Home Automation

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Abstract— **This is the age of technology and home automation is one of them and we come with that Our main idea is that we can operate all home appliances threw mobile phone. This will make home more easy to manage, more efficient and threw this we can increase security of our home, office, etc. In this project we are making one system which can operate all home appliances threw phone. In android app users have option for all devices on which they can perform operations.**

*Keyword:-***Smart Home, Smart Home System, Human Operated Home.**

I. INTRODUCTION

A home automation system is an automating the bulk of electronic and electrical tasks within a home.It uses a Combination of hardware and software to enable control and management over appliances and devices within a home.

Home automation not only refers to reduce human efforts but also energy efficiency and time saving. Here we are performing home automation by using ESP8266 –WiFi SoC and Android app. The purpose of home automation is to make homes simpler, better, or more accessible. Just about every aspect of the home can be automated, if you can imagine it, it may be possible. Home automation is not one technology it's the integration of multiple technologies into one system. Future scope for the home automation systems involves making homes even smarter. Homes can be interfaced with sensors including motion sensors, light sensors and temperature sensors and provide automated toggling of devices based on conditions.

II. LITERATURE SURVEY

Rizwan Majeed, Nurul Azma Abdullah,Imran Ashraf,Yousaf Bin Zikria,Muhammad Faheem Mushtaq and Muhammad Umer[1] The idea of a smart home is **getting attention for the last few years.**

The key challenges in a smart home are intelligent decision making, secure identification, and authentication of the IoT devices, continuous connectivity, data security, and privacy issues.

The existing systems are targeting one or two of these issues whereas a smart home automation system that is not only secure but also has intelligent decision making and analytical abilities is the need of time. In this paper, we present a novel idea of a smart home that uses a machine learning algorithm (Support Vector Machine) for intelligent decision making and also uses blockchain technology to ensure identification and authentication of the IoT devices.

Emerging blockchain technology plays a vital role by providing a reliable, secure, and decentralized mechanism for identification and authentication of the IoT devices used in the proposed home automation system. Moreover, the SVM classifier is applied to classify the status of devices used in the proposed smart home automation system into one of the two categories, i.e., "ON" and "OFF." This system is based on Raspberry Pi, 5 V relay circuit, and some sensors.

A mobile application is developed using the Android platform. Raspberry Pi acting as the server maintains the database of each appliance. The HTTP web interface and apache server are used for communication among the Android app and Raspberry Pi. The proposed idea is tested in the lab and real life to validate its effectiveness and usefulness. It is also ensured that the hardware and technology used in the proposed idea are cheap, easily available, and replicable. The experimental results highlight its significance and validate the proof of the concept.

Satish Palaniappan, Naveen Hariharan, Naren Kesh, Vidhyalakshimi[2] The increase in consumption of energy and population, there is a grave need to conserve energy in every way possible. The inability to access and control the appliances from remote locations is one of the major reasons for energy loss.

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A web or an android application is used by the users to give instructions to these systems. This system can make use of a host of communication methods such as Wi-Fi, GSM, Bluetooth, ZigBee. Different controlling devices and configurations can be found in existing systems.

R. Rajalakshmi[3] Internet of Things (IOT) is nothing but connecting different real world objects to provide proper communication,synchronization, and inter-connecting between various devices or physical appliances is also known as "Things". The HomeAutomation System (HAS) is extension of current activities performed inside the home and this Home Automation System (HAS) can be developed easily now a day's, because of powerful computational devices and wireless sensor network(WSN), to provide user friendly and cost fairly home automation system. In Home Automation System (HAS), different technologies like WiFi, Bluetooth and Zigbee are used for communication, and different devices like smart phone, tablet and laptop used for controlling various appliances. In this paper we detailed a survey on different home automation systems considering parameters like type of communication, cost, technology and efficiency of system. A comparative analysis of home automation system is done. In future this system may have high demand and usage for automation of the "Things". Using Home Home Automation System (HAS) our home will be smart home that can operate without any physical interference of human being.

III. METHODOLOGY

*Description-*The above diagram describes the system flow of our project i.e. in this system first we do login and registration and after that user will get authentication to system and user can perform task from this application and there is also automated sensor which sense humans or animals than it will on appliances for some time period.

Microcontroller- it is used for controlling all appliances and by using microcontroller we can make relay switch in system.
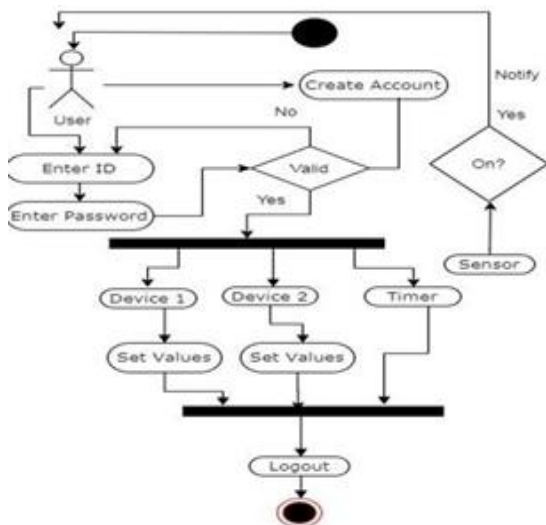
Solenoid lock- It will work on the base of electricity when you provides it electricity by using on button it will get open and when you push off button it cut's electricity and lock will get close.

PIR motion sensor- When this sensor will detect human or animal then it will start light for given period of time.

Jumper wire- It is used to connect microcontroller,4 channel relay module and home appliances.

*4 channel relay module-*From this device we provide electricity to appliances.

IV. IMPLEMENTATION

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*Description-*In this home automation system we give value threw one android app and on the base lf that we can control all appliances from anywhere and also we have sensor in this system which notify user when any human or animal get detected and it is normal work of our system.

Login Activity

Description: Here the user can login with his/her registered Email and password.

Registration Activity

Description: User can register with his/her Email.

Home Page Activity

Description: Here the user can operate lot of home appliances threw ON/OFF button.

V. CONCLUSION & FUTURE WORK

So we can conclude that by using this kind of technology we can operate our home appliances very easily and by using this kind of things we can increase security of our home also. In future we can joint it with an Artificial Intelligence and make home more reliable to use and also it can give contribution in Make In India project.

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