

IOT Gas Leakage Detector

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Abstract- This paper gives us the information on LPG discharge supported microcontroller Arduino. To alert Liquefied Gas leakage and then preventing from the unwanted incident, we need to use some of the cautions to discover discharge. . The LPG detector MQ6 associate degree correct LPG sensing device acquire signal intensity. Associate degree economical Arduino based signal mechanism is followed effectively in quantizing non-inheritable electrical signals. This paper conjointly shows the ratio and temperature over the alphanumeric display. The importance and connection of the paper is very beneficiary for man as a result of it's a vital cautions for our domestic life.

Keyword: buzzer; Gas robot ;GPS, Gas detection sensor; IOT; Liquefied petroleum gas; Manual gas detection system;

INTRODUCTION

"IOT based Gas Leakage Detection System with Database Logging, Prediction and Smart Alerting" will distinguish in large gas leakage utilizing MQ5 is sensor (utilized for recognizing regular gases) and then check the presence of more amount of the harmful gases and cautioning through alarms. With the assistance of IOT, it will alert concerned people about the condition through SMS utilizing GSM module and an email will be sent utilizing Node MCU. It will likewise forward the sensor values to the database for gathering and analyzing the information. The Internet of things is a system of electronic gadgets, which are related to the embedded systems and furthermore different domain through the internet.

REQUIREMENTS

Hardware Requirements

GSM MODEM

A GSM modem is a specific kind of a modem which accept a sim card and work over a membership to a mobile operator just as same as the cell phone. From mobile operator point of view, A GSM modem looks simply like cell phone. At point when a GSM modem is associated with a pc, this enables pc to utilize the GSM modem to communicate over with mobile system. While these GSM modems are really widely used every time and then are used to give the portable mobile internet network, like to be utilized for sending , accepting SMS & MMS messages.

MICROCONTROLLER

A microcontroller is the small integrated circuit and used for monitoring a particular task in embedded system. A microcontroller comprises of the processor, memory and input/output peripheral in a single chip. It is the embedded controller or microcontroller unit , microcontroller are found in the vehicles, robot, office machine, medical gadget, mobile radio handset, vending machine, and home appliances among different gadget.

BLUETOOTH

Bluetooth versions make it feasible for a client to do hands free telephone calls through a cell phone or interface wireless earphones to a cell phone's music playlist, for instance. Bluetooth innovation can simplify task that is recently included among the peripheral gadget. For example, with a Bluetooth empowered printer, one can interface remotely with a PC or cell phone and print out reports



FIRE SENSOR

A fire is a sensor intended to distinguish , react in the presence of the fire . Reactions to the identified fire rely in the installation and can incorporate sounding an alarm, deactivating the fuel line, (for example, propane), and implementing the fire suppressing system.

GAS DETECTOR

The detectors measure the predefined gas concentrations and the sensor response fill in the reference point . At the point when sensor outperform at a certain pre-set level, then an alarm will activate to caution user. There are different type of the detectors accessible and the larger part serve a similar function.

BUZZER

A buzzer is an indicating device, generally electronic, regularly utilized vehicle, household appliance, for example, a microwave. It most ordinarily comprises of various switch & sensor associated with the control unit that decides whether and which button was pushed or a present time has slipped by as a rule enlighten a light on proper button and sound a notice as a constant buzzing. At first, this gadget depend on the electromechanical system which is identical to the electric bell without metal gong .

CAMERA

Wireless cameras which are used in robots are very smaller compared to other cameras which we use. These can be mounted easily into the robots due to their smaller size. The camera pan and tilt system enables the robot to remotely look into all directions. These cameras consists of plastic domes to protect them from any damage.

System Requirements

keiluv IDE for embedded c programming

SDK for android

Eclipse IDE for application development

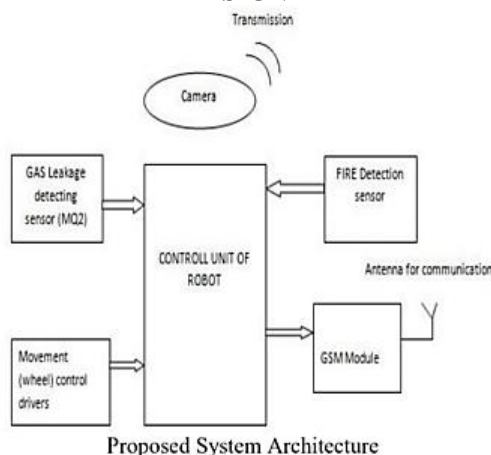
SCOPE/OBJECTIVE

The current system, the LPG leakage which is handled in a manual procedure requires more time and it requires enormous labor. The pipeline way must be dug into the underground to discover the leakage zone, which likewise gives rise to plenty of social issues, for example, traffic management while burrowing the streets, if there are any blasts while burrowing it may even cause the death of individuals which is troublesome to deal with. The way of the pipeline is first recognized and afterward people move as indicated by the way through sniffing.

ANALYSIS, ACTIVITY TIME SCHEDULRE(PERT)

The advantages of this type of dangerous gas detecting modern systems are that they all quickly distinguish unsafe gas and highly affective gasses, great selectivity and quick reaction are got. Else, it might be difficult to carry out such issues manually. But these difficult situations are taken by a robot in a very straightforward and light approach. Due to a laser discovery range and test it has become an easy job for the robots to work extremely well in these kinds of hazardous, toxic and life taking situations. These new interfaces could be achieved due to the vast usage of IOT

DESIGN



Prototype of the model

FEASIBILITY

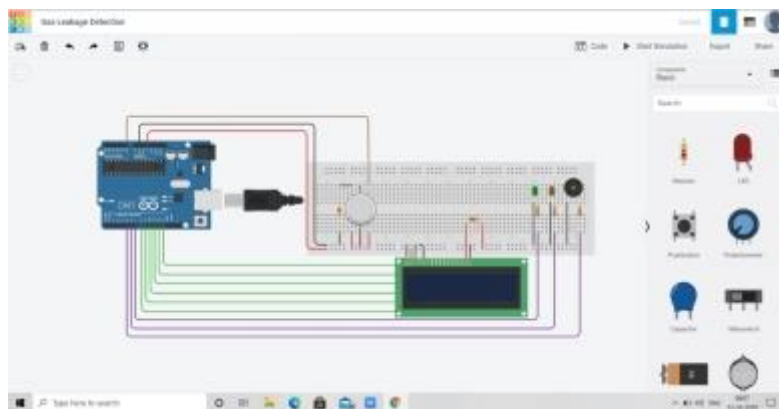
The architecture of the kit resembles in a moving robot with the two motors and it comprises of the gas sensor to recognize the gas leakage in pipe. The kit comprises of MQ2 gas sensor that recognize the gas leakage. As robot continue moving along metal pipe it continue observing for any gas leakage. On recognition, it utilize an GPS sensor to transmit area the leakage over the IOT login system, Here we use IOT to check and get and show the gas leakage caution also location over IOT. In this way, we have completely mechanized robot that move within the gas pipe and find gas leakage quickly at the low cost.

IMPLEMENTATION AND TESTING

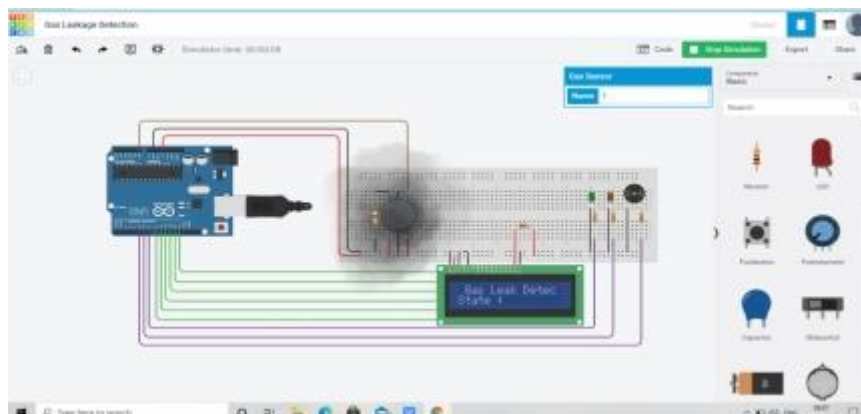
- 1 . The detect gas leak system requires the 5-volt input voltage for functioning. The system is plugged with the MQ 2, Pushbutton switch & GSM module.
- 2 . All modules function distinctively and produce own output.
- 3 . The system senses the different gases, Carbon Mono-Oxide , Alcohol, Smoke, Hydrogen , Butane Ethylene , Methane , Acetylene , Ammonia , Ethane, Propane and Silane in environment.
- 4 . Once the system powered on, the detect devices will b turned on and it will start generating data.
- 5 . This data will be sent to three mediums, the com port, LCD and the GSM module. The output seen from acomputer screen, LCD and cell phone shown below in There are two messages will be sent .

This was already performed on Tinkercard

Before Stimulation



After Stimulation





Name	Quantity	Component
U1	1	Arduino Uno R3
U3	1	LCD 16 x 2
R3	1	1 k Ω Resistor
GAS1	1	Gas Sensor
R4	1	4.7 k Ω Resistor
PIEZ02	1	Buzzer (Piezo small)
D1	1	Green LED
D2	1	Orange LED
R1 R6 R7	3	110 Ω Resistor

CONCLUSIONS

The conclusion of this paper gives an overview of how IOT incorporated in modern system is being beneficial in detecting the gas leakage. We also see how the disadvantages of the traditional system are taken into consideration, and how the new technology used based on IOT is advantageous. This paper concludes that the usages of gas detecting robots are very much safer and economical compared to manual methods. The principle of IOT based gas detection system using MQ2 sensor is seen here. This method is beneficial in many ways due to its easy usage and higher leakage detection rate compared to old methods. The usage of GPS is seen here in detecting the leakage. It is also seen that the notification in case of any leakage is sent to the concerned authority through buzzer or alarm.

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