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Household LPG Gas Leakage Detection and Automatic Booking System

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Abstract: The Major problem LPG cylinder users face. They don't know exactly the status of LPG gas completion so, it takes more delay in booking the cylinder which is uncomfortable to us. A proposes a system that will make entire LPG cylinder booking procedure automated (without human intervention). This system continuously measures the weight of the cylinder and once it reaches minimum value, it will automatically send message to the authorized LPG agent so that they can deliver the LPG cylinder in time. Along with the automated cylinder booking we also designed feature related to the safety of the user in which it continuously monitor the leakage of LPG gas and alerts the user regarding leakage to avoid major accidents. If gas is leaked, it automatically turns on the exhaust fan. Then, if room temperature is increased or decrease then monitor through temperature sensor.
Keywords: Leakage, LPG, Gas, Sensor, and Temperature,

I. INTRODUCTION

The internet of things or IOT is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction.

A thing in the internet of things can be a person with a heart monitor implant, a farm animal with a biochip transponder, an automobile that has built-in sensors to alert the driver when type pressure is low or any other natural or man-made object that can be assigned an IP address and is able to transfer data over a network. Increasingly, organizations in a variety of industries are using IOT to operate more efficiently, better understand customers to deliver enhanced customer service, improve decision-making and increase the value of the business.

IOT has evolved from the convergence of wireless technologies, microelectromechanical systems (MEMS), micro services and the internet. The convergence has helped tear down the silos between operational technology (OT) and information technology (IT), enabling unstructured machine-generated data to be analyzed for insights to drive improvements. The idea of connected devices has been around since the 1970s, under the monikers embedded internet and pervasive computing. IOT evolved from machine-to-machine (M2M) communication, i.e., machines connecting to each other via a network without human interaction. Taking M2M to the next level, IOT is a sensor network of billions of smart devices that connect people, systems and other applications to collect and share data. As its foundation, M2M offers the connectivity that enables IOT.

II. RELATED WORK.

The main objective of this to develop a system for LPG leakage detection to save human life. Till now there are modules either there are modules to detect the leakage and alert the user (or) to detect the leakage and close the value automatically.

But both these modules have some drawbacks. This being dangerous to human life while switching ON or OFF other household electrical appliances without the conscious that the gas has leaked. So by informing the user through GSM that the 'LPG gas leakage detected'.

III. PROPOSED SYSTEM

The Main platform using to build the project is Arduino Uno which provides us the flexibility to write the code effectively in convenient way and also it will provides us features like Inexpensive, Cross platform, Simpler and clear programming environment, Open source and extensible software, Easy for beginners. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC to-DC adapter or battery to get started. With the above features it forces us to use in our project design.

IV. EXPERIMENTAL RESULTS & ANALYSIS

Calculated the weight of the cylinder. Applying the various of weight. All weights are measured and values are display in the LCD display.

Figure 1. Load Cell Measured

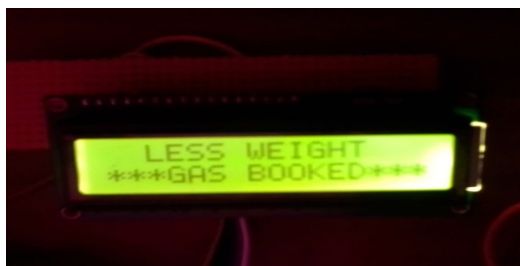If weight of the gas cylinder is less automatically booked the gas cylinder

Figure 2. Gas Booked

This design can be measured in date . once gas is empty before 31 days automatically gas booked using iot module.
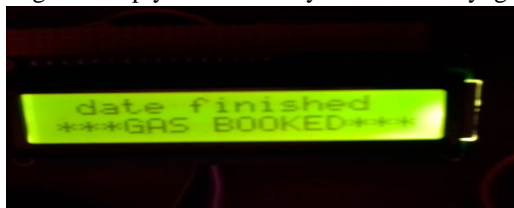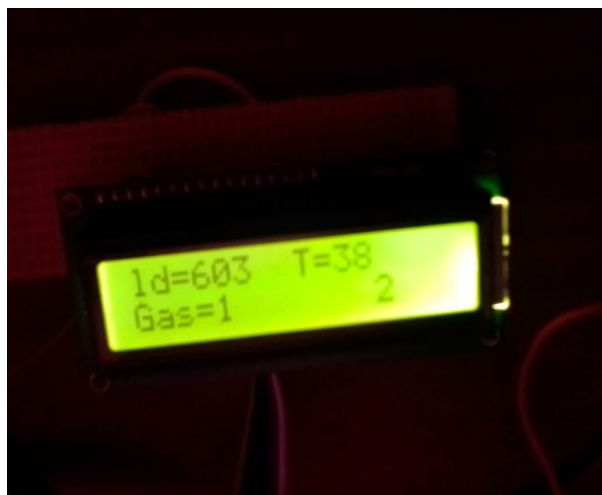

Figure 3. Gas Booked

Figure 4. Temperatue monitoring

This temperature sensor is measured by room temperaure.if room temperatue is abnormal condition automatically fan and buzzer alert in this system.

Figure .5.overall the system

V. CONCLUSIONS

Our system is also 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 primary objective of our project is to measure the gas present in the LPG gas cylinder when weight of the cylinder is below the fixed load, this can be done using the load cell. The secondary objective is to provide any malfunction in gas servicing system in order to prevent damage or explosion of LPG. Thus the system developed by us will somehow help the LPG Gas Consumers to lead a comfortable life.

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