SECURES HOME ENVIRONMENT MONITORING AND CONTROL FOR SMART SYSTEM

M.HARIPRIYA
M.Tech VLSI& Embedded Systems Student
Gouthami institute of technology &
Management for women, Proddatur, India

B.ARUNA
Assistant Professor, Department of ECE
Gouthami institute of technology &
Management for women, Proddatur, India

ABSTRACT

After more than 20 years of development, Internet of things has a lot of applications in the actual scene, which greatly facilitates people's work and life. As people paying more and more attention to environmental quality, the application of Internet of Things in indoor environment monitoring and control has become an important branch. In this paper we present a set of lightweight intelligent solutions for the management of computer rooms after studying the key technologies of IoT. The system uses sensors to obtain environmental information, through the process of Raspberry Pi, controllers will make adaptive response, such as turn on the air conditioner, alarm users. The experiments demonstrates the system can be a good solution to the backwardness of current room management, especially college computer room, and provides a new application for IoT.

Keywords: Indoor environment, WSN, RFID, Raspberry Pi.

I. INTRODUCTION

Indoor condition observing critical measures to be intently checked continuously for wellbeing, security and solace of individuals. Internet advances using wireless sensor networks. My project design the requirements to create in clients of web and alterations on the internetworking connected sciences allow systems administration of everyday objects. Web-empowered frameworks have offered extraordinary guarantee to customers. Their favorable circumstances are great recognized. Discount of running and security charges due to far away observing, diagnostics, investigating, and redesigning firmware. Convenience and security that consolidates watch the variety of an insightful flat and to oversee web machines when far away from house.

Remote observing of private and mechanical living arrangements, notice of crisis benefits if there should be an occurrence of fireside, burglary, and a break of fluid or gas indistinguishable types of web-set up frameworks, comparing to these in are intended to gather the information sooner than serving them upon demand. In these applications, information are accumulated in a significant server and are then served to the clients by means of the web. Interaction with the inserted unit can be an essential test. Our design and implementation will be using the web page oversee likely for limited transaction by method for guidelines dispatched through Transmission control Protocol/IP (TCP/IP) and individual Datagram Protocol. The Raspberry pi set up indoor observing framework with website page using WIFI focused science. Presently we have structured and executed a reduced remote sensor network with web capacity. The technique can uncover the status of indoor and send the information about the status of devices and also can able to switching devices on/off based on the prototype links that are provided with the web. The methodology has control web, where the subject of acquired indication is perused by method for the formed calculation encouraged into Raspberry pi after which the methodology reacts to the relating guide with high security. The client can instantly sign in to web page and have communication with the inserted real time data without to protect with server. The methodology is separately developed, allowing extraordinary modules to

be conveyed. In addition, it is adaptable to oblige the size contraptions with right interfaces. It has a style of components likened to vitality proficient, knowledge, low charge, movability and elite.

II.EXISTING AND PROPOSED SYSTEMS

Remote wireless Sensors Network (WSN) has wide range of utilizations in different divisions. In many applications, it is important to monitor & control physical Indoor situations remotely without hardly lifting a finger [1]. As in [2] a remote sensor arrange is a framework gathering of radio frequency (RF) handsets, microcontrollers, sensors and power supply source. Wi-Fi sensor systems with self-designing, self-arranging, self-diagnosing and self-fix abilities had been produced to overlook issues or to allow purposes that typical advancements may now not repair. Wi-Fi sensor organize contains different sensors and an ARM11 controller. Wi-Fi contact that switch of learning over a separation without the utilization of electrical conveyors or wires. The separations included could likewise be brief (only a couple of meters as in a TV far away control) or long (endless numbers and even number of kilometers for radio interchanges). Wi-Fi incorporates - Radio recurrence report, Microwave discussion, Infrared (IR) brief-extend verbal trade. Elements of this dispatch could contain factor-to-factor discussion, factor-to-multipoint, broadcasting, cell systems and distinctive remote systems. In the last couple of years, the Wi-Fi interchanges industry talented exceptional changes driven through numerous innovation advancements. There are various frameworks that empower information to indirectly get into. As a technique to remote data variety by means of the web, GSM is a favored choice in a few applications.

EXISTING SYSTEM

In inserted framework with the progression in Internet advances and Wireless Sensors Networks, such screen the earth parameters to be specific; temperature, moisture, co2 focus and light power in Greenhouse. Information not only got precisely This current framework estimates a portion of the parameters, for example, co2 focus ,temperature, humidity and so on, however I can take different parameters which are critical in indoor observing framework.
Disadvantages:
No convention engineering
No specialized gadget

PROPOSED SYSTEM

The proposed framework contains a Raspberry pi based indoor observing framework. It will potentially shows the parameters reminiscent of light profundity , room temperature fire and LPG gas.It additionally demonstrates the spillage of LPG gas and furthermore illuminate the usage of LPG fuel when it surpasses past certain phase to the individual or included specialist. This technique can show the variety of indoor and send information to web page to organize routinely.
- Data receiving is very high
- Ethernet protocol architecture is used
- Automatic control

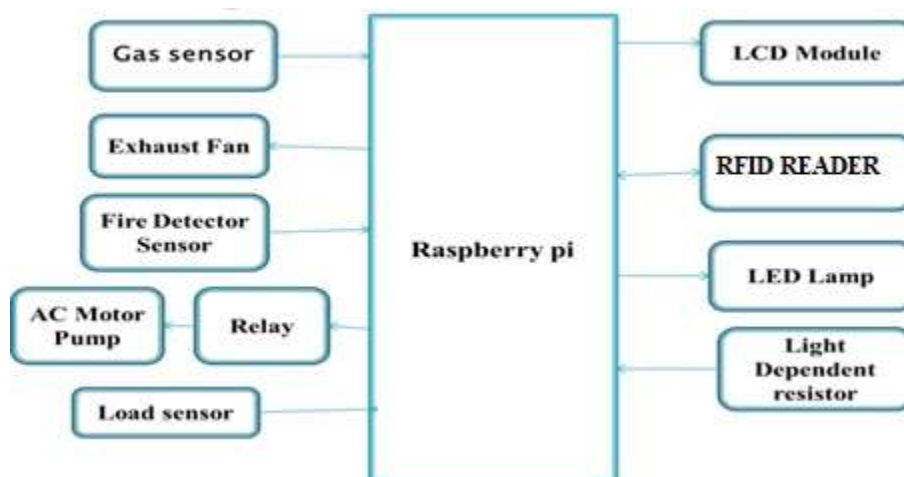## III. Block Diagram of Proposed System

Fig1:Block diagram of implemented system

IV. Block Diagram Description:

The essential goal of this mission is to measure and control the indoor atmosphere parameters with the aid of utilizing some modules. It is finished using Wi-Fi sensor network technology with the support of microcontroller. Wi-Fi sensor networks has emerge as extra general in the past years and used in many purposes. Indoor environment parameters comparable to LPG fuel leakage, heat detection, humidity and also measures the various home factors that are used in daily life. And in addition this parameters can be managed by way of the modules. Gas sensor measure the fuel leakage, when gasoline level exceeds above 800 threshold value then raspberry pi ship signal to the exhaust fan to ship out the gasoline in to the outer house. The level of gas can display on the liquid crystal display module. When fuel will probably be detected within the indoor robotically send information message shall be send to the involved authority by way of WIFI within the raspberry pi. When gas leakage will likely be much less then threshold rate exhaust fan can be robotically switch off. LDR sensor measure the light intensity and it is rather main parameter in photosynthesis. It's a resistive type sensor and its alterations the resistance founded on amount of light falls on it.2

Fire sensor that observe the fire accident within the indoor, for detecting the fireplace utilizing the fireplace sensor when exceeds the edge price of the fire then mechanically raspberry pi ship the signal to the AC motor through relay then water will probably be sprinkle to the water pump in the indoor then raspberry pi ship a command for sending message to the person through WIFI. The communication between devices and raspberry pi is provided with the various pins. LCD show displaying the fame of the all sensors and it's operated in 4bit mode.

V. RESULTS ANALYSIS

In the proposed system, indoor parameters such as gas leakage, fire, light intensity and LPG gas weight age can be monitored and also controlled by the modules.

EXHAUST FAN CONDITION:
In this system ,if gas level is exceeds the threshold value(800).

Fig2:MQ2 Gas sensor and Exhaust Fan

AC MOTOR CONDITION

In this system when fire will be detected in the indoor by using the fire sensor, AC motor ON automatically and sprinkle the water around the indoor and also alert SMS send to the concerend authority thorugh the GSM.

Fig3: Fire sensor and AC motor)

RFID with motor

The motor which will be used for access the door. Here RFID used for innovation. The framework, created as a team with the secured access to store data about the secured data and its task. The RFID memory will remain with the motor for a mind-blowing duration, at first holding information about it fabricate and details, and including a background marked by its activity and upkeep. This data will be accessible quickly whenever, accelerating investigating, adjusting and different exercises.

INDOOR PARAMETERS DETECTIONAND CONTROLLING SYSTEM:

The below figure shows when gas will be detected exhausted fan ON automatically to send gas outside of the space and also when fire will be detected AC motor will be ON to sprinkle the water to remove the fire. This all information will be sent to the concerned authority via webpage.

Fig4: Total system response of the proposed system

CONCLUSION

The plan and the advancement of an intuitive indoor checking framework with the RFID, WI-FI correspondence and Web-based estimation and control frameworks. The Web based screen and programmed control of gear is shaping computerization field. Supplanting PC with minimal effort single chip processor can make executives to get parameters of various remote sensor and send control. In this actualized framework observed and controlled the a portion of the indoor parameters, for example, gas spillage and gas level recognition and it is controlled by utilizing fumes fan. And furthermore fire can be recognized and controlled by AC engine will be ON to sprinkle the water around the indoor. at the point when brilliance is low in the indoor light will be naturally ON for this utilizing the LDR. The RFID is a great decision for correspondence as a result of its broad data reciving with remote low recurrence go cards which makes the individual accessibility status. The entire framework is anchored through a login E-mail and Webpage secret phrase based verification. The structures totally coordinated and remote with the product to shape an ease, unwavering quality and effectively operable framework. WI-FI correspondence makes the framework to introduce effectively. The GSM, E-mail and Web based correspondence framework gives a basic leadership gadget idea for adjustment to a few indoor situations.

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