

A Voice Based Switch To Connect And Disconnect Electrical Devices At Home By Using Internet

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ABSTRACT_To create a great flexibility to the physically challenged and long distance people to control the home appliances by using NodeMCU & MQTT protocol. Here the voice commands will be transmitted over the MQTT protocol and will be stored in the ada fruit server.

1.INTRODUCTION_Internet of Things(IoT) is the network of physical, devices accessed through the Internet. These objects contain embedded technology to interact with internal states or the external environment. When these objects sense and communicate, it changes how and where decisions are made, and who makes them. It is a modern wireless communication technology having its application areas in various diversified domain areas. The basic idea of this concept is the pervasive presence around us of a variety of things or objects – such as Radio-Frequency Identification (RFID) tags, sensors, actuators, mobile phones, etc. – which, through unique addressing schemes, are able to interact with each other and cooperate with their neighbors to reach common goals. It refers to the ever-growing network of physical objects that have an IP address associated with it for internet connectivity and addressing, and the communication that occurs between these objects and other Internet-enabled devices and systems that enables in some decision making process for applications in health care monitoring, assembly line scheduling, etc.. In other language we can say that IoT is a system of various interrelated computing devices, digital systems, machines, sensors, objects, animal or people that have a unique identifier associated with them, and the ability to transfer data over a network without the need of human-to-computer or humanto-human interaction. IoT is a technology that has evolved with convergence of various technologies like wireless communication, MEMS (micro-electromechanical systems), Wireless Sensor Network, Mobile Communication etc.. This convergence has proved to be vital as it has led to bringing operational technology (OT) and information technology (IT) on a common platform, which in turn allows unstructured machine-generated data to be further analyzed for initiating further improvements in decision making process in automation. Operational technology (OT) is combination of hardware and software that detects or causes a change through the direct monitoring and/or control of physical devices, processes and events in the enterprise. It comprises the devices,

sensors and software necessary to control and monitor plant and equipment etc. Information Technology (IT), on the other hand, combines all necessary technologies for information processing. Information Technology is the application of computers to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise. IT is considered a subset of information and communications technology (ICT). In conventional approaches we have computers and Internet being dependent on human beings for information. Nearly majority of data available across the globe on Internet were first captured, generated by humans either by typing, or applying an external trigger event, or by other various modes of creating data. The issues associated with it are that people have limited time, are bound to commit errors while generating data i.e. capturing data will have accuracy issues. With the recent advances in technologies Internet is becoming more widely available, The cost of connecting is decreasing, more devices are being created with Wi-Fi capabilities and sensors built into them, technology costs are going down, and smart-phone penetration is sky-rocketing. This factors have made possibilities for IoT based applications reach new heights whereby creating wider scope for further advances. With this there has been a wide scope of increase in applications of IoT ranging from healthcare, telecom, oil field maintenance, transportation etc.. There are basically few key focus areas that one has to consider while deciding upon IoT based applications. Smart Switch (SS), which is a device capable of connecting or disconnecting any device remotely Power that is connected to the outlet at home making use of internet. In this case, the SS acts as intermediary between electricity and the appliance. Furthermore, the proposed device can be controlled even without the use of internet, that is, if users do not have Internet can control the SS a locally within the building, using the local IP SS and using a computer, smart phone or tablet with access to the local network. The objective of this paper is to provide insight into IoT and aid them in understanding what IoT is all about, what trends are there in current scenario, what still needs to be addressed and what scope does this technology hold in future. The paper is organized as follows: IoT, hardware components of Smart Switch, LC2148 microprocessor, interfacing of LCD Software components of SS and insight of future scope

2.BLOCK DIAGRAM

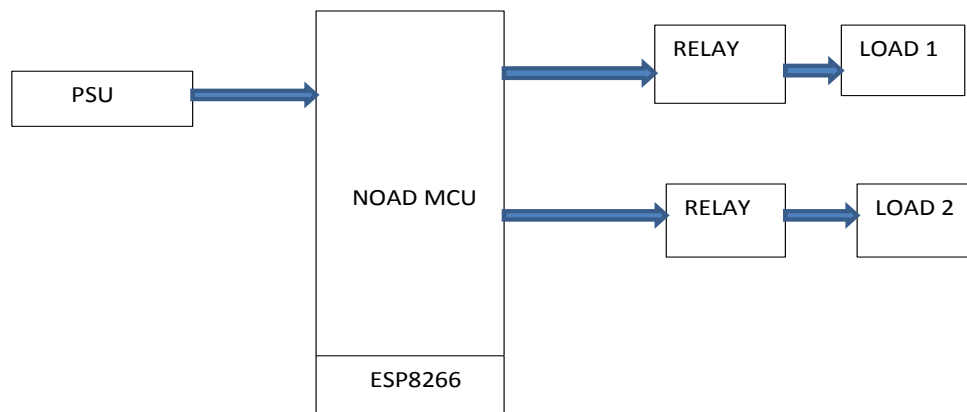


Fig 1:BLOCK DIAGRAM

Today users of electricity to residential, have no way of knowing how much electric power consumed by each of their devices electrical connected to the network by the mere fact of being connected, even when not operating, making it difficult they can have control of energy consumption from their homes. Furthermore, most users spend too time away from home for its various activities, and nor has so connecting or disconnecting their devices electrical remotely during optimum periods of time, depending on the various applications of each apparatus electric. There have been cases in which the user forgets network disconnect any electrical device high power consumption, which is undesirable and even dangerous; and only return home until it disconnects adverse consequences. Or it may be the case that the user you are not sure you have disconnected any appliance you should not stay connected, and usually must return home immediately with the respective loss weather.

There are other devices on the market for home automation, such as starters automatic water pumps, air control conditioning, security systems, systems lighting, etc. However, most of these systems automation require complex devices are expensive, bulky and require facilities and operators specialized. However, with the proposed system you can control any appliance wiring by via a wireless device.

By controlling wired devices using the wireless devices have achieved greater flexibility and extensibility, since its operation is easier, it can be applied to any electrical appliance at home and you will not need specialized staff for operation and installation. Currently, home automation is an area of opportunity that has attracted the attention of both the sector industry and the research. Lately, there has been He has been working in applications where various devices electrical communication with each other via the Internet. Examples of network devices connected to the Internet are TV, alarm clock, refrigerators, radios, etc.

2.1 NODE MCU:

Node MCU is an open-source firmware and development kit that helps you to prototype or build IoT product. It includes firmware which runs on the

ESP8266 Wi-Fi SoC from Expressif Systems, and hardware which is based on the ESP-12 module. The firmware uses the Lua scripting language. It is based on the eLua project, and built on the Espressif Non-OS SDK for ESP8266.

However, as a chip, the ESP8266 is also hard to access and use. You have to solder wires, with the appropriate analog voltage, to its PINs for the simplest tasks such as powering it on or sending a keystroke to the “computer” on the chip. And, you have to program it in low-level machine instructions that can be interpreted by the chip hardware. While this level of integration is not a problem when the ESP8266 is used as an embedded controller chip in mass-produced electronics, it is a huge burden for hobbyists, hackers, or students who want to experiment with it in their own IoT projects.

Fig 2:NODE MCU

2.2 WIFI-MODULE(ESP8266):

The ESP8266 WiFi Module is a self contained SOC with integrated TCP/IP protocol stack that can give any microcontroller access to your WiFi network. The ESP8266 is capable of either hosting an application or offloading all Wi-Fi networking functions from another application processor. Each ESP8266 module comes pre-programmed with an AT command set firmware, meaning, you can simply hook this up to your Arduino device and get about as much WiFi-ability as a WiFi Shield offers (and that’s just out of the box)! The ESP8266 module is an extremely cost effective board with a huge, and ever growing, community.

This module has a powerful enough on-board processing and storage capability that allows it to be integrated with the sensors and other application specific devices through its GPIOs with minimal development up-front and minimal loading during runtime. Its high degree of on-chip integration allows for minimal external circuitry, including the front-end module, is designed to occupy minimal PCB area. The ESP8266 supports APSD for VoIP applications and Bluetooth co-existence interfaces; it contains a self-calibrated RF allowing it to work under all operating conditions, and requires no external RF parts

3.RESULTS & DISCUSSIONS

**Fig 3:**

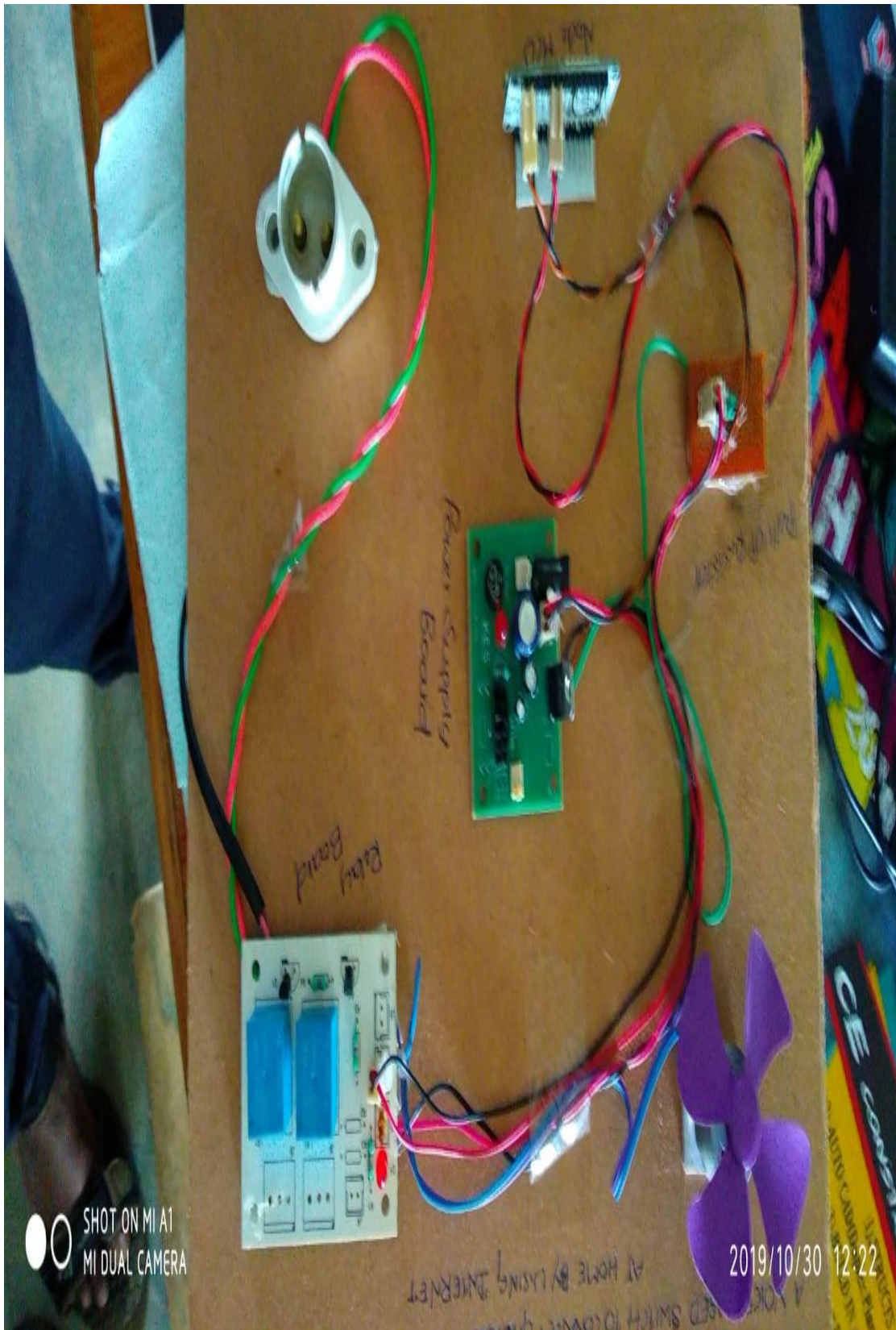


Fig 4:

Fig 5:



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Fig.6.1 When Devices ON

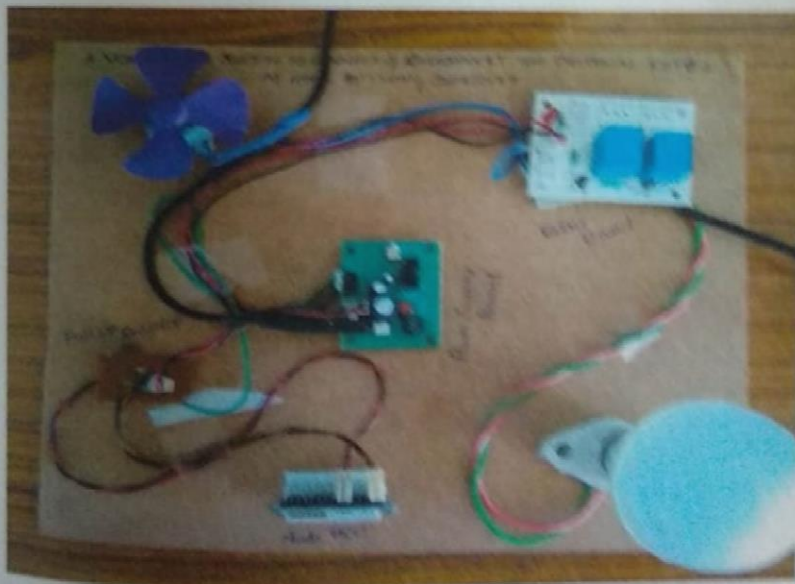


Fig.6.2 When Devices are OFF

SHOT ON MI A1
MI DUAL CAMERA



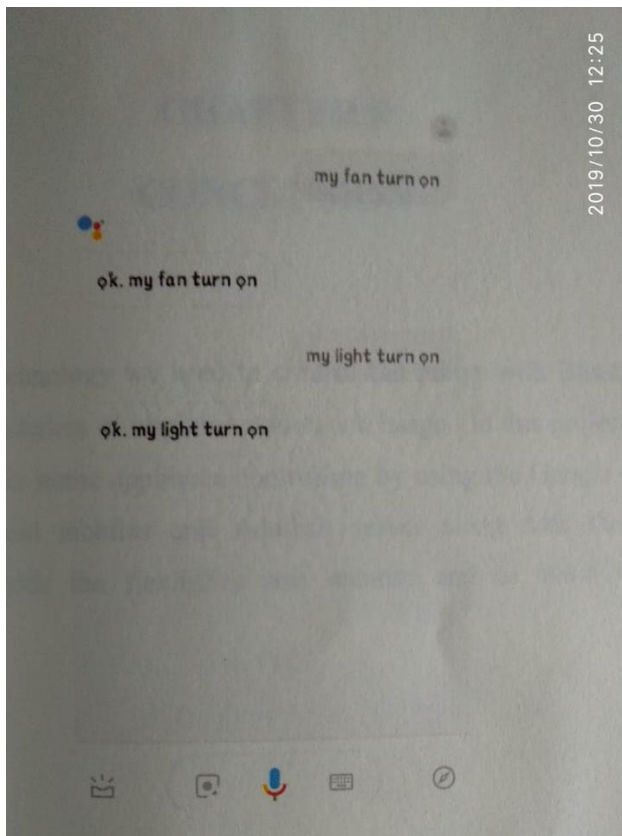


Fig 6:

4.CONCLUSION

In the previous technology we used to control the relays with Bluetooth & GSM. This will be little complete interim of implementation and usage. In this project, we are proposing a new way of approach for home appliance controlling by using the Google assistance which is present in all the android mobiles and Adafruit server along with the MQTT protocol. Advantages are to provide the flexibility and security and to avoid the unused power consumption.

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