Project:

LPG Sensor Using Arduino

By:

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Submitted to:

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GitHub:

https://github.com/Sagarikac310/LPG-Detector-IoT/

There have been many incidents like explosions and fire due to LPG gas leakage. Such incidents can cause dangerous effects if the leakage is not detected at an early stage. Arduino and IOT based LPG leakage detection system is a project which will help in determining gas leakage in the surrounding and send data to an IOT module.

IOT and Arduino based LPG leakage detection system senses the LPG gas with the help of an LPG gas sensor. LPG gas sensor interfacing with Arduino is implemented in this project. The Signal from this sensor is sent to the Arduino microcontroller. The microcontroller is connected to LED and a Buzzer. Once the gas leakage is detected, the buzzer is turned ON and a ‘Danger’ message is displayed on screen.
The sensor we use for this purpose is MQ6 gas sensor. he MQ-6 Gas sensor can detect or measure gases like LPG and butane. The MQ-6 sensor module comes with a Digital Pin which makes this sensor to operate even without a microcontroller and that comes in handy when you are only trying to detect one particular gas. When it comes to measuring the gas in ppm the analog pin has to be used, the analog pin also TTL driven and works on 5V and hence can be used with most common microcontrollers.

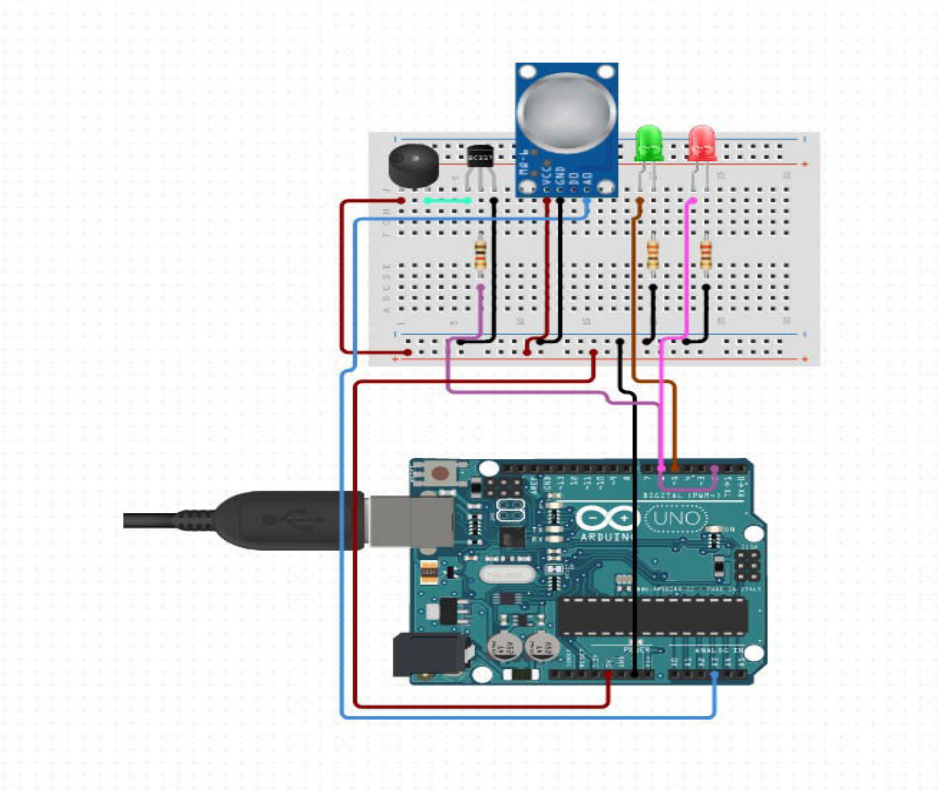
MQ6 Gas Sensor)

MATERIALS NEEDED

1. Arduino Uno / Genuino uno board
2. USB cable
3. Buzzer
4. Red and green LEDs
5. Breadboard
6. MQ6-LPG or gas sensor
7. Jumper wires

WORKING PROJECT

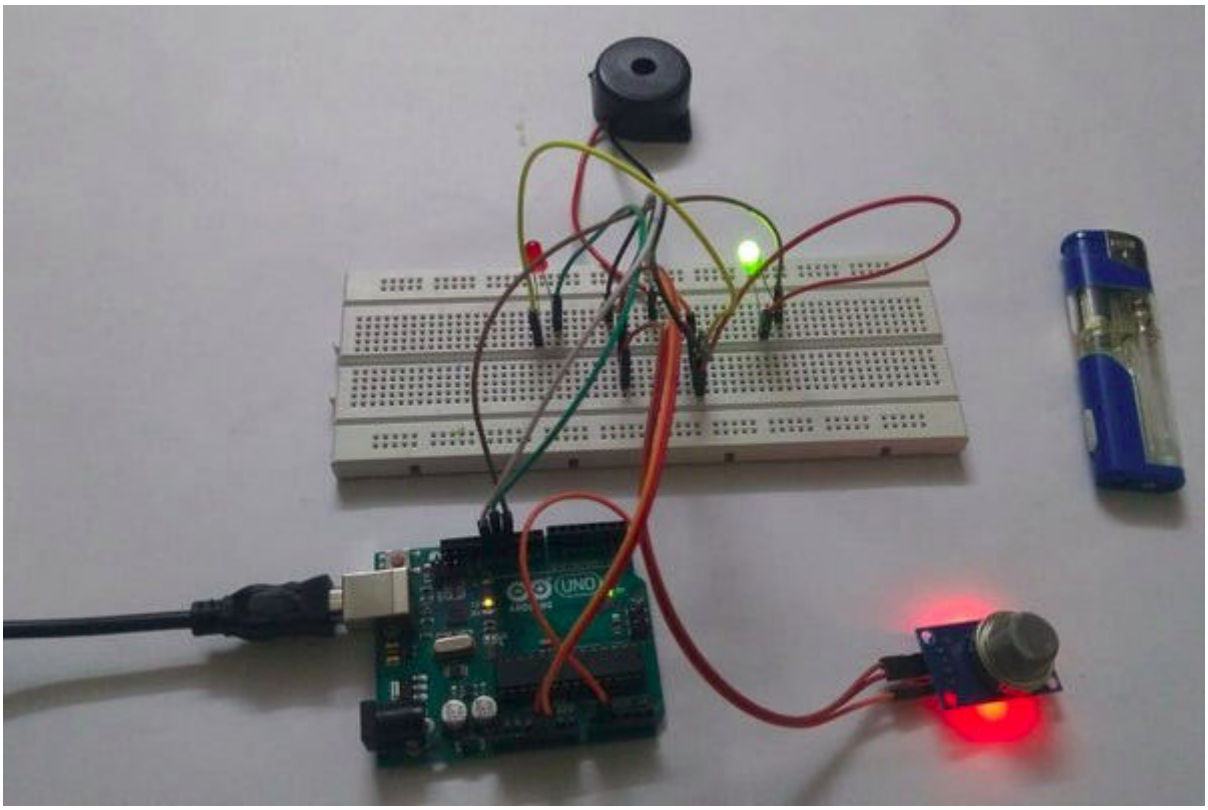
When the set-up has been completed, and the MQ6 sensor is connected to in the room under observation, the sensor begins to detect the presence of LPG gas in the room, which takes about 20-30 seconds to begin. Once the detection starts, the readings begn to record. If the LPG gas amount in air is under the safety limit (pre-defined), green LED will lit up. If the amout of LPG gas in air crosses this safety limit, the red LED will start blinking, along with buzzer
going off.



(Circuit Assembly)

11	no danger	373
12	danger	413
13	danger	442
14	danger	453
15	danger	456
16	danger	448
17	danger	429
18	no danger	397
19	no danger	359
20	no danger	319
21	no danger	287
22	no danger	257
23	no danger	235
24	no danger	219
25	no danger	214
26	no danger	205
27	no danger	202
28	no danger	207
29	no danger	208
30	no danger	216
31	no danger	224
32	no danger	227
33	no danger	236
34	no danger	240
35	no danger	246
36	no danger	254
37	no danger	265
38	no danger	281
39	no danger	296
40	no danger	310
41	no danger	314
42	no danger	313
43	no danger	307
44	no danger	297
45	no danger	292
46	no danger	286
47	no danger	279
48	no danger	261
49	no danger	261
50	no danger	274
51	no danger	291
52	no danger	315
53	no danger	350
54	no danger	348
55	no danger	395
56	danger	442
57	danger	517
58	danger	562

(Readings recorded)



(Green LED lit up under safety level)

CHALLENGES

That said there are a few complications that we thought would occur if we took this product on a big scale.

• The BIGGEST issue availability of 3G/4G Cellular networks(if real-time data were to be monitored).

• Ensuring the MQ6 sensor are correctly placed. They can not be enclosed in a box, as it might decrease it’s accuracy. So, it will have to be placed at a location where it is least disturbed.

FUTURE SCOPE

IOT and Arduino based LPG leakage detection system can be installed in Homes, Hotels, LPG Cylinder storage areas. The main advantage of this project is that it can be used to determine the leakage and send the data over to a website, where it can be monitored and corrective actions can be taken.

If appropriate measures are taken quickly after it is reported over the IOT, it can help in saving the loss of lives and property.

We can enhance the gas leakage detection system project to detect toxic gases. Further, we can add Smoke and Fire Detectors to detect fire.