CLOUD CENTRIC FRAMEWORK FOR GAS LEAKAGE MONITORING AND CONTROLLING SYSTEM FROM IoT INFRASTRUCTURE

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Abstract: *Continued developments in computer network technologies within organizations and among computing devices has made it possible to collect, process, and analyse data from almost any object. These developments, however, have seen the rise of a new technology coined as the Internet of Things which is a result of the convergence of wireless technologies, microelectromechanical systems and the Internet. IoT enables self-configurable smart devices to connect intelligently through Radio Frequency Identification WI-FI, LAN, GPRS and other methods by further enabling timeously processing of information. Based on these developments, the integration of the cloud and IoT infrastructures has led to an explosion of the amount of data being exchanged between devices which have in turn enabled malicious actors to use this as a platform to launch various cybercrime activities. In proposed system using iot to store the gas monitoring systems for application in the gas leaks, detection of harmful gases in mines, home safety, exhausts gas monitoring, etc. The gas sensors to hazardous levels of gas concentrations. The detection of LPG CNG gases has become a main issue today due to more well being policy wide reaching. It presents a conceptual architecture for a versatile flexible and cost effective portable system for monitoring the LPG gas leaks in the presence of air. In software the virtual instruments is developed using Lab VIEW programming environment for internet connectivity to cover a large monitoring area. The system provides a very intelligent communication and replacement of the wired connection and in turn the gas sensing system. This system can be installed in a place where LPG CNG gas leak happens instantly.*

Key Words: Internet of things, Radio frequency,

LPG CNG gas, Gas leakage monitoring.

I. INTRODUCTION:

Continued developments in computer network technologies within organizations and among computing devices has made it possible to collect, process, and analyse data from almost any
Object. These developments, however, have seen the rise of a new technology coined as the Internet of Things (IoT) which is a result of the convergence of wireless technologies, microelectromechanical systems (MEMS) and the Internet. IoT can also be defined as "a pervasive and ubiquitous network which enables monitoring and
controlling of the physical environment through the collection, processing, and analysis of data that is generated by sensors or smart objects." To this day most of the IoT applications can be traced to machine-to-machine (M-2-M) communication in manufacturing as well as power, oil and gas utilities". For application in the gas leaks detection of harmful gases in mines home safety exhausts gas monitoring etc. The way to easily expose the gas sensors to hazardous levels of gas concentrations**.** The detection of LPG CNG gases has become a main issue today due to more wellbeing policy wide-reaching. This paper presents a conceptual architecture for a versatile flexible and cost effective portable system for monitoring the LPG gas leaks in the presence of air. In software the virtual instruments is developed using LabVIEW programming environment for internet connectivity to cover a large monitoring area.

II.EXISTING METHOD:

Gas leakage monitors mostly suffers on long time stability or insufficient gas identification capability and both give reasons for numerous false alarms. A prototype of an intelligent field suitable ammonia leakage monitor was developed which may overcome this drawback in future.

Data's stored in arduino:

The wireless sensor network technology that has used to many innovative applications to get solution. Here we describe a wireless sensor network.
The gas monitoring system is highly scalable sensors and OS sensor nodes which makes for a wide variety of applications.
Some results are also presented to demonstrate the system usefulness.
This can be overcome in this proposed paper , using IoT we monitoring and controlling of wireless sensor node for LPG gas leakage detection

Drawbacks Of The Existing System

- This system also takes long time identification over several weeks.
- It gives numerous false alarms.

III. OVERVIEW OF PROPOSED METHOD:

In this proposed system the cloud computing used for of remotely provisioning and measured IT resources.
Criminal activities on the cloud can cause havoc hence the need to develop a framework capable of isolating Big data as forensic evidence from IoT Infrastructures especially in a cloud environment. As a result, next section explains digital forensics in brief.

In proposed system using iot to store the gas monitoring systems for application in the gas leaks, detection of harmful gases in mines, home safety, exhausts gas monitoring, etc. The gas sensors to hazardous levels of gas concentrations. The detection of LPG CNG gases has become a main issue today due to more well being policy wide reaching.
It presents a conceptual architecture for a versatile flexible and cost effective portable system for monitoring the LPG gas leaks in the presence of air. In software the virtual instruments is developed using Lab VIEW programming environment for internet connectivity to cover a large monitoring area. The monitoring of the sensor node is done using G code created in Lab VIEW. The system provides a very intelligent communication and replacement of the wired connection and in turn the gas sensing system. Our system for gas detection plays an imperative role of the prototype model to industry and general public as well.

IV.LITERATURE SURVEY:

[1] INFORMATION SYSTEMS IN MANAGEMENT - INTERNET OF THINGS
Manohar. p

Iot as is a network of physical objects or "things" embedded with electronics, software, sensors,
and network connectivity, which enables these objects to collect and exchange data.

" To this day most of the IoT applications can be traced to machine-to-machine (M-2-M) communication in manufacturing as well as power, oil and gas utilities [1]. Any objects or machines developed with M-2-M communication capabilities are often referred to as smart objects or smart machines.

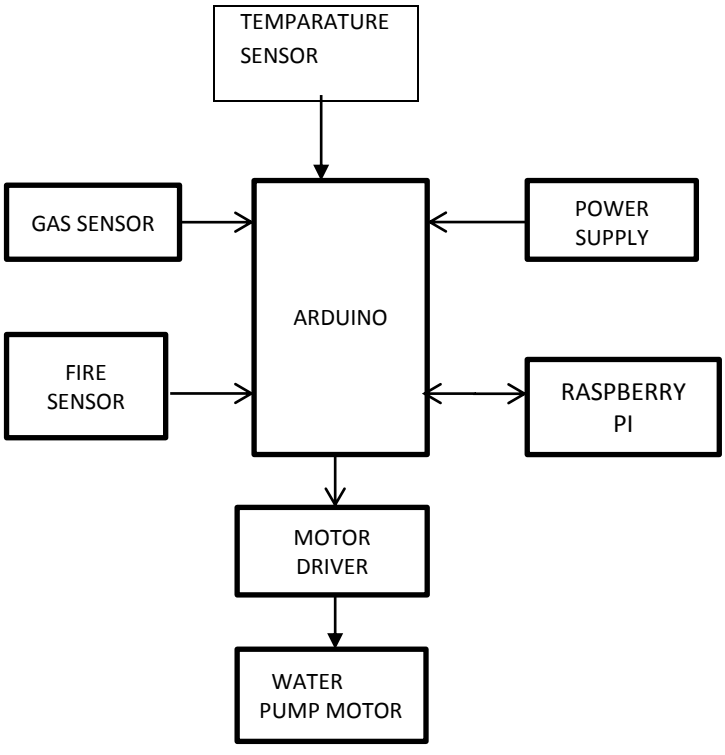
[2] INTERNET OF THINGS BASED ON SMART OBJECTS. IN TECHNOLOGY, MIDDLEWARE AND APPLICATIONS.
Giancarlo, F. and Paolo T.,(2014).

A smart object (SO) is an autonomous, physical digital object augmented with sensing/actuating, processing, storing, and networking capabilities. This means that, SOs can sense/actuate, store, and interpret information created within them and around the neighboring external world where they are situated. They can also act on their own, cooperate with each other, and exchange
information with other kinds of electronic devices and human users.

[3] BLINK TO SCoAP: AN END TO END SECURITY FRAMEWORK FOR THE INTERNET OF THINGS, IN COMMUNICATION SYSTEM AND NETWORKS.
Peretti, G.; Lakkundi, V.; Zorzi, M., (2015)

The emergence of IoT and the availability of inexpensive sensor devices and platforms capable of wireless communications, enable a wide range of applications. These applications include: Intelligent home and building automation, mobile healthcare, smart logistics, distributed monitoring, smart grids,energy management, asset tracking to name a few.

V. Block Diagram of Gas Monitoring Using Raspberry PI



[1] Power Supply:

LPC2148 works on 3.3V Power Supply, So LM117 a 1A low dropout regulator designed to provide 3.3V from a 5V supply. It is ideally suited for systems which contain both 5V and 3.3V logic, with prime power provided from 5V bus.

[2] Gas Sensor:

The monitoring of gases produced is very important. The air conditioners to electric chimneys and safety systems monitoring of gases is very crucial. **Gas sensors** are very important part of systems. Gas sensors immediatly react to the gas present, thus keeping the system updated about any alterations.

[3] Temperature Sensor:

Temperature is the most often measured environmental quantity. Temperature sensing done either through direct contact with the heating source or remotely without direct contact with the source using radiated energy instead. There are a wide variety of temperature sensors on the market today including Thermocouples Resistance Temperature Detectors (RTDs), Thermistors, Infrared, and Semiconductor Sensors.

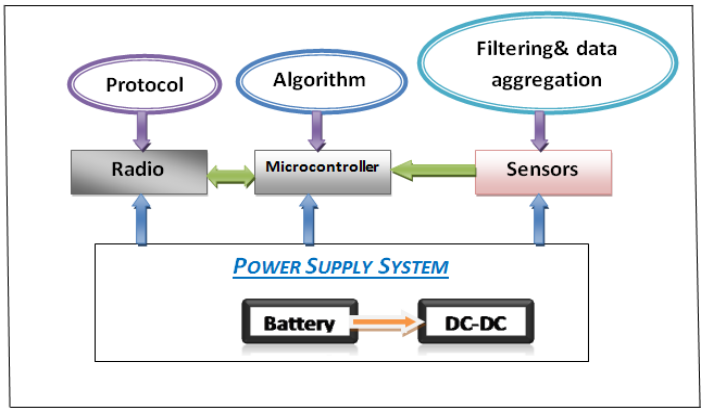
[4] Raspberry PI :

When you power it up you get a nice little desktop environment, it includes all of the things that you need to do to get started to learn programming.

[5] Arduino:

Arduino is an open source electronics prototyping platform based on flexible, easy to use hardware and software . The Arduino microcontroller is essential to the design of the SRC as it provides communication between the voice recognition components and the graphical user interface GUI. The 8 bit data bus provides communication between the microprocessor and the HM2007.

BLOCK DIAGRAM OF WIRLESS SENSOR NODE



VI. PROPOSED SYSTEM INTRODUCTION

In proposed system using iot to store the gas monitoring systems for application in the gas leaks, detection of harmful gases in mines, home safety, exhausts gas monitoring, etc. The gas sensors to hazardous levels of gas concentrations. The detection of LPG CNG gases has become a main issue today due to more well being policy wide reaching.

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VII. ADVANTAGES OF THE PROPOSED SYSTEM

- This system takes short period to detect the gas leakage.
- The system recognition is accurate.
- Here it identifies quickly.

VIII. CONCLUSION

Detection and monitoring system for LPG is proposed. When an explosive leak occurs, the system detects the leakage and sends an alert SMS to the end user and activates the alarm
and provides the protection circuitry to control the gas flow emission using solenoid valve. Also, precautionary measures (such as activation of the buzzer, exhaust fan, etc.) are taken by the system.

The VISA is interfaced to LabVIEW and the data monitoring system is also interfaced to the internet server. Remote monitoring and control of the wireless gas sensing system is successfully done using web publishing tool in LabVIEW and it gives additional advantage to the user for monitoring of whole the system at remote distance continuously. It is possible to supervise changes in the output by changing the input of the system using PC/Laptopcontrolled instruments and an appropriate software.

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