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Energy Saving Smart Home Automation

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Abstract: ***Internet of Things (IoT) is a concept that can imagines all objects around us to be part of internet. IoT. It covers a very wide range of objects and includes variety of objects that can be smart phones, tablets, digital cameras and sensors. When all these devices are connected to one another, they enable more and more smart services and processes that support our everyday needs, environment and health.***

Cloud based platforms help us to connecting the things around us so that we can get anything at any time and any place in a user friendly manner using built-in applications or though voice. In Today's world every person is connected to each other using lots of communication way, where most popular communication way is internet so in another word we can say internet which connect peoples can connect things too.

The existing system does not require a dedicated server PC with respect to same systems and offers a books communication protocol to scan and control the home environment with more than just the switching functionality. That why this system has been successfully designed and implemented in real time.

Keywords: Home Automation, NodeMcu,8-channel Relay, Arduino

I. INTRODUCTION

The Internet of things can be defined as connecting the various types of device like smart phones, personal computer and Tablets to internet, which brings in very modern type of communication between devices and people and also between object. With the introduction of IoTs, the research and development of home automation are become more popular in the recent days. Many of the devices are control and monitor for helping the human being.

It is contain the design process of the project, starting with brainstorming we had to get the final product idea and finishing with the prototyping within similar environment. The main problem was to design and implement a project into a same home environment. The report will describe what kind of design process, hardware and software have been used to build up the demo for that product design that we had chosen as our final goal. Most advanced home automation systems of today's require a big and expensive change in a current infrastructure.

This means that it is often not feasible to install and much more expensive system in an existing building. It is an wireless home automation system that is supposed to be implemented in existing home environments, without any changes in the same infrastructure. The advance home automation system let the user to control his home appliances from her Mobile App or through voice command.

Where as wireless technologies help in connecting from remote places to improve the intelligence of home environment. An advance network of IoT is being formed when a human being is in need of connect with other things. IoTs technology is used to come in with innovative idea and high growth for smart homes to improve the living standards of life. Internet helps us to bring in with instant solution for many problems and also able to connect from any of the remote places which contributes to overall cost reduction and less energy consumption.

II. EXISTING SYSTEM

In the existing system, home appliances are controlled through Bluetooth, Zigbee and other devices. But they are limited to certain area. To overcome this problem, we are moving to the proposed system.

III. PROPOSED SYSTEM

In the proposed system we are control home appliances using mobile app and by Google assistance in mobile. We can give command to the Google assistance according to that command's loads will turn on or turn off. The user can have access to operate the loads from anywhere in the world.

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IV. METHODS AND MATERIAL

Block Diagram

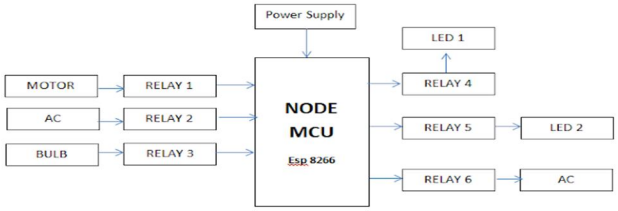


Figure 1: block diagram of the system

V. HARDWARE REQUIREMENT

A. Node MCU Esp 8266

NodeMCU is a Wi-Fi system on a chip and it is produced by Espressif Systems. It is based ESP8266 -12E Wi-Fi module. It is an highly unsegregated chip designed to provide full internet connectivity in a small package. ESP8266 is a low-cost, Wi-Fi Module chip that can be frame to connect to the Internet for Internet of Things(IoT) and similar Technology Projects.

It can be program by USB port using LUA programming or Arduino IDE. By simple programming we can form an Wi-Fi connection and define input/output pins according to your needs exactly like Arduino, turning into a web server and a lot more.

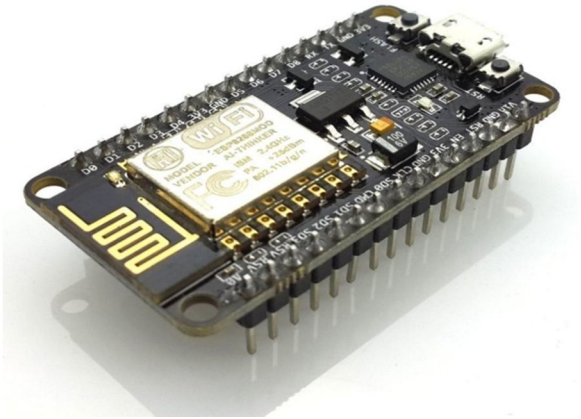


Figure 2: Node MCU

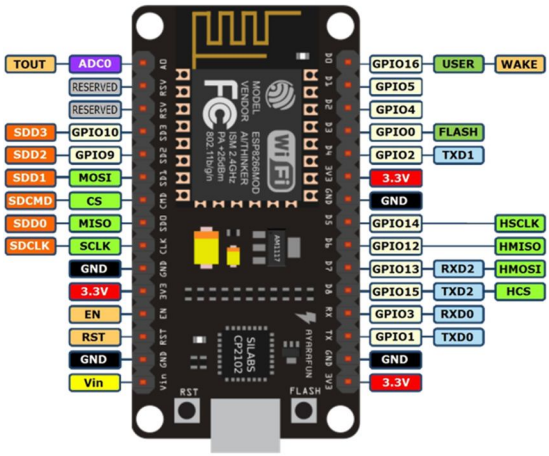
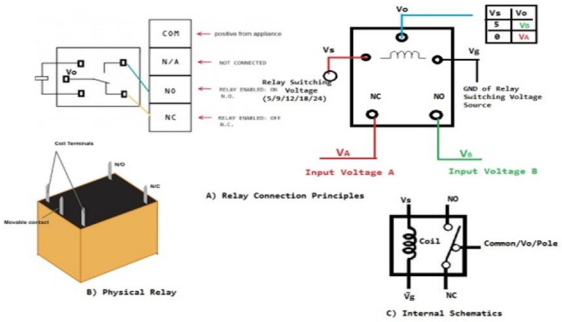


Figure3: Pin layout of Node Mcu used in System

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B. Relay

Relay is electromagnetic switch that open or close the switches electrically or electromechanically. Relay is mostly used to switch smaller circuits.



VI. SOFTWARE COMPONENTS

A. Arduino

Arduino is an open-source electronics platform it is easy-to-use hardware and software component. Arduino board enable us to read inputs - light on a sensor, a finger on a button, or a Twitter message - and turn it into an output - start a motor, turning on an LED, publishing something online. We can tell your board what to do by sending a set of command to the microcontroller on the board. To do so we can use the Arduino programming language and the Arduino Software (IDE), based on Process.

VII. WORKING PRINCIPLE

We are using Node Mcu to control the appliances in the home through wireless Communication. The Appliances in the Home are controlled through Google assistance or Mobile App through the Wi-Fi Connectivity.

ON/OFF instructions are given through Wi-Fi present in the user Mobile, the Data Transfers from mobile phone to Module and then instruction is further given to the Controller and thus the loads are Operated.

VIII. RESULTS AND DISCUSSION

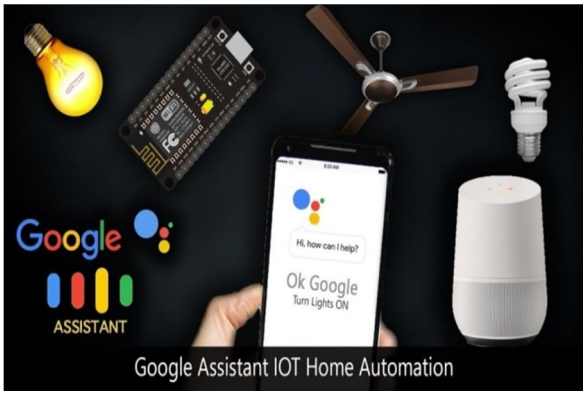
A. Applications

1) Used in homes,
2) offices,
3) industrial areas etc.,

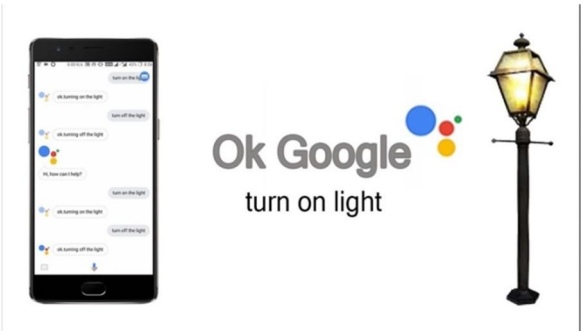
B. Advantages

1) Smart and secure.
2) Controlling home appliances from anywhere in the world.

C. Result



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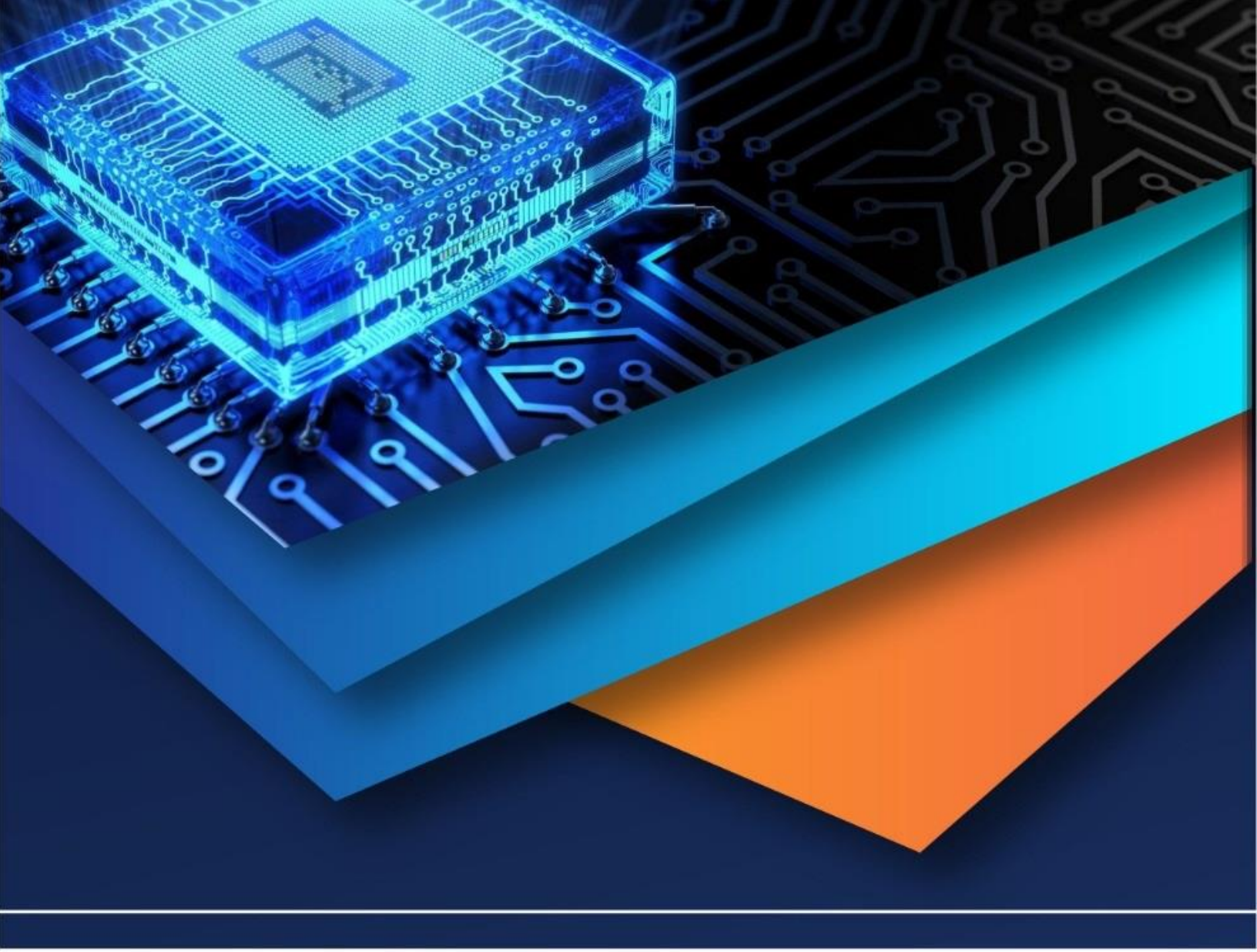
IX CONCLUSION

IOT based smart home system will bring more convenience and comfort to people lives. The android based smart home application communicates with the Node Mcu via an internet. Any android user can be used to install the smart home application. Using android application user can control and monitor the smart home environment. These home automation systems are mandatory because sometimes human can forgot to switch off the appliances when there is no need to use and in this situation, the home automation system is used to reduce the wastage of electricity

REFERENCE

[1] N. Sriskanthan and Tan Karand, "Bluetooth Based Home Automation System".An Journal of Microprocessors and Microsystems, Vol. 26, pp.281-289, 2002.
[2] A. Z. Alkar and U. Buhur, "An internet based wireless home automation system for multifunctional devices", IEEE Transactions on Consumer Electronics, vol. 51, pp. 1169-1174, 2005.
[3] Muhammad Izhar Ramli, Mohd Helmy Abd Wahab, Nabihah, "TOWARDS SMART HOME: CONTROL ELECTRICAL DEVICES ONLINE", Nornabihah Ahmad International Conference on Science and Technology: Application in Industry and Education (2006).
[4] E. Yavuz, B. Hasan, I. Serkan and K. Duygu. "Safe and Secure PIC Based Remote Control Application for Intelligent Home". International Journal of Computer Science and Network Security, Vol. 7, No. 5, May 2007.
[5] R. Shahriyar, E. Hoque, S. Sohan, I. Naim, M. M. Akbar, and M. K. Khan, "Remote controlling of home appliances using mobile telephony", International Journal of Smart Home, vol. 2, pp. 37-54, 2008.
[6] Jitendra Rajendra Rana and Sunil N.Pawar, Zigbee Based Home Automation (April 10, 2010).
[7] R. Piyare and M. Tazil,"Bluetooth based home automation system using cell phone", in Consumer Electronics (ISCE), 2011 IEEE 15th International Symposium on, 2011, pp. 192-195.

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