

1. The level of LPG is measured using the load sensor. The output of the sensor is connectedwith Arduino R3.
2. By using this, we can detect the current LPG level and it is continuously displayed on theLCD. We can know the validity of LPG usage from the date of initialization.
3. The principle behind working of this project is the opaqueness property of smoke. In casewhen there is no smoke the infrared sensors are continuously in view of each other.
4. Temperature sensor will keep track of the real time temperature to the room. If the temperature of the room starts increasing or any gas leak is detected, the respective authorities would be notified immediately.
5. Using temperature sensor and air quality sensor the system will detect a fire breakout whenthere are no people around the vicinity.
6. Gas leakage is detected by the gas sensors (MQ-6). By using this, we can detect the currentLPG level and it is continuously displayed on the LCD.

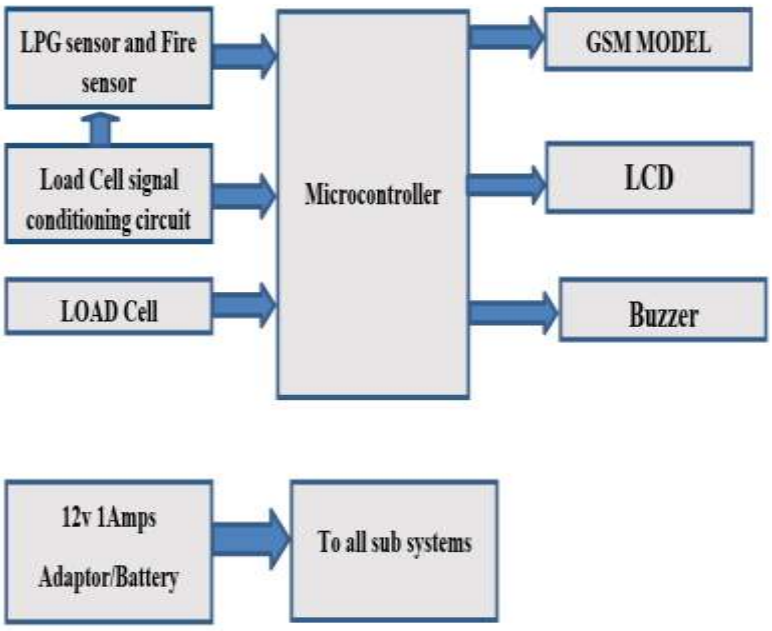

Fig: Block Diagram of Proposed System

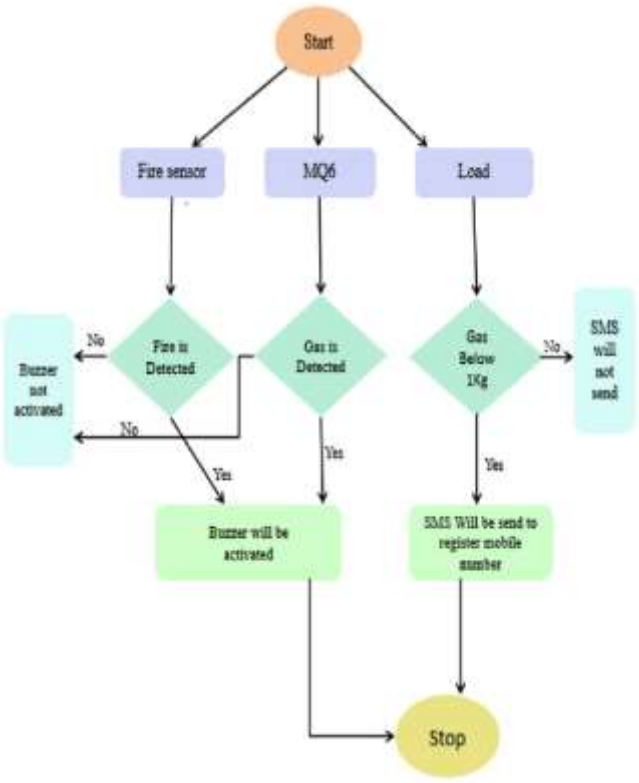

Fig: Flow Chart of Proposed System

Conclusion:

Our system is reasoned to help customers to upgrade their safety norms, act in accordingly with minimum requirements on environmental issues and mostly the basic function being prevented by major disasters and protect life and property from reputed Accidents. The objective of our projectis to measure the gas present in the cylinder when weight of the cylinder is below the particular level, this can be done using the weight sensors. Real time weight measurement of the gas and its display on LCD makes it an efficient home security system and also can be used in industries andother places to detect gas leaks.

Scope for future work:

Enhance the fire detection capabilities by implementing a multi-tiered approach, including heat sensors, smoke detectors, and advanced computer vision systems.Develop intelligent notification systems that can differentiate between critical alerts and routine notifications. Develop features that allow users to remotely control and manage their gas appliances, such as turning off the gas supply or adjusting the flame intensity. Designing the system to be scalable and flexible, allowing for easy expansion and adaptation to different environments and use cases.

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