A GAS LEAKAGE AND ALERTING SYSTEM

TEAM ID : PNT2022TMID19917

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Overview of the project:

Internet of Things aim towards making life simpler by automating every small task around us. As much is IoT helping in automating tasks, the benefits of IoT can also be extended for enhancing the existing safety standards. Safety has always been an important criterion while designing home, buildings, industries as well as cities. The increased concentration of certain gases in the atmosphere can prove to be extremely dangerous. These gases might be flammable at certain temperature and humidity conditions, toxic after exceeding the specified concentrations limits or even a contributing factor in the air pollution of an area leading to problems such as smog and reduced visibility which can in turn cause severe accidents and also have adverse effect on the health of people. System consists of gas detector sensors, Arduino board, ESP8266 and Cloud server. One Society authority person can register the all-flat member user to our system. Society admin can add the details of per flat user such as user name, mobile number, per user flat sensor details information. Society admin can configure the threshold value of each sensor. System hardware can be deployed on each flat. Sensors can sense the value per time. System can send the values to cloud server. Server can Check that the sensor values was existed the threshold value. If sensor value can cross the limit the server can send the command to hardware for buzzing the alarm. Server also sends the notification message to user.

LITERATURE SURVEY:

Smart Gas Level Monitoring, Booking & Gas Leakage Detector over IoT This project proposed the most common problem experienced in our day-to- day lives that is regarding GAS container going empty. We bring this paper to create awareness about the reducing weight of the gas in the container, and to place a gas order using IOT. The gas booking/order is being done with the help IOT and that the continuous weight measurement is done using a load cell which is interfaced with a Microcontroller (to compare with an ideal value). For ease it is even has been added with an RF TX & Rx module which will give the same information. When it comes it to security of the kit as well as gas container, we have an MQ-2(gas sensor), LM 35(temperature sensor), which will detect the surrounding environment for any chance of error. Whenever any change is subjected in any of the sensors (load cell, LM35, Mq-2) a siren (60db) is triggered.

A. LM 35 (temp. sensor) For the sensors, if any fire is to be happened then the temperature sensor will sense a high change (positive change) in temperature and will send an pulse to microcontroller which intern will send an update to the internet through IoT, and as well it will trigger an siren alarm in the RF Rx kit (sub board).

B. MQ-2 (Gas Sensor) MQ 2 sensor is basically an LPG (liquefied petroleum gas) which is composed of propane & butane, so when a gas leakage is sensed by the sensor it will send a high pulse to the Mc which will update it in the IoT, and even a buzzer is heard in the RF Rx kit. And the problem can be sorted & solved. Thus, the overall components & sensors play role in the paper as explained above.

2. Cloud Connected Smart Gas Leakage Detection and Safety Precaution System The project design and develop a cloud connected smart LPG gas cylinder platform, acting as a safety device for detecting LPG gas leak at low levels to avoid any possible accidents. It is also capable of sensing fire breakout in the area and weight of the gas in order to provide real time monitoring and alert over Internet. If an abnormal condition is detected, the device sends an alert to the smartphone app of the user and generates an alert e-mail to other authorities. In addition to this upon detecting a gas leakage or a fire breakout, the device automatically takes safety precautionary measures, like gas valve closing, ventilation opening, fire sprinkler activation and home electrical power supply cut-off. The device connects to the internet via Wi-Fi and thus increasing the mobility of the platform within the premises of the house. A Wi-Fi capable ARM Cortex-M4 microcontroller is used to implement the system. This device offers a complete, low cost, powerful and user-friendly way of real-time monitoring and remote control of gas leakages and prevention mechanisms in household and industrial areas.