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HOME AUTOMATION SYSTEM

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ABSTRACT

A home Automation framework by and large amasses controlled peripherals to the passage. The interface for observing of the framework utilizes divider mounted terminals, tablet or PCs, a movable application, or online interface that will be accessible through net. While there are numerous sellers in business sectors, there are a lot of endeavours in open-source frameworks. Nonetheless, there are problems with the current situation with home computerization includes an absence for standard safety efforts and belittling of more seasoned gadgets without in reverse similarity. Home automation gives you convenience to use devices of home from a remote device being situated anywhere, anytime.

Keywords: Long term evolution --LTE, Internet of things –IOT, Bluetooth low energy --BLE, General Purpose Input / Output--GPIO, Raspberry Pi-- R-PI

I. INTRODUCTION

Home automation is a project which aims to track control of daily home electrical appliances to the fingertips, providing users with inexpensive lighting methods, improved energy efficiency, and minimal energy usage. Apart from just lighting problems, the concept furthermore, it allows you to have complete control over your home security as well as build a centralized home entertainment system, among other things With the rapid increase in usage of resources and also population is increasing day by day, there is a serious urge to save and conserve our resources in all ways available. The failure to manage and monitor the devices from remote locations is the major causes for energy loss. Not only in remote but urban areas too are lacking such systems that contribute energy as security crisis. As the country is developing, the security issues are growing along with it. Such systems not only help in energy conservation but also security managements and many more

II. PROPOSED SYSTEM

The aim of this device is to create a cost-effective, dependable, and measurable home automation system that can be used to switch it on or off any electrical device remotely by a microcontroller and simple hardware. The project's aim is to configure and build a home automation system which can response to any command given to household appliances with a single click, using a microcontroller and an Android app on a tablet. Home automation is a methodology that aims to put control of your home appliances/devices at your fingertips, providing with low-cost lighting, increased energy efficiency, and optimal energy consumption. This project is completed on its own by remotely and automatically turning on or off an electronic device, not restricted to household appliances, and sending a feedback message showing the appliance's new current condition. Apart from lighting, the definition also includes having total control over your home's protection and convenience with smart home.

HARDWARE REQUIREMENTS

- A. DHT SENSOR

It is used for sensing Temperature and Humidity.

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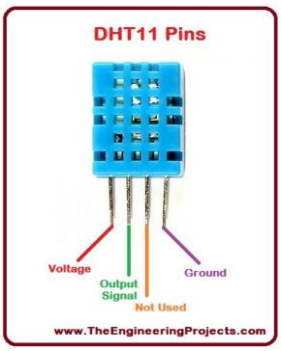


Figure1

- MQ6 SENSOR

It is used for sensing Smoke Detection.

Figure2

- **SONAR SENSOR**

It is used for measuring depth of water level.

Figure3

- **NODE MCU (Raspberry pi)**

It is used for IOT & Micro controller

Figure4

III. SOFTWARE REQUIREMENTS

- Android Studio

To build Android App

- Java ,Html

Web Development

- Raspberry pi(Software)

For Arduino & sensor coding

A. WORKING PROJECT MODEL

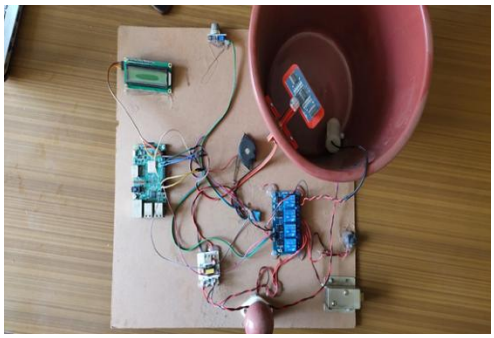


Figure5

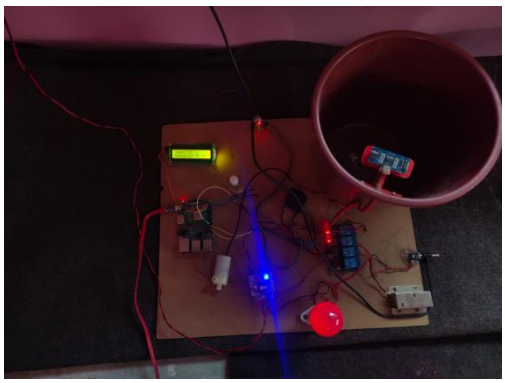
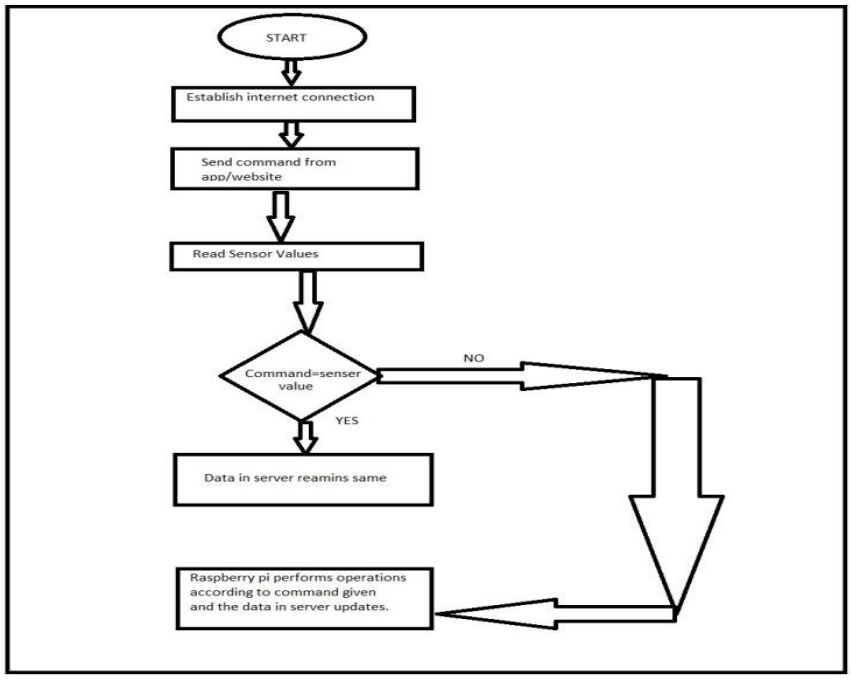


Figure6



FLOW DIAGRAM OF SYSTEM OPERATION

Figure7

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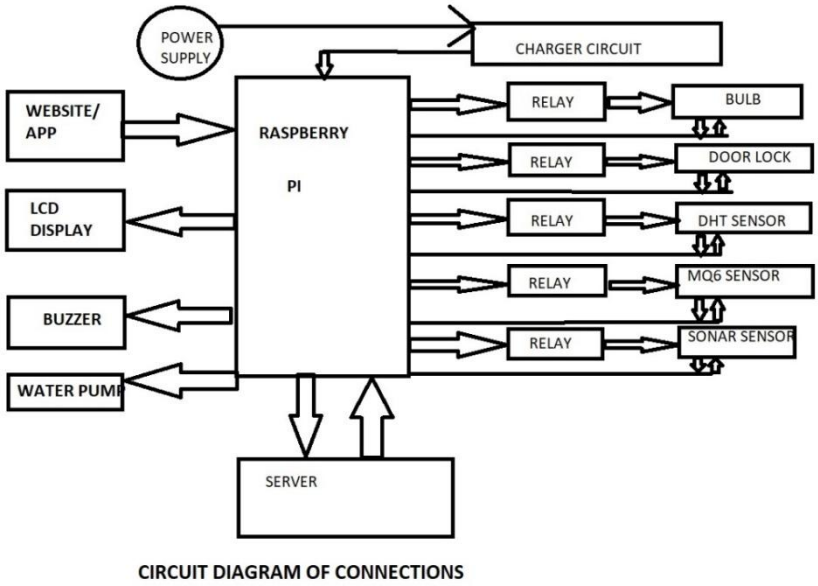

Figure8

B. MODELLING AND ANALYSIS

1. RESEARCH JOURNAL OF A.W AHMAD AND 4 OTHERS

"IMPLEMENTATION OF ZIG-BEE (GSM) BASED HAS"

This system demonstrates the style and model implementation of a simple SMS-based home automation system. The GSM electronic device, which is the communication medium between the home automation system and the end-user, is one of the two main modules in the automation system. SMS technology is used by GSM electronic equipment to share information and signaling between users and residential automation systems. The second thing is the micro-controller, which is the brains of the H.A.S and act like a link between , GSM network (the user) and the sensors and actuators. This method had flaws that caused communication delays. That is, the time delay in sending/receiving commands caused the device to be ineffective due to SMS delay in receiving and sending.

Limitations-

1. The biggest disadvantage of this system is as it is mostly reliant on SMS, however which is not only slow but also unreliable.
2. There could also be delays in delivery.
3. Since passwords are easily exchanged across the network, the system's security can be jeopardized.

2. RESEARCH JOURNAL OF F.TAN AND TWO OTHERS

"Bluetooth based HAS" Bluetooth technology is unquestionably low-cost and stable. The user interface is provided by an Arduino Bluetooth board and an interactive Python programmed that runs on the mobile phone. The Bluetooth board's I/O ports and relays are used to interface with the devices that will be monitored and managed. To ensure that the device is safe and not misused, Bluetooth is password protected. With a 2.4 GHz bandwidth and 3Mbps speed, Bluetooth having a limited accessibility in ranging from 10 to 100 meters only. Bluetooth system caused failure due to low range connectivity, no real time access can't be achieved.

Limitations-

1. The main disadvantage of Bluetooth , it takes a long time for being discovered and navigate devices.
2. Real-time access is not possible.
3. Inside the Bluetooth range, access is limited. As a consequence, access to the computers is impossible.

IV. RESULTS AND DISCUSSION

The motivation behind the home automation system is to save the climate by saving the force utilization. As there are 187 million houses in India alone, which utilizes power, this gives us an immense crowd. Also, one of the fundamental prerequisites of this undertaking is web which is effectively accessible nowadays. It

additionally centers around to help beat power wastage and Accidents, to give One Platform where the clients can undoubtedly get to and keep up the entirety of their home apparatuses, to distantly turn on/off any machines

V. CONCLUSION

This paper introduces a smart home automation model that makes use of the Internet of Things. This work will be enhanced by adding transfers to the Raspberry Pi board for managing home appliances from a remote location in a real-world scenario. In addition, the creators suggest a traditional IoT structure with a distributed computing architecture for interfacing and supervision. The use of brilliant home products to create family health, specifically identified with fire assurance, monitoring water level, automating the locks, measuring the temperature and then we can add more from it like the air conditioners can start to functioning according to the data given by dht sensors, is expected to gain ubiquity soon. We are currently connecting and regulating a few devices in home apparatuses. We will be able to monitor it from anywhere in the world in the future by integrating different gadgets.

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