

# Automation Through Google Assistant

Koustubh Sanjay Masavekar

B.E. (Final Year),

E&TC Department, KIT's College of Engineering,  
Kolhapur, Maharashtra, India

Viraj Chandrakant Patil

B.E. (Final Year),

E&TC Department, KIT's College of Engineering,  
Kolhapur, Maharashtra, India

Shriganeshraj Kumar Togare

B.E. (Final Year),

E&TC Department, KIT's College of Engineering,  
Kolhapur, Maharashtra, India

Prof. Nitin B Sambre

Associate Professor,

E&TC Department, KIT's College of Engineering,  
Kolhapur, Maharashtra, India

**Abstract:-** This project presents the overall design of Home Automation System with help of Google Assistant providing low cost and wireless system. This system is designed to assist and provides support in order to fulfill the needs of elderly and disabled in home. Also, the smart home concept in the system improves the standard living at home. The voice mode is used to control the home appliances. The feedback is received in the android application. The main control system implements wireless technology to provide remote access from smart phone. The design remains the existing electrical switches and provides more safety control on the switches with low voltage method. The switches status is synchronized in all the control system whereby every user interface indicates the real time existing switches status. The system intended to control electrical appliances and devices in house with relatively low cost design, user-friendly interface and ease of installation.

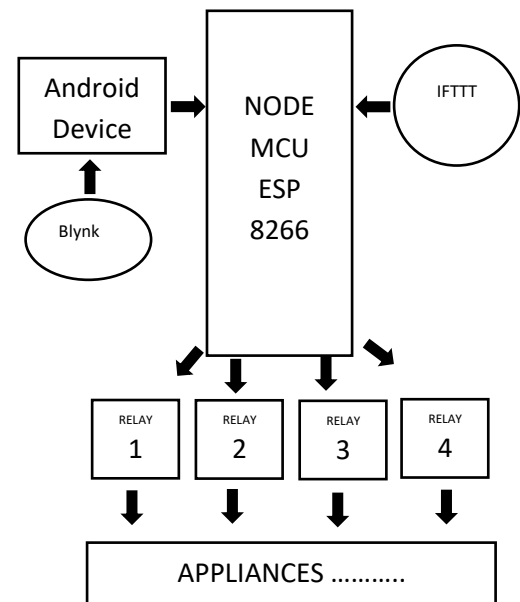
## INTRODUCTION

The "Home Automation" concept has existed for many years. The terms "Smart Home", "Intelligent Home" followed and has been used to introduce the concept of networking appliances and devices in the house. Home automation Systems (HASs) represents a great research opportunity in creating new fields in engineering, and Computing. HASs includes centralized control of lighting, appliances, security locks of gates and doors and other systems, to provide improved comfort, energy efficiency and security system. HASs becoming popular nowadays and enter 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 HAS project, WIFI is being chosen with its suitable capability. The capabilities of WIFI are more than enough to be implemented in the design. Also, most of the current laptop/notebook or Smartphone come with built-in WIFI adapter. It will indirectly reduce the cost of this system. This project forwards the design of home automation and security system using Arduino NODE MCU, a credit sized computer. Arduino provides the

features of a mini computer, additional with its pins where other components and devices can be connected. The home appliances are connected to the input/output ports of Arduino along with the relay and their status is passed to the Arduino. The 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.

## PROPOSED SYSTEM



### PROPOSED SYSTEM:

The android OS provides the flexibility of using the open source. The inbuilt sensors can be accessed easily. We have built an application with following features. Android Phone acts as a client and data are sent via sockets programming. Switch mode uses the radio buttons that are used to control the home appliances. The radio button sends the status of the switch. Voice Mode is used to control the home appliances using voice command. Using the inbuilt microphone of Smartphone, the application creates an intent that fetches the speech data to the Google server which responds with a string data. The string data are further analyzed and then processed. All the devices are connected to a common network. Smartphone and Arduino are connected to the common network Router is used to create a common network. Wi-Fi Adapter is used to connect Arduino to the network as it is inbuilt with node mcu microcontroller Esp8266. Arduino is used to maintain the server. The Arduino collects the data analyses it and further activates pins as necessary. The pins of Arduino are connected to the relay. Relay switch are used to connect the home appliances.

#### 1. ANDROID DEVICE:

An android device has been a common device used by most individual. The use of android device so easy just to use its google assistant feature in order to have a voice command by the applicant.

#### 2. BLYNK

It is an software hardware-agnostic IoT platform with white-label mobile apps, private clouds, device management, data analytics, and machine learning.

#### 3. ARDUINO

Arduino is an open-source platform used for building electronics projects. Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board. The Arduino platform has become quite popular with people just starting out with electronics, and for good reason. Unlike most previous programmable circuit boards, Finally, Arduino provides a standard form factor that breaks out the functions of the micro-controller into a more *The Arduino Integrated Development Environment* it a cross-platform application is written in functions from C and C++ It is used to write and upload programs to Arduino compatible boards. The source code for the IDE is released under the GNU General Public License, version 2. The Arduino IDE supports the languages C and C++ using special rules of code structuring. The Arduino IDE supplies a software library from the Wiring project, which provides many common input and output procedures. User-written code only requires two basic functions, for starting the sketch and the main program loop, that are compiled and linked with a program stub *main()* into an executable cyclic

executive program with the GNU toolchain. In our case we have used node mcu esp8266 which has an inbuilt wifi module ,so we don't have to have an external wifi module.

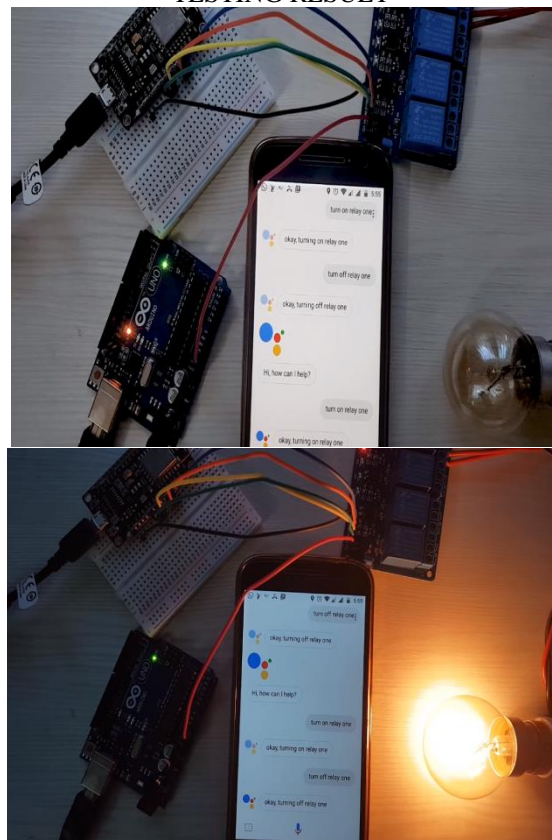
#### 4. IFTTT

It is a freeware web-based service that creates chains of simple conditional statements. It makes a channel between google assistant and microcontroller. It also give us a variety of flexibility in voice speech commanding

#### 5. RELAY

Relay is basically a switch which is operated by an electromagnet .the electromagnet require a small voltage to get activated which we will give from the arduino and once it is activated ,it will pull the contact to make the high voltage circuit. It can be controlled with low voltage, like the five volt provided by the arduino pins. SINGLE CHANNEL RELAY MODULE - 5V Single channel 5V relay module can be used in interactive combination of AC-DC projects, such as smart home and etc. This module uses a SINGLE 5v high-quality relay. It can also be used to control lighting, electrical and other equipment. The modular design makes it easy to expand with the Arduino board (not included). It can be controlled through digital IO port, such as solenoid valves, lamps, motors, and other high current or high voltage devices.

### TESTING RESULT



### CONCLUSION

As technology is making growth, demanding in ease of appliances has increased as the demands for a advanced and ease systems with help of our smartphone so we made a

system or lets say a project which can utilize smartphone as a key to turn on and off and further more to access some important features by a smartphone itself that's why we call it as a virtual assistant.

Further advancement can be done in order to improve the system as well as addition of devices command flexibility can be also implemented as per requirement.

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