

A Smart Switch Control System Using Internet of Things

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ABSTRACT

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As the days are passing, our world is moving towards more technological advancements and soon will become technological oriented. To come up with the upcoming modern and advanced technologies certain small yet basics steps should be taken by one self. In this paper we've presented an Android application and a unit made up of a ESP8266 Wi-Fi module, relay, logic level converter module, capacitive touch sensor module, the Android application is used to control switches using the Wi-Fi technology.

Keywords : Smart switch, IOT, Wi-Fi technology, Android application

I. INTRODUCTION

In this modern era, we all are dominated by the technology and in this, IOT plays an vital role . The augmentation of the IOT has created new evolution of everything which is connected to the internet . Due to the growth in wireless technology, there are some different of connections are introduced such as GSM, WIFI, ZIGBEE, and Bluetooth. Smart switch systems over the time tried to provide efficient, convenient, suitable and safe way for home resident to access their homes. Changing a conception of security in modern homes has an impact on the advancement of technology.

In our project SSCS using IOT, a smart switch has been created which can be operated by two techniques. Nowadays, users can access and control their homes remotely from anywhere and at any time in the world by connecting modern homes to the

Internet which is very useful and popular. Cutback in power usage, price, and capacity of new electronics devices due to an increase in processing power of newly-designed processors.

Firstly we can switch ON/OFF in any device which we have connected through Wi-Fi. Secondly in the absence of Wi-Fi we can handle smart switch manually. IOT devices can be used to observe and control the mechanical, electrical and electronic systems used in various places. (eg., public and private, industrial, institutional or residential) in home and industrial automation system.

II. METHODOLOGY

Features of the system

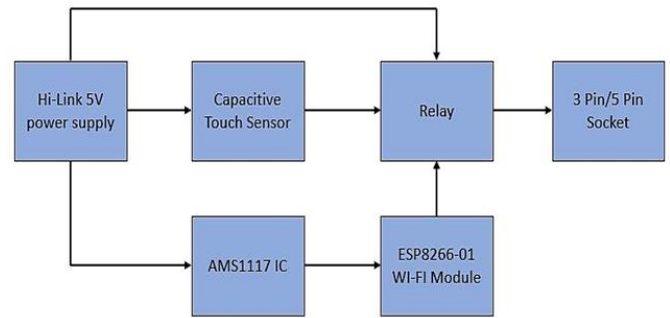
With the commencement in the twenty first century, the swift among orthodoxy analogue conventions to the improvised effortless process for the same outcomes, in order to make life easy and effortless.

With the introduction of touch sensors into the classic see-saw switches, along with elegant and immersive look the switches won't only be replacing the traditional clicking switches to touch activating, i.e. with just a single touch the switch gets toggled in ON or OFF. Along with touch activation, cell phones are now not only for communication but for to control almost of the triggering and cut short of the time/effort, spent otherwise. The ephemeral attempts have been made to ease and alter the traditional methods and understandings of the ways to trigger a switch. The current circuitry helps in easing of monitoring as well as controlling of the status of the applications. With this, any application can be toggled, ON and OFF, at point of time and from any corner of the world, provided that both are connected virtually, meeting all the requirements

Proposed system working:

The End user will be capable of toggling the switches with the help of their finger tips as the switches are made sensitive to finger touch also mobile phones can be used for the same output, instead cell phones can provide an additional ease of controlling the same over a distance or from any corner of the world with just operating it over the app. When the user intends to operate the control, an initial verification will be conducted where in the device that is being used for controlling will be checked whether or not the device is allowed to do so. Later on the current status will be identified and then will be provided the info over the app and with just one tap the status will get toggled. And the updates status of the switch will be shown on the app.

BLOCK DIAGRAM



WORKING

To operate relay and TTP223 touch sensor , 5v dc power supply is needed. So, for power supply we are using Hi-link 5v power supply who has a function of converting 230v dc to 3v dc. We're using TTP223 for controlling the device & socket for offline mode. Here in our project, we replaced traditional switches with TTP223 touch sensor to give it a modern look according to today's demand. For controlling device or socket, we soldered config. terminal B of TTP223. By doing this we allow the sensor to start it's work.

When we touch the sensor, it sends signal to the relay module to turn on the device and the Similar process will take place when we touch the touch sensor again. For controlling the device or socket in online mode, we are using ESP8266-01 WI-FI module. ESP866-01 is controlled by the application which is made by us only. The operating voltage of ESP8266-01 is 3.3V. So, for the conversion of voltage AMS1117 H (voltage regulator) is needed which converts 5v dc to 3.3v dc. In our project we used some hardware and software tools are

(a)Hardware tools

- ESP8266-01 Wi-Fi module
- Hi-Link 5v power supply
- Relay(5v)
- AMS1117 IC
- Capacitive Touch Sensor Module (TTP223)
- Normal Switch

- Connecting Wires

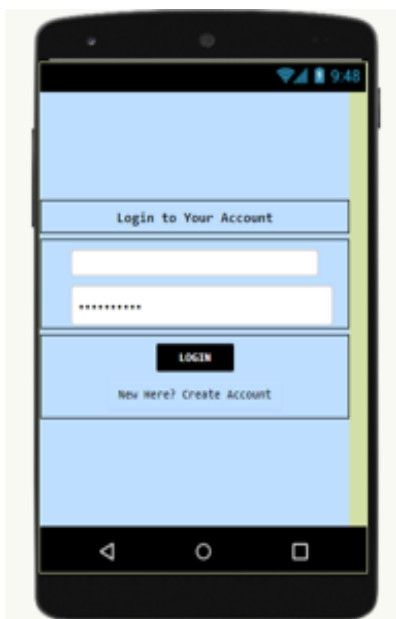
(b) Software tools

MIT App Inventor

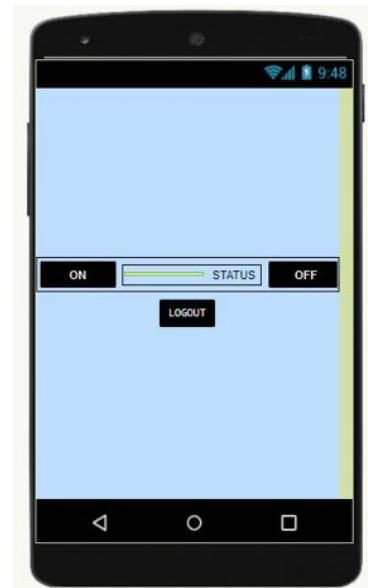
1. Signup Page



2. Login Page



3. Switch (ON/OFF)



III. RESULT AND DISCUSSION

The preparative results that we further extension and upgradation. This paper was managing to successfully develop a Wi-Fi-Based Automation System for Smart Home and industrial automation Using smart switch (Android smart phone).

Firstly, we have to connect Android phone with a nearby Wi-Fi module. Then open a application in our mobile and fill a username and password before connecting to the device. The username and password can be found in commend prompt. And, now we can control all the electrical appliances and able to monitor the motion, temperature and humidity of the house.

After the successful connection to the server, the sensor data are sent to the web server for monitoring of the system. The web server will allow us to observe and control the system. By entering the assigned user id and password in server page will appear. The web server gives the information about the temperature in different places of the room and motion state in the room. It also gives the status of the

various electrical appliances like light, fan and other appliances which we can control through mobile application or manual switch.

IV. CONCLUSION

In this research project our purposed is to designed and construct a cheap Wi-Fi based Automation System for Smart Home and industrial usage prototype using Arduino and smart switch (Android smart phone). The Smart switch Automation System will provide a healthy, intelligence, strong security and improve the standards of life. We are going to develop the number and variety of sensors for more safety and security in addition to provide option for the fully-automated appliances. The designed system of not only monitors the sensor data, like temperature, gas, light, motion sensors, but also detect a process according to the requirement.

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