

Smart Home Automation Based on IOT

Muthamil Jothi. M, Manjula. V, Keerthika. M

*UG Students, ECE Department, Francis Xavier Engineering College
Vanarpettai, Tirunelveli*

Abstract

The IoT technique will be incorporated within the house to create it smarter, safer and automatic. This in the main focuses on building a wise wireless home security system that sends alerts to the owner by exploitation web just in case of any trespass and raises an alarm optionally. This will even be used for automating home by creating use of the sensors. The functioning of every instrumentality differs. So we have a tendency to proposing the system which will alter the house with the utilization of Cloud intelligent Tetriss switch and alternative IoT primarily based appliances. For information exchanging and to manage power Tetriss switch is employed. Dynamic long module is additionally embedded therein for top performance. The RFID distinctive variety is obtained for every appliance from the manufacturer and web. The interface for shopper users, storage, queries will be extracted from Cloud Home as a Service (HaaS) server. These servers are remote servers placed on web that assist you to manage and method the info while not the necessity of customized computers. The net primarily based servers will be organized to manage and monitor multiple sensors put in at the required location.

Keywords: *Cloud, IoT, Smart home, Switch, Sensor.*

INTRODUCTION

Even when all the home appliances are connected to the internet and already demand identified on central server, the current state of all the appliances can be monitored remotely. But not all the appliances can be connected to the internet. Most of the equipment's are operated using the mechanical switch. Connection different equipment's with different functioning properties is the tedious problem. To avoid this problem, the most commonly used is the extension cord with manual switches. There are to phases for controlling the devices, i) Switch of extension power cord for power providing, ii) Switch for function activation of appliances' proper connection to the network can also be for by monitoring and controlling the home appliances. The appliances should be turned off when it is not in use. This is done in order to save the power. Turning On and Off the power using wireless signal is difficult because most of the

appliances are not equipped with intelligent power module. Different appliances uses different services. So the function commands for each equipment is needed. It is impossible to use the functional parameter's for one appliances for the other. The appliances doesn't respond or reply to the central home server automatically. It is not possible for the central home server to identify each home appliance and execute the function. Hence, identifying different appliances is a tedious task. IoT platform is used to connect all things to internet. Nowadays, IoT technique is used to connect all equipment's to internet. All the powered devices is treated as network devices and exchange the data to the controller. The control server will automatically identify each individual device. But until now there is no such devices. Then the technologies involved are discussed. The proposed system structure of IOT based Smart Home Appliances by using Cloud

Intelligent Tetris Switch and the real implementation is presented.

RELATED TECHNOLOGIES

Internet of Things

One of the famous emerging trends includes Internet of things (IoT). By using the device can be connected to the internet to send and receive data [8]. The data can be exchanged through the home network. The device can be identified according to its address of Network interface card and device data. The data is exchanged with each other using sensors. [5]

Serial Universal Bus(USB)

One of the famous stranded used in information industry is Universal serial bus (USB)[2]. This is used in electronic devices to achieve communication and power supply between main information devices and active plug-in removal devices.

Cloud

Nowadays cloud computing is used in different applications. It can provide huge computing resource based on virtualization technology and resource pool through IaaS, PaaS, SaaS. Users can give the on demand required conditions, such as CPU speed, memory size, storage space, etc., to the cloud platform for specific virtual machine (VM) establishment. Furthermore, by on demand configuration, the organized VM are often speedily used for various users. Every user are often allotted a personal VM. The remote consumer users will use any devices like mobile, Raspberry Pi, pad, laptop, etc., with web affiliation to regulate the VM on cloud. Hence, supported the virtualization technology, the services manager will set up the corresponding VM once for repeatedly used.

EPC RFID

EPC Global is an organization that defines the standard of electric product code

(EPC) [1]. Each radio frequency identification (RFID) tag will be assigned a unique identification number (UID) based on the standards. A unique ID (UID) will consist of the EPC manager number, object class number, and the serial number. EPC manager number is used and assigned to a registered company. The object class number is defined by the company. A serial number is used to indicate the individual trade item (object). Hence, each RFID tag with the unique ID can be used to indicate the specific trade item.

PROPOSED SYSTEM

In order to solve the difficulties involved in connecting the data to the internet, we are proposing the system that includes Cloud Intelligent Tetris Switch, Cloud Home as a Service (HaaS) Server, and IOT based Appliances.

Cloud Intelligent Tetris Switch

In addition to the manual operation, users can use their own mobile (via APP) or browser to remotely control each socket. According to the command given by the user each home appliances can be powered on/off remotely. For doing this the model should be connected to the internet. For communication between the cloud and switch there are many communication devices are available like Bluetooth, ZigBee, Wi-Fi module. Thus by this the communication and data interchange is achieved. However there are various places in the house and thus various appliances present. Considering these factors the real time implementation is much difficult. Thus the number of sockets is increased to nine from three. The direction of the switch extension can also be different. Hence, by using one Cloud Intelligent Tetris Switch, the extension of the sockets can still be controlled by the remote server. Locating and identifying each Cloud Intelligent Tetris Switch is needed. Then, the HaaS server can send

the command to the corresponding (correct) home appliances according to the added location (room) information.

IOT based Appliance

To identify every appliance for more management is very important for consumer users. However, most home appliances don't equip the USB or Wi-Fi affiliation nowadays. Hence, extra identification methodology for home

appliances is needed. Suppose that everyone the house appliances equip the electronic product code (EPC), like code, QR code, or RFID tag.

Circuit diagram:

The figure shows the overall structure of the proposed system. The sensors, switches and various other modules are connected and it can be used to automate the home appliances via remote devices or by users.

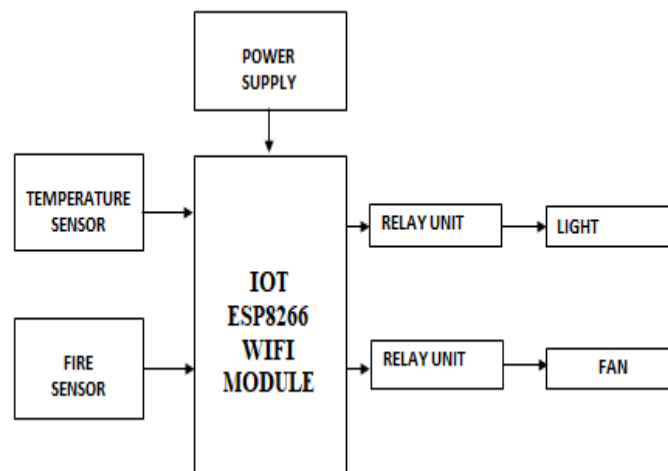


Fig. 1: Circuit diagram

The home appliances are often known on an individual basis by exploitation extra socket structure with RFID reader or scanner. In different words, almost like EPCIS and EPC network, supported the obtained identification data of the house appliance, the remote home server will question the corresponding device description information from the web and manufacture. Then, even the house appliances nowadays are often controlled in step with the corresponding functions.

Cloud Home as a Service (HaaS) Server

Similar to the EPCIS and EPC network, the server will acquire the corresponding operate data of individual appliance via the electrical product code. Additionally, since the HaaS server can influence the management of individual appliance, to determine a freelance server for every house are going to be required. During this

analysis, the HaaS server is enforced because the service of the virtual machine (VM). Hence, the managers deploy the VMs for different houses with the same IOT based smart home appliance service. In other words, via account and password, different users can login to the corresponding VM for their own appliances control and management. Moreover, the IOT based smart home appliances and the cloud intelligent tetris switch can register in the database of each Cloud Home as a Service (HaaS) VM. Hence, even the same type of home appliances located in different houses can be identified according to the registration in individual database of Cloud Home as a Service (HaaS) VM. Therefore, each user can only control the home appliances which are registered in the corresponding Cloud Home as a Service (HaaS) VM. The security can be maintained.

IMPLEMENTATION

This can dynamically controlled and the appliances can be managed and turned on/off by the cloud intelligent Tetris switch.

CONCLUSION

In this paper, the house appliances with IoT embedded system are often managed and controlled remotely supported cloud intelligent tetris switch, cloud home as a survive server. The intelligent tetris switch are often dynamically extended completely different| functions and locations and too different direction. By victimisation remote cloud server the extension of switch or sockets are often controlled. Even the opposite functions are often controlled by IoT.

REFERENCE

1. (2016)EPC Global.[Online]. Available:
<http://www.gs1tw.org/twct/web/epcg.jsp>
2. (2016) USB. [Online]. Available:
<http://www.usb.org/home>
3. M.S. Jian, H.C. Chang, J.Y. Wu, and J.Y. Chen, "Intelligent Power Switch," R.O.C.Patent M528511, Sept. 11,2016.
4. M.S. Jian, J.H. Shen, Y.C. Chen, C.C. Chang, Y.C. Fang, C.C. Chen, and W.H. Chen, "Cloud Image Processing and Analysis Based Flatfoot Classification Method,"Int. J. of Computers,vol. 8, pp. 90-98,2014.
5. Z. Yan, P. Zhang, and A.V. Vasilakos, "A survey on trust management for internet of things," J. Netw. Comput. Appl., vol. 42, pp. 120–134, 2014.
6. L. Xu, W. He, and S. Li, "Internet of things in industries: a survey," IEEE Trans. Ind. Inf., vol. 10(4), pp. 2233–2243, 2014.
7. M.S. Jian, F.J. Jhan, H.C. Chang, T.Y. Chou and J.H. Shen, "Cloud Based Evolution Algorithm with Feedback Control for Emergency Logistic," Applied Mechanics and Materials, vols. 284-287, pp. 33703374, 2013.
8. T. Heer, O. Garcia-Morchon, R. Hummen, S.L. Keoh, S.S. Kumar, and K. Wehrle, "Security challenges in the IP-based internet of things," J. Wirel. Pers. Communic., vol. 61(3), pp. 527–542, 2011.
9. J.S. Rellermeyer, M. Duller, and G. Alonso, "Engineering the Cloud from Software Modules," ICSE Workshop on Software Engineering Challenges of Cloud Computing, pp. 32-37, 2009.module and switch. Hence, the life at home can be smart and intelligent.