LPG GAS LEAKAGE PROTECTION USING IOT

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Abstract - *Today in this present era where technology is important there is not even a single sector where technology is not used. Technology is not only provide the simplicity but also provide high level of safety & security whenever require. In our day today life we all are use fuel resources for cooking but in case, if fuel gets leaked then there is large possibility of hazards occur. This hazards of gas leakage are dangerous and sometimes it became uncontrollable if actions are not taken timely. But this gas leakage mostly remain unnoticed and there should be some system to observe or monitor leakage so that a quick actions can be taken. The gas sensor is such a device which sense the leak gas at its initial level and warns the people of the same. Using MSP430G2553 Launchpad we controls operation using IOT. We use ThingSpeak to upload data on server.*

Key Words: MSP430G2553 Launchpad,MQ-6 Gas sensor, IOT, Buzzer, Exaust Fan.

1.Problem Statement-

Gas outflow ends up in numerous relation ensuing into each loss still as human life. In human's existence, setting plays an important role in health problems. the chance of fires, suffocation, explosion all ar supported their physical properties such flammability, toxicity etc. the quantity of deaths figures because of explosion of gas cylinders has been increasing in recent years. the most reason for such explosion is because of sub-standard cylinders, exhausted regulators, recent valves and lack of awareness victimisation gas cylinders raise risks.

1.1 INTRODUCTION –

Liquefied crude oil Gas [LPG] is that the most typical cooking fuel used throughout India. Besides being low-cost and simply out there, LPG is a perfect fuel for cooking functions. With the rise within the variety of individuals mistreatment this fuel, it's the necessity of the hour to produce some safety standards that are needed to be enforced to steer associate accident free life. The key accident associated with the usage of LPG happens because of the escape of the gas that is dangerous. Gas leaks will occur from the gas cylinders that are utilized in the majority the unit of India. The opposite risk of gas leakage is from the gas pipeline because the older pipelines usually get unsound and so could rupture, giving way to the escape of the gas. If LPG leaks, the possibilities of fireplace hazards ar at its peak as LPG may be a ignitable gas. Physically LPG is associate odourless gas, however Ethanethoil is added as a robust odorant in order that its leakage is detected simply . LPG Gas leaks are accumulated from 0 .72% of all room accidents to 10.74% of all the room accidents . the tiny LPG cylinder of weight 5kg in which the burner is found in real time over the cylinder while not employing a rubber tube is seen to be safer than the one which uses a rubber pipe as this subway has the hazards of obtaining cracked which successively will move to escape . The Gas Leak detector device will notice application not solely at residential homes however conjointly it's applicable to hotels, restaurants and even in industries wherever LPG gas is employed for a few or the opposite purposes.

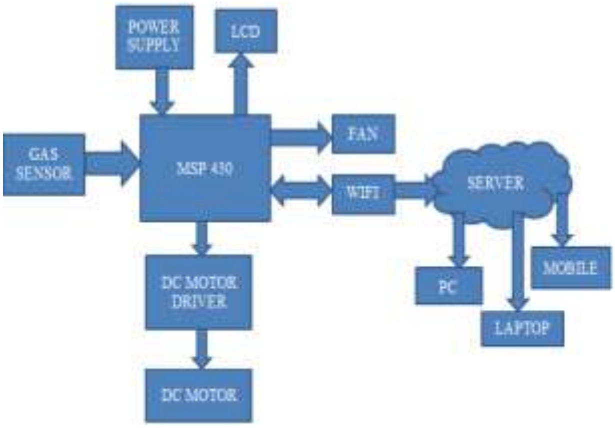
1.2 Literature Survey-

Shruthi Unnikrishnan, Muhammad Razil , Joshua Benny [8300109] planned a Liquefied oil Gas (LPG) observation and run detection system. With the massive demand and use of LPG, this technique would be useful to observe the usage of LPG on an everyday basis and to alert concerning any hazards that will occur because of LPG run. we've designed a system that alerts the user of the number of LPG left in order that acceptable measures are often taken. Since LPG may be a extremely risky and ignitable gas, we've additionally designed a system to alert the user with associate alarm once there's a run of LPG in order that measures square measure taken to avoid associate explosion.

T. Arpitha , Divya Kiran , V. S. N. Sitaram Gupta [7838952] planned Gas run may be a major downside in industries, residential premises and gas battery-powered vehicles. The run if not detected could cause explosion and cause severe damages to life and atmosphere. the traditional run detection system uses on-site alarms for warning. during this paper, we have a tendency to propose a run detection technique during which the run data is additionally sent to initial response team through wireless media. This ensures preventive actions in real time even within the absence of individuals on-site . The sightion system uses FPGA to detect the run and mechanically initiate a serious warning call through a GSM. A epitome of the gas run detection system has been developed and tested with LPG (Liquefied oil Gas). The experimental results show that the system is ready to sight the run in but a moment.

1.3 Proposed System-

Block Diagram of proposed system is shown in fig. Sensor used in this system is used for gas leakage detection. If gas value is greater than the threshold value the leakage detect message is sent to the user through a web server using IOT processor. User can take the actions to close the regulator switch through mobile application. When message is received from user IOT processor control the regulator switch.



MSP430G2553 Launchpad-
This development kit is easy to use which having ultra low power. This platform including debug probe for programming debugging & energy measurements. It includes 20 pin IC.

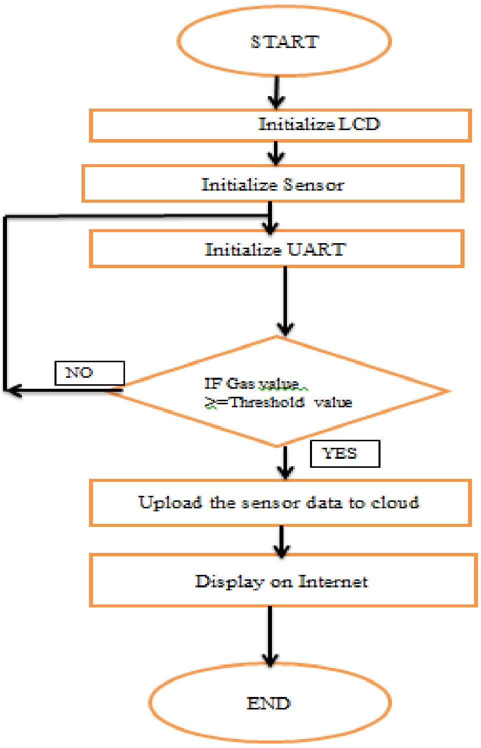
MQ-6 Gas Sensor-
It is natural gas sensor which detect the natural gas like LPG, Methane, etc. This sensor is used to detect a gas leak or other emissions.

LCD-
LCD(liquid crystal display)is used to display the gas leakage value on monitor.

DC Motor-
It is an electrical machine that converts electrical energy into mechanical energy. It is used to control the regulator switch.

Server-
In IOT ecosystem two things are very important the internet & physical device like sensor or things of IOT system from the front end. We upload the data to the server using ThingSpeak IOT Platform.

1.4 Flowchart-



1.5 Result-

Detection and protection system is proposed when a small gas leak occur,the sensor detect the leak gas (the range is between 400 to 600 ppm)and send the messages to the user using web server and activates the buzzer and provides the protection circuitry.It controls the regulator switch using DC motor.

1.6 Conclusion-

This system provides the control action by turning off the regulator knob then system sends alert messages to the fire station.it has more advantages than the existing system. This
Detection and protection system is proposed to provide the safety and to avoid the fire accidents because of leakage.

1.7 Reference-

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