# IoT Based Home Automation Using Wi-Fi

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*Abstract: - Now a day's technology becomes ever additional invasive, the look challenges in home automation area unit progressively apparent. Seamless dominant home, observation and programming by the tip user have nonetheless to enter the thought. This might be legitimate to the challenge of developing a completely freelance and protractile home system that may support devices and technologies of differing functionalities and protocols.*

*This paper describes how to control and monitor home appliances using android application over internet. There are number of commercial home automation systems available in market. However, these are designed for limited use. Therefore, home appliances can individually be controlled both from within the home and remotely. This is very helpful to physically challenged people.*

*The practical goal of this paper has been to create a virtual, but practically usable, android home automation system. The humanoid mobile is employed to send the commands to the Arduino to manage all the house appliances. And another feature is we have a tendency to could get the standing of our home appliances from our humanoid portable. The main feature of this system is to control the voltage levels of home appliance in home like speed of fan based on temperature, intensity of light based on light intensity etc. In this system we use different sensors like temperature, rain sensor and LDR for different applications.*

**Keywords***: Arduino, IoT, Android, Wi-Fi, Home Automation, Relay, DC Motor.*

## I.    INTRODUCTION

The Home Automation concept has existed for many years. The term Smart Home followed and has been used to introduce the concept of networking appliances and devices in the house. Home automation Systems represents a great research opportunity in creating new fields in engineering, and Computing. System includes centralized control of lighting, appliances, security locks of gates and doors and other systems, to provide improved comfort, energy efficiency and security system. This system is becoming popular nowadays and enters quickly in this emerging market. However, end users, especially the disabled and elderly due to their complexity and cost, do not always accept these systems.

Due to the advancement of wireless technology, there are several different of connections are introduced such as GSM, WIFI, and Bluetooth. Each of the connection has their own unique specifications and applications. Among the four popular wireless connections that often implemented in our project, WIFI is being chosen with its suitable capability. Also, most of the current laptop/notebook or Smartphone come with built-in WIFI adapter. It will indirectly reduce the cost of this system.

Various hardware components are required in our project such as temperature sensor, relay, dc motor; all these components will be connected through ESP model. Android running OS in any phone connected to a network can access the status of the home appliances via an application. It presents the design and implementation of automation system that can monitor and control home appliances via android phone or tablet.

## II.    LITERATURE SURVEY

S. K. Khadker [1] discusses a Many Authors designed home automation systems by using different technologies. By using GSM based home automation System we need to send message/make a call to control home appliances. It has more time delay and complex system. By using Bluetooth home automation system also we can control all the home appliances. But the main disadvantage is Range[9,12]. Some authors designed home automation using Wi-Fi. But in those designs they implemented only ON/OFF functionalities. In our design we implemented ON/OFF functionality along with the voltage variations and all thehome appliances are controlled by using android applications

W. Q. YAN Wenbo, GAO Zhenwei [2], a In this paper, a prototype smart home automation using loT is

presented. This research work will be carried forward by integrating relays to Arduino board for controlling home appliances from a remote location in a real scenario.

Ayad Ghany Ismaeel- MIEEE, Mohammed Qasim Kamal [3], Design and Realization of Home Appliances Control System Based on The Android Smartphone present the information about the remote appliances control system based on the Android smart phone is designed and realized. A user logs into the smart phone interface, and clicks the buttons gently to send message commands which will be transmitted to home information Centre through the GSM network.

Pooja N. Pawar, Shruti Ramachandran, Nisha P. Singh, Varsha V. Wagh [4] Internet based Home Automation System is very convenient, easy flexible and cheap. Many devices now have Wi-fi and can connect to Smartphones or home computers. But these devices cannot communicate with each other or else need additional devices to do so. Internet based Home Automation System is very convenient, easy flexible and cheap. Many devices now have Wi-fi and can connect to Smartphones or home computers. But these devices cannot communicate with each other or else need additional devices to do so.

Y. Liu [5] proposed smart home system and the smart home app has been successfully developed and tested. Devices such as light switches, temperature sensors, gas sensors, motion detection sensors and alarms have been integrated in the system to demonstrate its feasibility and effectiveness. Features such as low cost, user authentication, voice activation, security and surveillance, and automatic control make the proposed system unique.

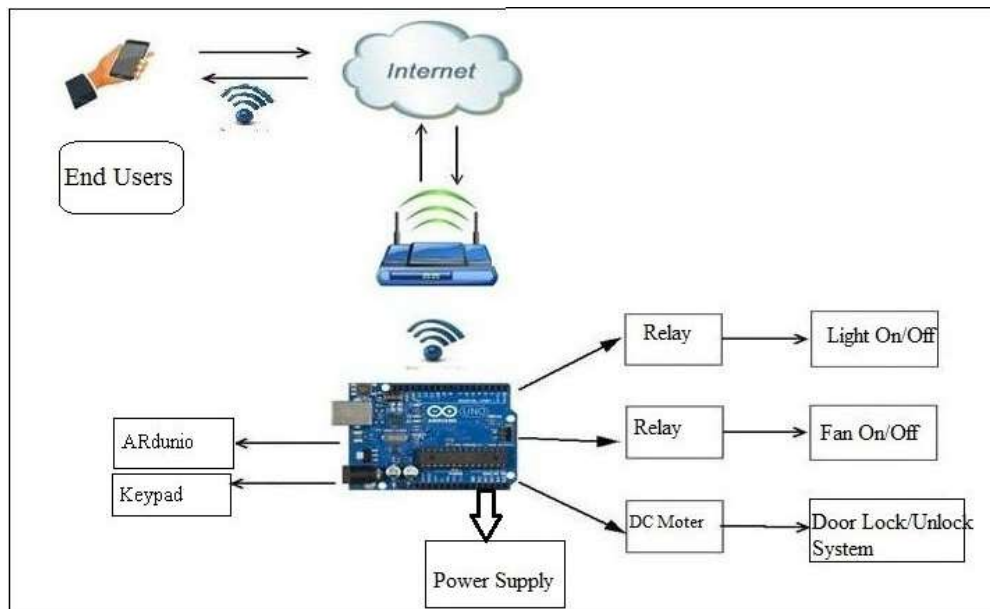### III. SYSTEM ARCHITECTURE



Fig 1: System Architecture

This application is implementing for those people who are disabled from the legs up to waist level and those who are uses the wheelchair. When the any disabled person used that app, that time the one pop-up block is automatically generate on the screen and show the status of the door. At the same time, a small bulb attach to the door will switch ON and the door is open.

The disabled user can easily use the Graphic User Interface (GUI) application that has been created in the Android Smartphone by Door lock control system to lock or unlock door and light, fan ON/OFF system through Bluetooth

Proto-col.

## IV. CONCLUSION

From the end user's point of view, Internet is a means of Communication which is easily available and affordable. Android Phones and Android applications are already a part of human life. Thus, a combination of these technologies will make life more simple and easy to live. The potential of the system can be improved to a greater extent by combining technologies such as cloud computing, big data, robotics etc. Even though these technologies are not new to the Industry, combination of these technologies with the Internet of Things (IoT) will do miracles in human life.

In conclusion, this low cost system is designed to improve the standard living in home. The remote control function by smart phone provides help and assistance especially to disabled and elderly. The control board is directly installed beside the electrical switches whereby the switching connection is controlled by relay.

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