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INTUIT 2019 - Innovation Manifested – Unveiling the Theme Based Projects

MINI PROJECT REPORT ON

SUBMITTED BY

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4th Semester 2019

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CERTIFICATE

This is to certify that the miniproject work entitled **"HOME AUTOMATION"** has been successfully completed by **LAVANYA M.** of 4th semester, **M. MAHALAKSHMI** of 4th semester, **KOUSALYA G.** of 4th semester& **M. RAAGA VAISHNAVI** of 4th semester, of department of ELECTRONICS AND COMMUNICATION during the even semester Feb 2019 to May 2019.

Mini Project Coordinator/Guide **Mini Project In-charge** **Head of the Department**

ABSTRACT

The main objective of this project is to develop a home automation system using an nodeMCU board with wifi, being remotely controlled by any android OS smart phone. As technology is advancing so houses are also getting smarter. Modern houses are gradually shifting from conventional switches to centralized controlled system, involving remote controlled switches. Presently, conventional wall switches located in different parts of the house makes it difficult for the user to go near them to operate. Even more it becomes more difficult for the elderly or differently abled people to do so. Remote controlled home automation system provides a most modern solution with smart phones.

In order to achieve this, a wifi module is interfaced to nodeMCU board at the receiver end while on the transmitter end, a BLYNK application on the cell phone send ON/OFF commands to the receiver where loads are connected. BY touching the specified location on the BLYNK, the loads can be turned ON/OFF remotely through this technology.

INTRODUCTION

Nowadays, we have remote controls for our television sets and other electronic systems, which have made our lives real easy. Have you ever wondered about home automation which would give the facility of controlling tube lights, fans and other electrical appliances at home using a remote control? Off course yes! But , are the available options cost-effective? If the answer is no, we have found a solution to it. We have come up with a new system called arduino based home automation using Bluetooth this system is super cost-effective and can give the user, the ability to control any electronic device without even spending for a remote control. This project helps the user to control all the electronic devices using his smart phone.

Time is a very valuable thing. Everybody wants to save time as much as they can. New technologies are being introduced to save our time. To save people's time we are making home automation system using wifi module and nodeMCU. With the help of this system you can control your home appliances from your mobile phone. You can turn on/off your home appliances within the range of the wifi.

LITERATURE SURVEY

1 Teymourzadeh, Rozita, et al. "Smart GSM Based Home Automation System." *Systems, Process & Control (ICSPC), 2013 IEEE Conference on*. IEEE, 2013.

2 Singh, Navab, et al. "Remotely controlled home automation system." *Advances in Engineering and Technology Research (ICAETR), 2014 International Conference on*. IEEE, 2014.

3 PavithraD,IoT based Monitoring and Control System for Home Automation,Proceedings of 2015 Global Conference on Communication Technologies(GCCT 2015)

4 Wenbo, Yan, Wang Quanyu, and GaoZhenwei. "Smart home implementation based on Internet and WiFi technology." *Control Conference (CCC), 2015 34th Chinese*. IEEE, 2015.

5 Gurek, Alper, et al. "An android based home automation system." *High Capacity Optical Networks and Enabling Technologies (HONET-CNS), 2013 10th International Conference on*. IEEE, 2013.

6 Bhide, VishwajeetHari, and SanjeevWagh. "i-learning IoT: An intelligent self-learning system for home automation using IoT." *Communications and Signal Processing (ICCSP), 2015 International Conference on*. IEEE, 2015.

7 Gamba, Mattia, Alessandro Gonella, and Claudio E. Palazzi. "Design issues and solutions in a modern home automation system." *Computing, Networking and Communications (ICNC), 2015 International Conference on*. IEEE, 2015.

9. Gubbi, Jayavardhana, et al. "Internet of Things (IoT): A vision, architectural elements, and future directions." *Future Generation Computer Systems* 29.7 (2013): 1645-1660.

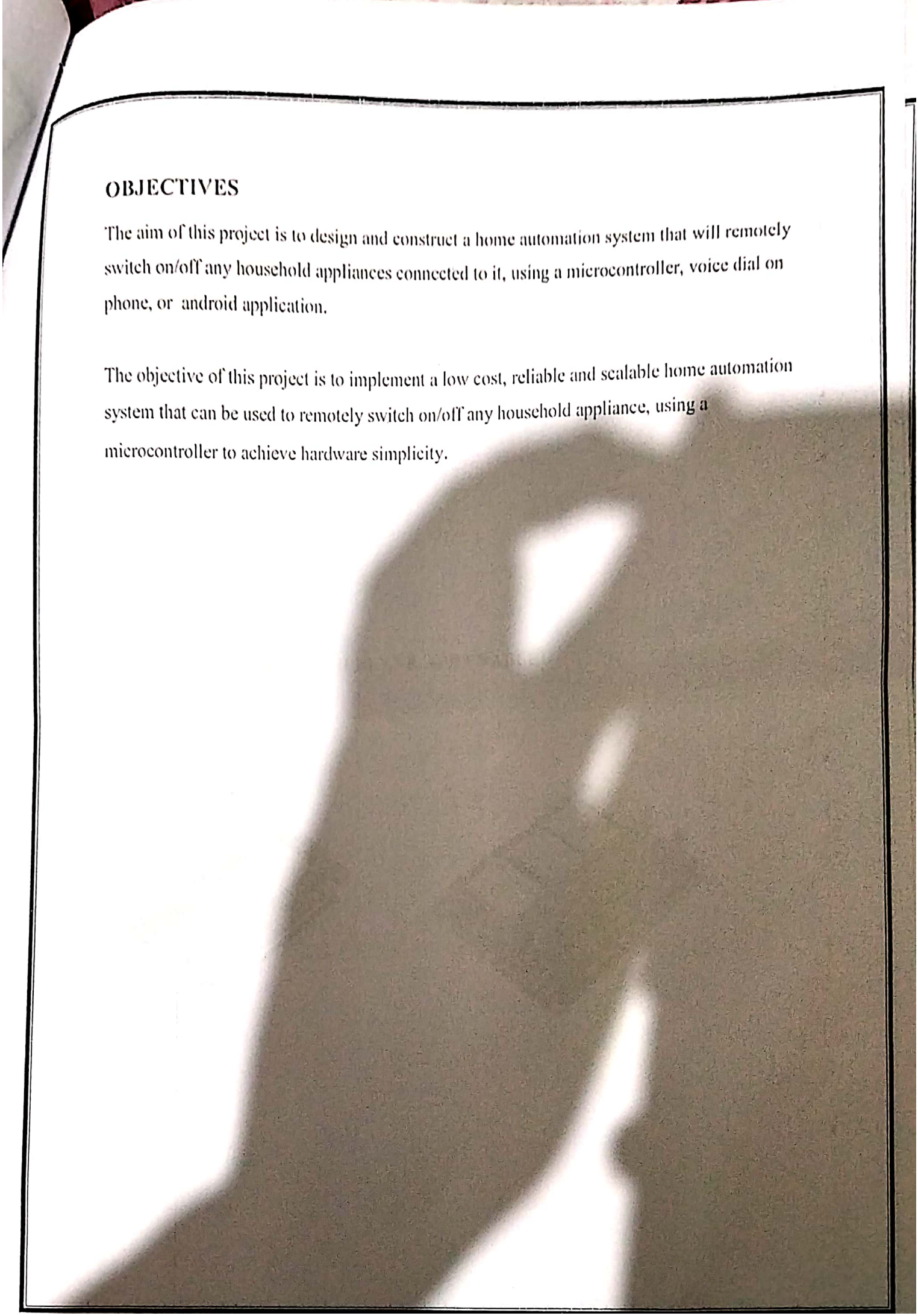
10. Karimi, Kaivan, and Gary Atkinson. "What the Internet of Things (IoT) needs to become a reality." *White Paper, FreeScale and ARM* (2013).

11. Stankovic, John. "Research directions for the internet of things." *Internet of Things Journal, IEEE* 1.1 (2014): 3-9.F

OBJECTIVES

The aim of this project is to design and construct a home automation system that will remotely switch on/off any household appliances connected to it, using a microcontroller, voice dial on phone, or android application.

The objective of this project is to implement a low cost, reliable and scalable home automation system that can be used to remotely switch on/off any household appliance, using a microcontroller to achieve hardware simplicity.



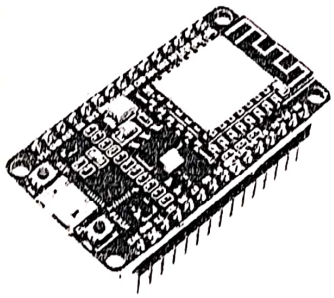
METHODOLOGY

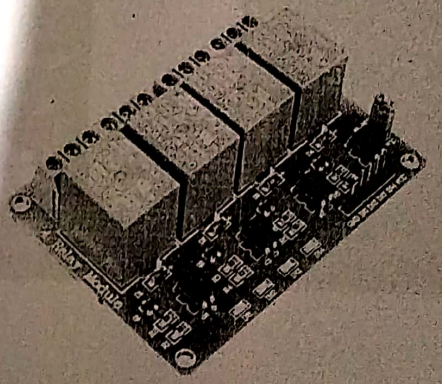
SOFTWARE DESCRIPTION

- ARDUINO IDE
- ANDROID SMARTPHONE WITH BLYNK APP

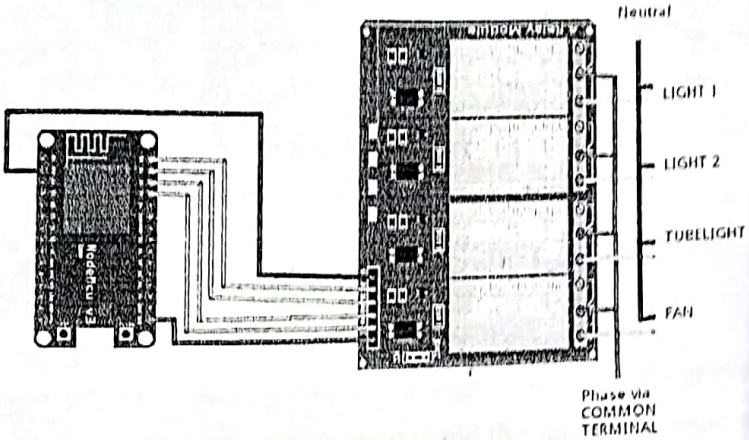
HARDWARE DESCRIPTION

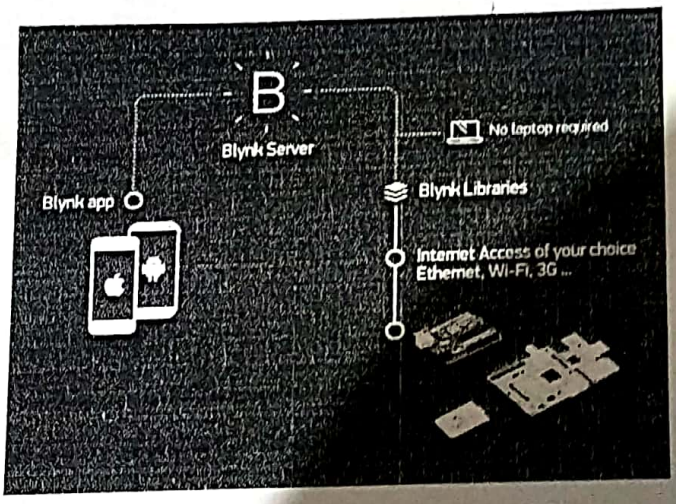
- ARDUINO UNO
- 5 V RELAY * 4
- CONNECTING WIRES
- LED's
- BREAD BOARD
- 9 V POWER SUPPLY
- SMART PHONE WITH BLYNK APP ENABLED

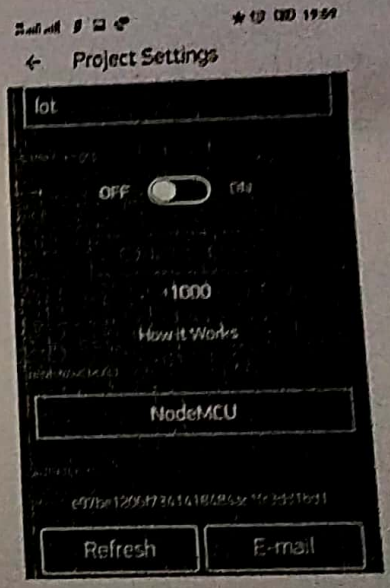




DESIGN AND IMPLEMENTATION







Connect D0 pin of NodeMCU to D1 pin of 4- Chan NodeMCU to 4- Channel Relay Board

- Connect D1 pin of NodeMCU to D2 pin of 4- Channel Relay board.
- Connect D2 pin of NodeMCU to D3 pin of 4- Channel Relay board.
- Connect D3 pin of NodeMCU to D4 pin of 4- Channel Relay board.
- Connect 3.3V of NodeMCU to Vcc pin of 4- Channel Relay board.
- Connect GND pin of NodeMCU to GNDpin of 4- Channel Relay board.

OUTCOMES AND RESULTS

The home automation system has been experimentally proven to work satisfactorily by connecting sample appliances to it and the appliances were successfully controlled from a wireless mobile device.

Thus a low-cost home automation system was successfully designed, implemented and tested.

CONCLUSIONS& FUTURE SCOPE

- Using this project, we can turn on/off appliances remotely that is using a phone or tablet
- The project can be further expanded by including some sensors like light sensors, temperature sensors, safety sensors etc. and automatically adjust different parameters like room lighting, air conditioning (room temperature), door locks, etc. and transmit the information to our phone.
- Additionally, we can connect to internet and control the home from remote location over internet and also monitor the safety.

- Arduino based device control using Bluetooth on smartphone project can be enhanced to control the speed of the fan or volume of the buzzer etc.
- Home automation and device controlling can be done using Internet of Things (IoT) technology.
- We can replace wifi by GSM module so that we can achieve device controlling sending SMS using GSM module.

REFERENCES AND BIBLIOGRAPHY

https://www.instructables.com/id/Home-Automation-Using-Esp826612ENodeMcu-and-Blynk-/