INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad-500 043

Project Based Learning

(Prototype/Design Building)

External Evaluation Report

Title of your Idea : **LPG GAS LEAKAGE DETECTION SYSTEM**

Thrust Area / Sector : **INTERNET OF THINGS**

Branch : **ELECTRICAL AND ELECTRONICS ENGINEERING**

Year / Sem : **3-YEAR/5-SEM**

S. No	Name of the Student	Roll Number	Mobile Number	Signature
1	SANGANI AKHIL	19951A0205	9542991330	
2	MOHAMMAD ASIYA	19951A0230	6305871189	
3	MECHENENI KEERTANA	19951A0221	6281725221	
4	KILARU MANJULA	19951A0229	9515768077	

Team Members (Max. 4) :

Background of the Idea (Min. 500 words):

An LPG gas sensor detector is use to detect the presence of liquid petroleum gas leakage that may be source of risk and help to avoid information sent to fire station being delayed if any accident happened. It will detect the presence of gasses using MQ2 sensor, if the sensor detect the level of gasses is exceeding the normal level it will send an information through the phone apps through Internet of Thing (IOT).Gas sensor MQ2 is a sensor that detects gases, specifically hydrogen (H2), Liquid Petroleum Gas (LPG), Methane (CH4), Carbon Monoxide (CO), Alcohol, Propane, Smoke at the atmosphere.

DHT11 is use to detect an increment of temperature if the fire happens, it will send an alert message through android apps and location via GPS through IOT to the nearest fire station. It is used to sense a high temperature or positive change of temperature and it will send a pulse to microcontroller. This DHT11 sensor not only contains calibrated digital outputs of temperature but it also contains calibrated digital signal of humidity. This sensor contains resistive sense of wet components and an NTC temperature measurement devices and connected with a high performance 8-bit microcontroller.

Problem Statement (Min 100 words):

Liquid Petroleum Gas (LPG) is a highly flammable chemical that consists of mixture of propane 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 and if there are no 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 the nearest fire station.

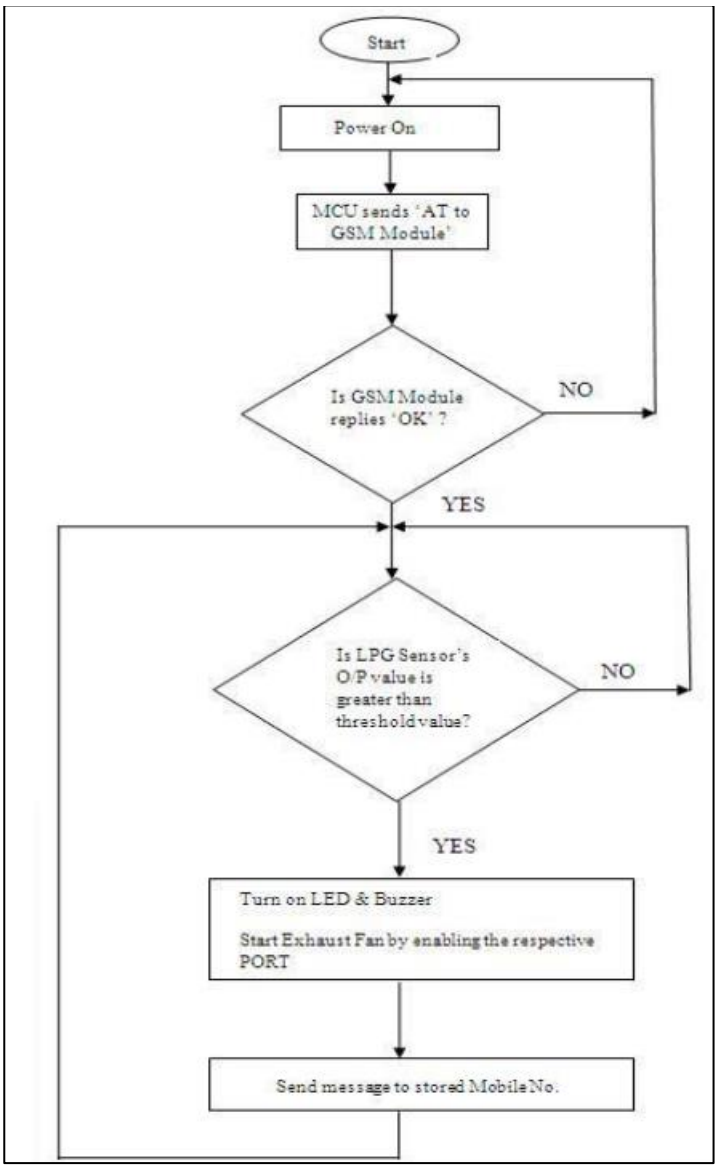
Proposed Solution (Min 100 words):

It can be seen that this tool has an input device consisting of a gas sensor and an output device which consists of an LCD, GSM Module, and buzzer. The way this tool works is when it is turned on, the sensor will work to transfer LPG gas and send data according to the LPG gas level it detects.The higher the LPG gas is detected, the higher the voltage released. When the sensor output is moved The presence of gas, then Arduino will activate, and activate the buzzer and display the writing on the LCD stating the gas is high (high), which means there has been a gas leak, then the GSM SIM800L module will send a notification message to the handphone number specified in the program

Technology concept formulation:

It consists of the Microcontroller Circuit, GSM Module, Power Supply, GAS Sensor Module and Exhaust Fan. The Power Supply is fed to the GSM Module. The output of the sensor goes low as soon as the MQ-5 Gas Sensor senses any gas leakage from the storage. This is detected by the microcontroller and the LED & buzzer are turned ON. After the delay of a few milliseconds, the exhaust fan is also turned ON for throwing the gas out and the microcontroller continues sending message as “GAS LEAKAGE” to a pre-defined mobile number using GSM Module.

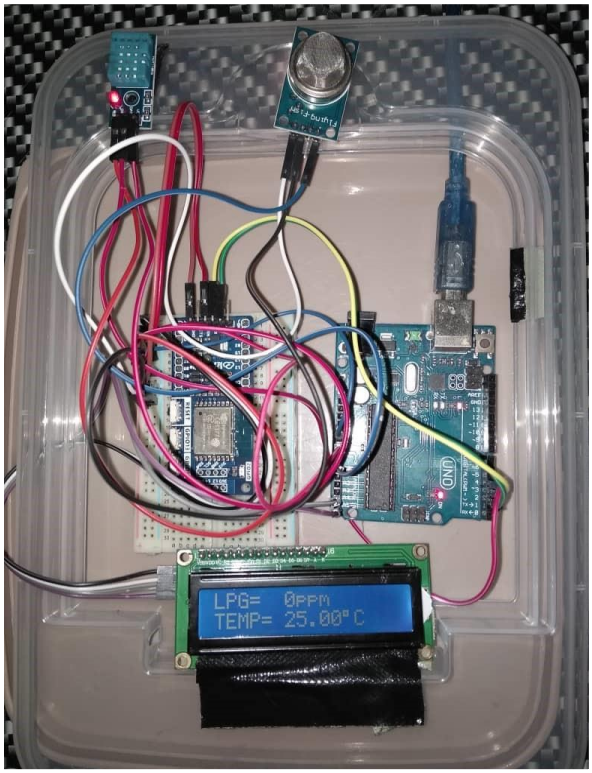
Prototype of proposed system (UI screens / block diagrams / circuits / designs):

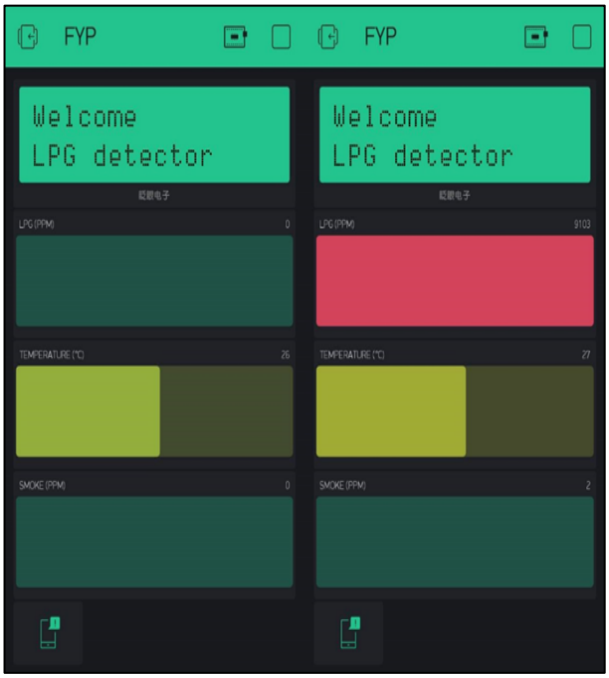


Detailed description of prototype / product / project

The results obtain from the implemented of the gas leakage system. The lighter was used as a gas that be detect by the detector and using the hairdryer to get the changes of the temperature. The response of the reading was obtained using the phone application blynk and the liquid crystal display. The sensitivity of the MQ-2 sensor to detect the concentration of the gas is by changing the sensor resistance value. The resistor value obtains from the serial monitor display by Arduino Ide.

Final version of prototype / product (only images):





Dean-CLET **Dean -TIIC**