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AUTOMATIC HOME APPLIANCES AND SECURITY OF SMART HOME WITH RFID, SMS, EMAIL AND REAL TIME ALGORITHM BASED ON IOT

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ABSTRACT: Home security and automation becomes prominent features on mobile devices. Internet of Things (IOT) is authorized by the improvement in innovations consists of sensors, Radio Frequency Identification (RFID) and communication advances. IOT is for interfacing gadgets and sensors without human intervention. The proposed smart home computerization framework is differ which allowing the client to get to and work the framework from anyplace around the globe through web alongside choice controls as per the requirements. The smart home computerization framework is similar as Short Message Service (SMS) and mail ID based Home Appliance Control System (HACS) and Security with the RFID. This framework provides the controlling of home appliances. When the client is far from the place this framework provides security. An algorithm is presented for brilliant home mechanization framework in light of IOT. IOT uses the sensors nodes and these are directly connected with ARM processor. The Algorithm plays out some fundamental capacities, example, producing the alarm based on the gas sensor and Turning ON/OFF the lights in view of the motion sensor. The ARM processor utilizes Wi-Fi module for monitoring the power usage of several home apparatuses. The main aim of the proposed framework is to provide a minimum effort and productive answer for home computerization framework by utilizing IOT.

KEYWORDS: Internet of Things, Short Message Service (SMS), GSM, mail ID, Radio Frequency Identification (RFID), Motion sensor, Gas sensor, Alarm system.

I.INTRODUCTION

The Internet of things is a system of structures, gadgets, physical objects and different things which are installed with hardware gadgets, sensors and systemnetwork that empower these items to gather and trade information. By methods for IOT, we can control lights, fans and other installed gadgets machines which are connected with internet regardless of the possibility that we are absent in the building. Mobile innovation is, maybe, the most quickly developing innovation. In 2G network, GSM have most important contribution than other advanced technologies. The administrations are provided by the GSM are collected into

three primary categories, Tele services (TS), Bearer services (BS) and Supplementary services (SS). TS gain concerns with customary phone calls, emergency calls and voice messages and so on. BS administrations are about data services, for example, SMS. SS are value added features such as call cost, call hold, call holding up and so on.A little radio-frequency transponder is utilized by RFID known as RF tag. The RF tag is electronically customized with unique data that can be read from a distance. The RFID frequencies ranges from a few hundred kilohertz (KHz) to several gigahertz (GHz). RFID labels are of two sorts, active and passive. Active labels are high cost, battery-powered and utilize higher frequencies. The passive labels uses lower frequencies, and don't have the internal power source. The reading reach is up to 100 meters for active and around 20 meters for passive labels. For an excellent home automation the choice of sensors is most important. A control system is great if the sensors utilized to quantify the desired factors can transmit the measured estimations of variables to the controller.

II. RELATED WORK

A.Smart Home System

Our system runs with Operating Systems (OS) such as Android and the Internet of Things (IOT), which are well known to those who deal with such systems. Comfort, security and flexibility are some common features of the system. This system is able to work with android phones, laptops, tablets or a PC. The main components of the system are a board of ARM, which can be called the brain of the system, a Router, Wi-Fi with a good range, an IR device, an Ethernet shield, a GSM device and a User device with an Android OS, such as smart phone or computer. The devices are associated through the internet or Wireless Application Protocols (WAP). The system is also controlled through an IR device. This device has made the system more desirable. The WiFi network is the main grid. Bluetooth and IR are also used inside the house as alternatives when needed despite their specific importance. The RFID module and sensors are also major components in the system. An RFID (Radio Frequency Identification) senses the state changes of the main door of the house and to control it. RFID module is utilized to transmit data over a short range. It consists of a tag scanner/reader which has the ability to scan as many tags as we set to it. Every tag has an ID that can be determined. The motion detector sensor collaborates with an ARM and the GSM808, which contain a mini sim card which calls the number saved in the program. This system has the ability to expand and be integrated as an up-to-date involved system, so new devices and more security levels may be added to the systems.

III. PROPOSED SYSTEM

In the previous model we are providing the security by using RFID only. In the proposed system along with the RFID we are providing the security by using sensors like fire and gas sensors. And also along with that by using the PC and image capture sensor we can get the images of unwanted happenings like unwanted entries, fire and gas sensors reactions, and send them through mail.

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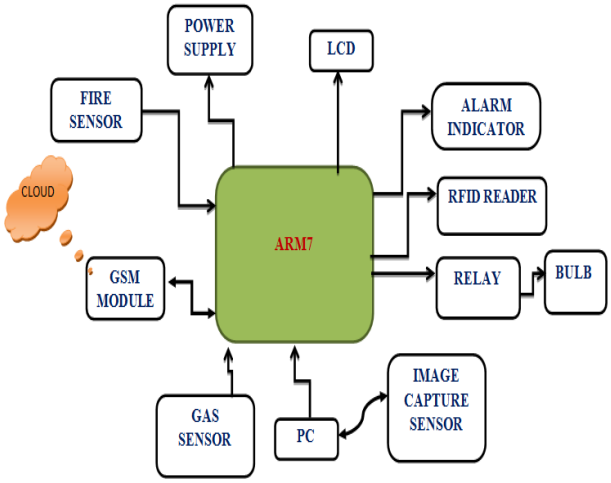

FIG 1. AUTOMATIC HOME APPLIANCES AND SECURITY OF SMART HOME WITH RFID, BASED ON IOT

In the proposed system which includes two units one is the home unit which will put in home and other will be security cabin. 32 bit ARM 7 Controller is utilized and it is connected to the sensors. The gas leakage is detected by the gas sensor (LPG). If the gas is leaked then exhaust fan will automatically turn on and alert will be activated through alarm indicator. Yet if nobody at home then GSM modem will send message to client. Additionally, another feature is if security comes to door, client need to open the door by sending password of door remotely, he can open to avoid destruction in home. PIR sensor is referred as "passive Infrared" sensors. PIR sensors used to identify whether a human has moved in or out of the sensor's range. It will connect with home window, entryway, and compound of garden. So if any intruder wants to come inside without client notice, alert will be active and send SMS and Email to client's cell phone.

IV.SMART HOME ALGORITHM

A. Network Components

Automation part is built by using following components:

ARM is used for controlling the entire computerization part of the smart home automation. It is connected with the other modules used as a part of automation. It actuates different gadgets on the basis of sensor's information. Sensors attached to ARM comprise of Electromagnetic door sensor, Temperature and humidity sensor, Gas Sensor, Motion Sensor, Electromagnetic Relays are used to control and computerize the electrical appliances on the basis of detected information. Energy checking part is used to monitor and control the energy utilization of home machines particularly overwhelming machines by using web page on a LCD. This part includes Wi-Fi module is attached to ARM which expects to give information on the web page for further handling, activities and controlling.

B. Network Model

This segment briefly talks about the system model of the proposed system. The proposed model is primarily based on two sections; Smart automation and Smart energy monitoring. These models are discussed in rest of this segment.

Automation: - In this segment, sensors are connected with the controller and gives Automation features of items, for example, Light is turned ON/OFF based on movement detected by the sensor or any action saw by the sensor. Besides, an alert is created when gas leakage is observed. Likewise, informs when the main door is left open for no less than 30 seconds.

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Energy Monitoring: - In this segment, temperature and current sensors are connected with the controller. Temperature sensor is used to automate the fan in the room as the fan will automatically turned ON/OFF when the temperature increase to certain value and the fan speed will automatically increase with the increase in temperature. Current sensor is used to monitor the energy utilization of the machines at home. A Wi-Fi module is utilized for sending the information to the internet. The estimations of energy utilization and temperature are appeared on web page and the control of the appliances is also connected with the web page which can be accessed globally and controlled.

V.RESULTS

The Automatic home security is shown in fig 2.

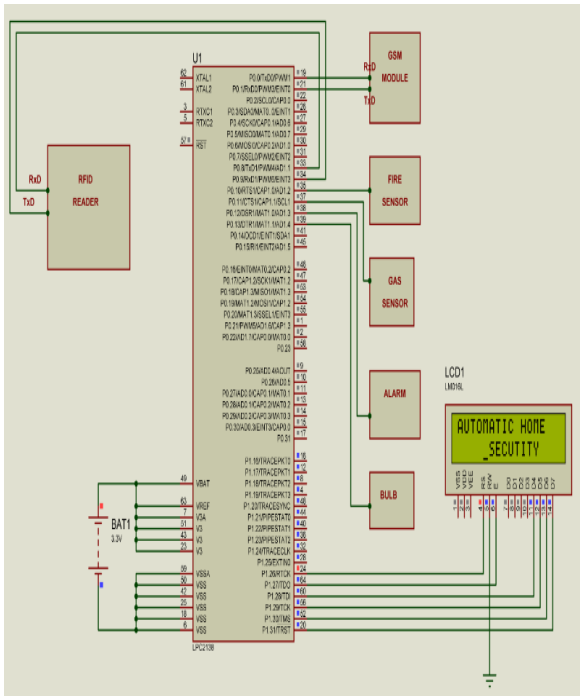

FIG 2. AUTOMATIC HOME SECURITY

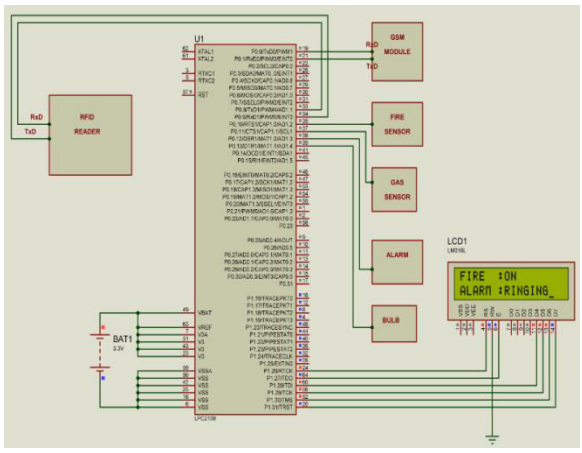

FIG 3. FIRE INDICATION ON

VI.CONCLUSION

We implemented the Home system for automation appliances and Security control unit for security of smart home based on internet and cell phone. In the paper minimal cost, safe, available, auto-configurable, remotely controlled answer for smart homes has been described. It suggests two different ways to connect it to internet, so that it can be used and observed from a distance. The paper also suggests using more than one type of wireless, such as IR, Bluetooth and WiFi, in the same project. There are some smart cameras that can distinguish skin shading. We can change the modem and use 3G modem so the system will send video or voice message to the client. For example, an Ad-hoc innovation and Wireless Sensor Network (WSN) innovation is to make smart home so we will able to make M2M communication. For outlining, we ought to survey any issues like an virus or hacking. So, we probably built up the safe system that can ensure the home system to the attack of a virus or hackers.

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