GAS Analyzer and Alerting BOT

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ABSTRACT

The proposed system is to determine trends in environmental parameters. During this system, we have a tends to plan an autonomous robotic system that's designed and enforced to observe environmental parameters like temperature, air quality, and harmful gas concentration. The automation has GPS coordinates, and it will store knowledge on the Thing speak of IOT platform. The mobile automation is controlled by a smart phone that runs an app engineered on the net application. the complete system is accomplished employing a cost-efficient ARM-based embedded system known as Raspberry Pi that communicates through a wireless network to the IOT platform, wherever the knowledge are hold on, processed and might be accessed by a laptop or any good device from anyplace. The system will update device knowledge to IOT server for each fifteen seconds. The hold on knowledge may be used for more analysis of the reduction of pollution, save energy and supply AN overall living surroundings sweetening. The robotic system has designed for price effective remote observation environmental parameters without human interaction to avoid health risk expeditiously. A proof-of-concept model has been developed as an example the effectiveness of the planned system.

Keywords : ARM-based embedded, Raspberry Pi, IOT server GPS coordinates

I. INTRODUCTION

Environment watching is that the assortment of information and data on environmental parameters. Watching and evaluating the health of our natural resources is additionally essential for effective environmental designing, dogmas and resolution environmental pollution. For the extraordinarily contaminated region, it carries the health risk for watching manually. To avoid these risks, remote watching techniques alongside a robotic system that has intelligent knowledge acquisition, communication and process area unit crucial in revolutionizing watching and protection. For remote watching, developing a system is associate economical resolution so the watching will be refrained from any human intervention.

In order to deploy a climbable and remote watching system, AN economical platform that permits users to observe their daily exposure to air pollutants by giving air quality data provided by varied sensing infrastructure is planned. The sensors sporadically monitor air quality. the info are often monitored and accessed from anyplace victimization by mobile phones or laptop with net access. The

implementation has sensors for air quality, CO, CO2, and temperature and wetness to observe the atmosphere around. The Raspberry Pi has been wont to act with the IOT platform and sensors and additionally management and navigation of the automation. The system has been developed by python and programming language. The robotic system with GPS controlled feature permits to maneuver in step with user's instruction autonomously and collects device knowledge from targeted locations. net application has been developed for the user friendly interface. All collected knowledge is distributed to the Thing Speak IOT platform so as to be accessed by the user from a wireless affiliation. Time period cloud graphical visual image is performed to investigate the collected knowledge. This utile robotic system is capable of remote watching with none human intervention and keeping away environmental hazard risks.

USER DEFINED GAS	NORMAL RANGE (IN PERCENTAGE VOLUME)
METHANE (CH_4)	0.0002
NITROGEN (N_2)	78.08
NITROGEN OXIDE (N_2O)	0.00005
AMMONIA (NH)	TRACE
LPG	1.8 TO 9.5

II. METHODOLOGY

Domain Introduction

INTERNET OF THINGS (IOT) The internet of things, or IoT, is a system of interrelated computing devices, mechanical and digital machines, objects, animals or people that are provided with unique identifiers (UIDs) and the ability to transfer data over a network without requiring human-to-human or human-to-computer interaction Proposed System The Proposed system is used to monitor the environment. This system used to monitor the environment by predicting the gas is harmful Or harmless. The proposed system is to determine trends in environmental parameters. During this system, we have a tends to plan an autonomous robotic system that's designed and enforced to observe environmental parameters like temperature, air quality, and harmful gas concentration. The automation has GPS coordinates, and it will store knowledge on the Thing speak of IOT platform. The harmful gas is leaked any one source then these information's are sensed by using gas sensor. Then these information's are immediately forwarded to cloud. Also the cloud pass this information to consent spreading area authenticated person and that area peoples. Also it detect the temperature ranges by using an temperature sensor. The gas is monitored by using gas sensor. Totally this system is used to monitor the environment properly. Any one changes are occurred in that environment then this system can predict that changes.

Create IoT Web Page The IoT web page created. Then the web page is used to access all the authorized persons. Also the Notifications and alert intimations are passed through the web pages. then any access are performed by the sensor then this IoT web page is used to access the processes Create Cloud Framework The Cloud framework is created in that stage. then this framework has maintain all the details of that sensor sensed data. then the authenticated persons are get the notification from that cloud framework.

Sense Temperature level This module is used to predict the temperature level. The temperature level is predicted from that environment by using a temperature sensor.the temperature level of environment is monitored continuously any changes in that temperature then this information is pass to cloud.

Predict Gas This module is used to predict the gas level. The gas level is predicted from that environment by using a gas sensor.then this system is

used t predict the gas is harmful or harmless gas. gas level of environment is monitored continuously any changes in that gas then this information is pass to cloud.

Notification The cloud pass the intimation to consent personss and also pass the condition through the web page by using cloud. this module is used to monitor the environmental status.then the level notification forwarded processes are performed in that module.
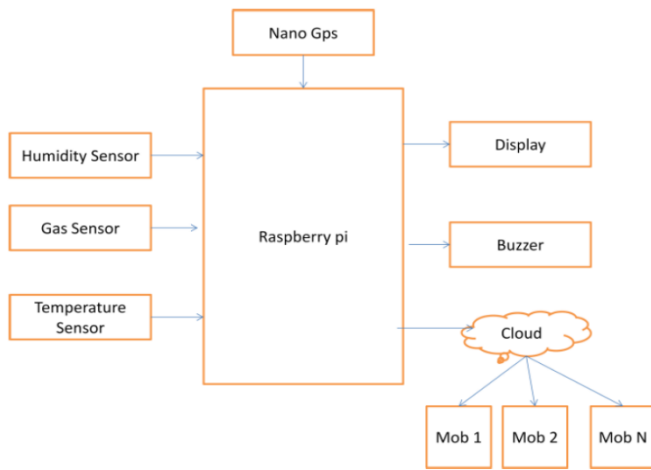
III. SYSTEM ARCHITECTURE

Fig 1. System Architecture

IV. DISCUSSION

DATA FLOW DIAGRAM

A data-flow diagram is a way of representing a flow of a data of a process or a system. The DFD also provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow, there are no decision rules and no loops.The visual representation makes it a good communication tool between User and System designer. Structure of DFD allows starting from a broad overview and expand it to a hierarchy of detailed diagrams. DFD has often been used due to the following reasons : Determination of physical system construction requirements.

Data flow Symbols :

Level 0

A level 0 data flow diagram (DFD), also known as a context diagram, shows a data system as a whole and emphasizes the way it interacts with external entities. This DFD level 0 example shows how such a system might function within a typical retail business.
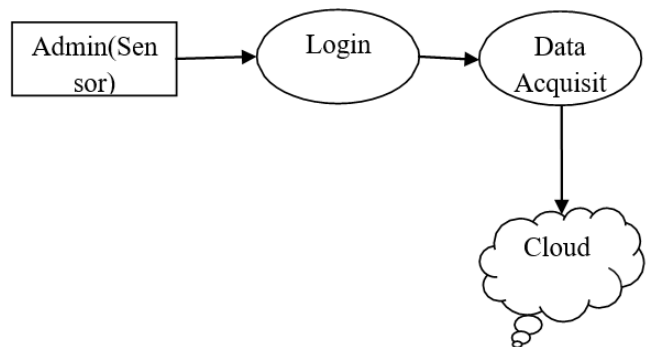

Fig 2: Level 0

Level 1
A context level DFD is the most basic form of DFD. It aims to show how the entire system works at a glance. There is only one process in the system and all the data flows either into or out of this process. Context level DFD's demonstrates the interactions between the process and external entities.
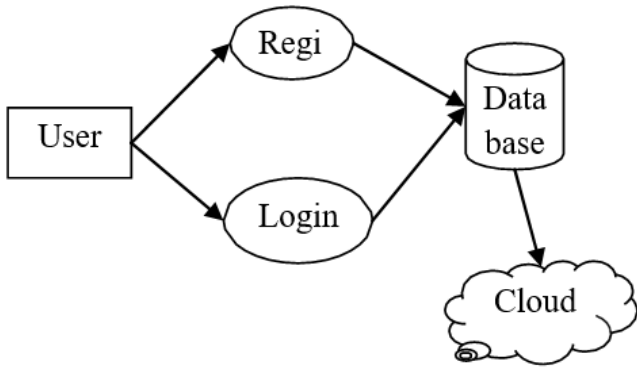
Fig 3: Level 1

Level 2

A level 2 data flow diagram (DFD) offers a more detailed look at the processes that make up an information system than a level 1 DFD does. It can be used to plan or record the specific makeup of a system. ... You can then input the particulars of your own system.
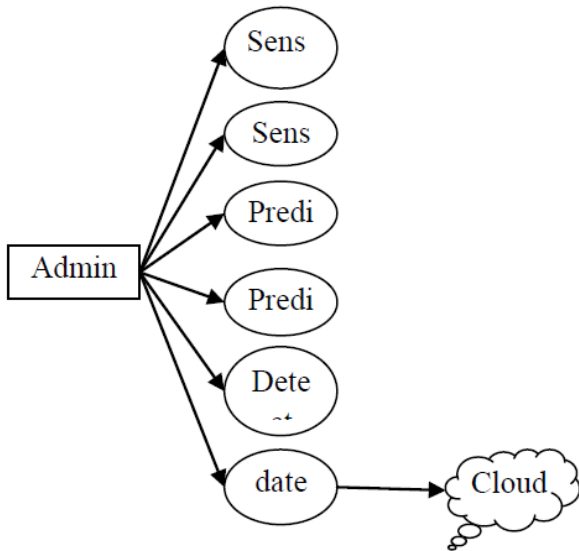

Fig 4 : Level 2

Level 3

The necessary level of detail depends on the scope of what you are trying to accomplish. Data flow diagrams are used to graphically represent the flow of data in a business information system.
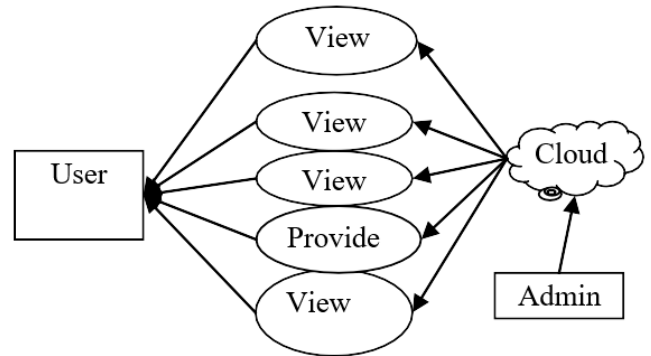

Fig 5: Level 3

V. CONCLUSION

This system is used to monitor the environment regularly. proposed system is to determine trends in environmental parameters. During this system, we have a tends to plan an autonomous robotic system that's designed and enforced to observe environmental parameters like temperature, air quality, and harmful gas concentration. The automation has GPS coordinates, and it will store knowledge on the Thing speak of IOT platform.

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