

Smart Devices Control System By Using Android

Nidhi Singh¹, Prof. Ashish Manusmare²

¹(Electronics and Communication, Ballarpur Institute of Technology, India)

²(Electronics and Telecommunication, Ballarpur Institute of Technology, India)

Abstract: Today, net of Things technology is most popular compared to manual systems. With the fast will increase within the variety of users of the net over the past decade, this case has created net a locality and approach of life. Internet of Things, IoT is that the latest and rising net technology. Net of Things is thought as a growing network of everyday activities from industrial machine to consumer's merchandise which will share info and complete tasks whereas everyone seems to be busy with different activities. Smart devices management by victimization IoT technology could be a system that uses computers or mobile devices to manage basic device functions and automatic options. It's meant to avoid wasting the electrical power and human energy to manage good device operations. Smart devices system by victimization IoT differs from different systems by permitting users to work the systems from anyplace around the world through net affiliation. during this paper, the project uses Blynk application that employs the combination of cloud networking and wireless communication by providing the user with a device of assorted devices and senses various parameters like temperature, humidity within the specific place like industries, house etc.

Date of Submission: 24-05-2018

Date of acceptance: 14-06-2018

I. Introduction

The wireless system has become one in every of the wide used in human lifestyle. By practice this advanced wireless systems, it'll be easier to manage the appliances switch. Wireless system offers many choices and applications. However many applications square measure only for communication functions. Because of the popularity of wireless systems and choices that give, these communication gadgets are used as an area of the management systems.

One way to use this technology is by developing the wireless system applications for building to manage the electrical appliances. Many electrical appliances inside the building are integrated to the wireless system by practice mobile phones.

In this era, building management systems square measure recently enforced in many places. one in every of the reasons that current technology can go any as a results of it's going to provide comfort feelings notably once operative or living inside the own house that equipped with advanced technologies. The Internet of Things (IoT) are drawn as a result of the most technology that involving smart-phones, net TVs, and sensors that integrated to the net. These devices square measure showing wisdom connected on where it permits new varieties of communication between objects and people. As associate example, people can begin to alter their appliances anywhere they like.

Control systems square measure printed as Automation or automatic management where it uses varied management systems for operational instrumentality like machinery, amendment on phone networks, temperature management and different applications with lowest or reduced human presence. Some processes might square measure totally automatic but variety of it merely partial automatic. The installation in business buildings does not only increase their utility but together allow centralized management of heating, ventilation, air condition, and lighting. Hence, they contribute to associate overall worth reduction and together to energy saving that's undoubtedly the foremost issue these days.

II. Material And Methods

20 years past, most of the systems were established supported wired network. as associate example phone network that used category 5 unprotected twisted attempt (UTP). All a similar, wired networks provide users with several securities and conjointly the flexibility to maneuver immeasurable info very quickly. Moreover, wired networks are typically faster than wireless networks, as they're going to be very low-cost. However, that statement are supported by analog technologies then compared to nowadays. Previously, the implementation of wired automation system does not build a tangle as long as a result of the system is planned well and place in throughout the first section of construction inside the building. But, if the system is place in once the event is completed, the buildings that need to be designed with automation systems would need higher

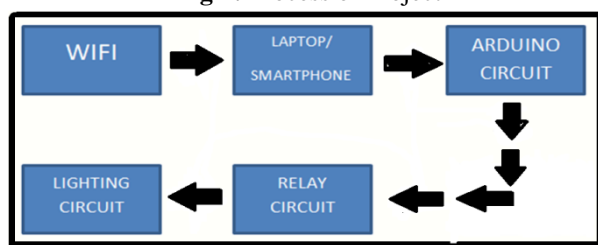
worth since the additional cable is vital. What's additional, thus on prune the value that needed, wireless systems is that the most effective resolution. Wireless technologies have reached their finding. Wireless based systems, used in on a daily basis and each place. Nowadays, many corresponding researchers of wireless automation standards square measure done, though such info would offer valuable information to everyone that is yearning for the foremost acceptable system for given wants.

In addition, electrical appliances management systems ask for recommendation from the utilization of laptop and knowledge technology to home or building appliances. In different words, the net of things (IoT) is one among the systems that may management devices and connect it with the web technologies. IoT Systems have vary from straightforward device of lighting to computer based mostly networks with varied degrees of automation. Sensible device system is approached for reasons of ease, security and energy potency. Device system may give a far off interface to appliances or the automation system itself, via telephone line, wireless transmission or the web, to provide management and watching via a smartphone or internet browser. Microcontrollers square measure used as components of management systems in natural philosophy and electrical appliances lately. Considering these factors this paper planned to implement the wireless system applications in building for controlling the electrical appliances. This paper is focusing on the planning and development of the sensible appliances control system by victimization humanoid. The options that involve such as fan, air-conditioning, lighting and senses varied parameters like temperature, wetness inside the precise place like industries, house etc.

Procedure methodology

Device management systems design and specifications depend on the kind of hardware and package used. Figure 1 shows the diagram of the project that contains of WLAN, Smartphone, Arduino circuit, relay and light circuit. This paragraph is a repeat of 3.

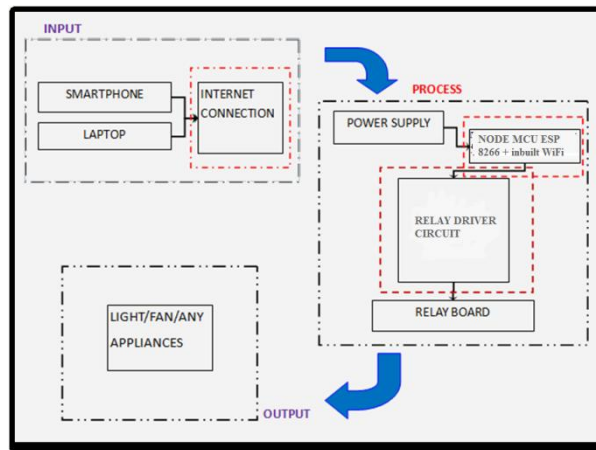
Fig 1: Process of Project



The diagram higher than shows the electrical systems that are controlled with IOT system by victimization wireless network. The input as within the diagram shows the sensible devices for instance laptop computer and smartphone. The devices are connected to the router within the house or victimization its own knowledge connection (3G or 4G) network. Next, human can send information to change ON the appliances in their home or building through router and router can send the data to the node MCU psychic phenomena 8266 having in designed wireless fidelity. After that, node MCU psychic phenomena 8266 can analyze the info with serving to of relay driver circuit to communicate with the relay circuits. Then, when the relay circuit received the info on that switch aiming to air, the data can send to the appliances. The vital factor to be highlight is that the appliance was connected wired with the relay circuit. Hence, the relay itself can communicate with the node MCU psychic phenomena 8266 and also the psychic phenomena 8266 module. The method is shown in Figure 2.

In this paper node MCU is employed because the main component. As a computer program has been coded into Arduino software, it'll verify what forms of electrical appliances that can be controlled. Web-server is running on node MCU exploitation the inbuilt designed WiFi module ESP8266. This in designed WiFi module has capability to be used each either as a shopper or a server. Next, the communication between smart appliances systems for example lightweight or fan to the node MCU is started. Since Arduino serial module already supports a TCP/IP stack, so it focuses on implementing software package to attach it to the remote users. Throughout the configuration stage, the Wi-Fi in designed module establishes reference to native space Network (LAN) exploitation a static science address. To optimize the method of affiliation, the static science address that's used instead of getting associate science via Dynamic Host Configuration Protocol (DHCP). By doing therefore, the management systems that connected with Wi-Fi serial module can be management either exploitation internet based mostly or application in sensible phone.

Fig 2: Control System Processes



Arduino is associate degree ASCII text file that used for building electronics comes. Besides that, the pins in node MCU are the places wherever the association wires to construct a circuit with board and a few wires. Arduino consists of each physical programmable circuit card that definitely may well be assumed as microcontroller or IDE (Integrated Development Environment) that runs on laptop. in addition, the Arduino uses a simplified version of C makes it easier to find out to program and Bracket code that use to program the C language into the Arduino. Figure 3 shows the flow chart of the systems.

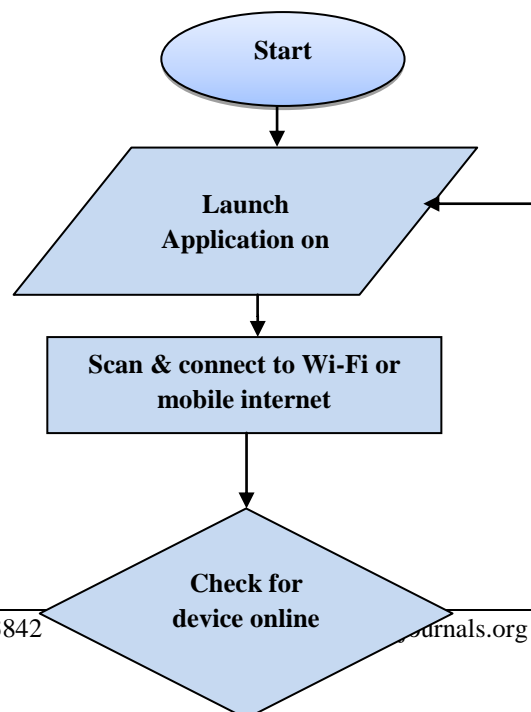
Statistical analysis

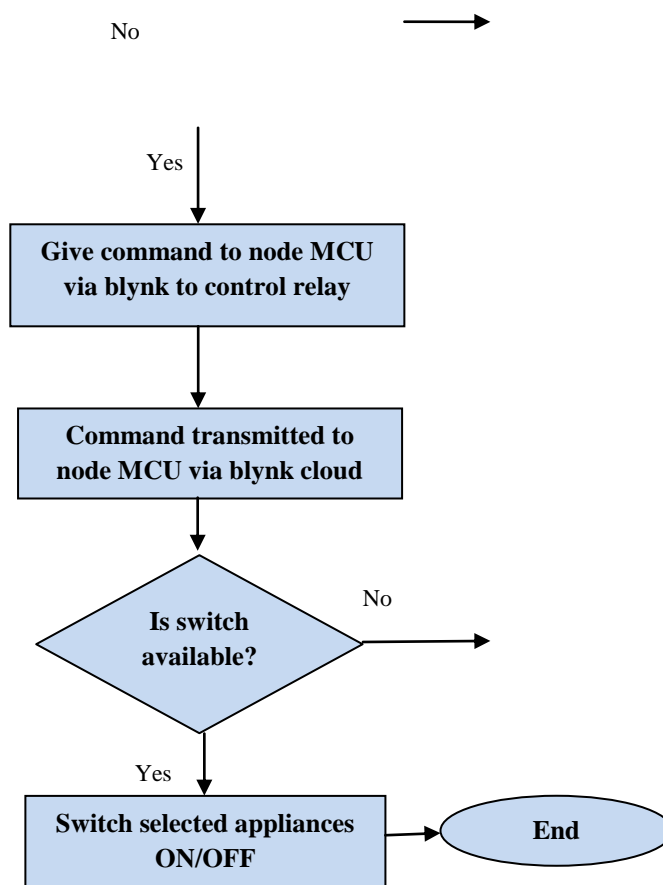
The first journal entitle ‘Smart Home-Control and Monitoring System victimization good Phone’ that was written by Rajeev Piyare and Seong Ro Lee from Department of Information physics Engineering, Mokpo National University. They wrote a few low price home management system victimization Associate in Nursing embedded micro-web server, with IP connectivity for accessing and dominant devices and appliances remotely victimization

time existing switches standing. The system supposed to manage electrical appliances and devices in house with comparatively low price style, user friendly interface and simple installation [2].

Next journal entitled ‘Internet based mostly Home Automation’ analysis by Kumar Manu from Moradabad Institute of Technology, Moradabad, India. it’s written concerning the utilization of Arduino Uno with the assistance of relay. In this project the used of LAN defend so as to produce interface between user and therefore the network. The investigator stated that Arduino isn’t a standalone device however a platform which includes Arduino board and IDE development environment. The project offers users a simple & effective of controlling varied home appliances

Fig 3: Flowchart of the system.





from a foreign location for example while not physically being gift reception Powerful microcontrollers area unit used as elements of most home and workplace appliances[3].

Then, journal entitle 'Home Automation Systems – A study' analysis Satish Palaniappan and Naveen Hariharan from school of Engineering, Pakistani monetary unit University, Chennai, India. They write on a study of Home Automation by using varied of technique like GSM, Bluetooth, Raspberry Pi and Zigbee. The aim of this journal is to survey and compared all of the systems and appearance at their varied feature and disadvantages. The comparison state area unit in details for example they providing the circuit and graph for every of the method [4]. Finally, journal entitle 'Energy economical good Home Automation System' by Abhay Kumar and Neha Tiwari from Suresh Gyan Vihar University, Jipur , Rajasthan . They wrote a few good home which might avoid the wastage of electric once individuals forget to change off their home appliances. Their good home project consists of 3 elements which area unit network, dominant device and residential automation. The voltage uses of bound electrical appliances is being control by server laptop and programming within 16F877A PIC [5]

III. Conclusion

This paper planned the whole style and development of electrical appliances management systems by victimization android apps. It considered with success as a result of all electrical appliances is controlled by victimization smartphone. Though the perform is limited by 3 appliances and three sensors, it is more improved with many feature in future

References

- [1] R. Piyare and R. L. Seong, "Smart Home-Control and Monitoring System Using Smart Phone," *Proceedings, 1st Int. Conf. Converg. it's Appl.*, vol. 24, pp. 83–86, 2013.
- [2] A. Aisha Badrul Hisham, M. H. I. Ishak, C. K. Teik, Z. Mohamed, and N. H. Idris, "Bluetooth-based home automation system using an android phone," *J. Teknol.*, no. 3, 2014.
- [3] K. Ghosh, R. Kalbhor, D. Tejpal, and S. Haral, "Wireless Home Automation Technology (What) Using Internet of Things (Iot).," vol. 3, no. 6, pp. 161–164, 2015.
- [4] S. Palaniappan, N. Hariharan, N. T. Kesh, V. S. Cse, A. Deborah, and S. Assistant, "Home Automation Systems -A Study," *Int. J. Comput. Appl.*, vol. 116, no. 11, pp. 975–8887, 2015.

- [5] A. Kumar and N. Tiwari, "Energy Efficient Smart Home Automation System," vol. 3, no. 1, pp. 11–13, 2015.
- [6] H. Wang, J. Saboune, and A. El Saddik, "Control your smart home with an autonomously mobile smartphone," in *Electronic Proceedings of the 2013 IEEE International Conference on Multimedia and Expo Workshops, ICMEW 2013*, 2013.
- [7] S. Davoodi, Z. Mohammadzadeh, and R. Safdari, "Mobile phone based system opportunities to home-based managing of chemotherapy side effects," *Acta Inform. Medica*, vol. 24, no. 3, pp. 193–196, 2016.
- [8] Deepali Javale ; Mohd. Mohsin ; Shreerang Nandanwar ; Mayur Shingate, "Home Automation and Security System Using Android ADK," *Int. J. Electron. Commun. Comput. Technol.*, vol. 3, no. 2, pp. 382–385, 2013.
- [9] C. G. Kim and K. J. Kim, "Implementation of a cost-effective home lighting control system on embedded Linux with OpenWrt," *Pers. Ubiquitous Comput.*, vol. 18, no. 3, pp. 535–542, 2014
- [10] A. Yusuf and M. A. Baba, "Design and Implementation of a Home Automatedn System based on Arduino, Zigbee and Android Application," *Int. J. Comput. Appl.*, vol. 97, no. 9, pp. 975–8887, 2014.
- [11] R. Ramlee, M. . Othman, M. H. Leong, M. M. Ismail, and S. S. S. Ranjit, "Smart home system using android application," *2013 Int. Conf. Inf. Commun. Technol.*, pp. 277–280, 2013.
- [12] D. Yang, G. Xue, X. Fang, and J. Tang, "Crowdsourcing to Smartphones : Incentive Mechanism Design for Mobile Phone Sensing," *18th Annu. Int. Conf. Mob. Comput. Netw. (MobiCom 2012)*, pp. 173–184, 2012.
- [13] S. R. L. Rajeev Piyare, "Smart Home-Control and Monitoring System Using Smart Phone," *Conf. Pap. 2013*, vol. 24, no. November, pp. 83–86, 2013.
- [14] M. A. A. Milton and A. A. S. Khan, "Web based remote exploration and control system using android mobile phone," in *2012 International Conference on Informatics, Electronics and Vision, ICIEV 2012*, 2012, pp. 985–990.
- [15] A. W. Ahmad, N. Jan, S. Iqbal, and C. Lee, "Implementation of ZigBee-GSM based home security monitoring and remote control system," in *Midwest Symposium on Circuits and Systems*, 2011.

IOSR Journal of Electrical and Electronics Engineering (IOSR-JEEE) is UGC approved Journal with Sl. No. 4198, Journal no. 45125.

Nidhi Singh " Smart Devices Control System by Using Android." IOSR Journal of Electrical and Electronics Engineering (IOSR-JEEE) 13.3 (2018): 38-42.