

Test Automation Tool for Smart Switches

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Abstract— Our project Test automation tool for smart switches is concerned about software tools. Which is used to know about the specific hardware device (switches and dimmers) by using adapters i.e. build in interface. We connect our adapter to the external hardware device and make connection between external hardware and our software tool. An adapter is an intermediate interface which extracts data which is needed for developer. Once the connection got established the developer can access all information about the hardware device like serial no, port no, temperature etc. Developer can add new products like switches, dimmers and add the description about the particular products. The switches are made using sensors called capacitive touch sensors .This capacitive touch sensors functions as wheels, buttons and sliders. It supports self-capacitance and mutual measurement without any help of external hardware. Capacitive touch sensors give good sensitivity and self-calibration and increase the tuning efficiency of user. The sensors are connected to the analog charge integrator of the capacitive touch sensors using the device input output pins. Once the connection has been done the user can access all the information about particular external hardware device. When our software is connected with the an hardware device like ex: switches or dimmers It gives the count that number of times the switch was on and off and also it gives the information like to what period of time the switch was on. Our switches and dimmers are connected through a router or gateway .The switches and dimmers are reinvented with a high scope which are of having capacitive touch sensors, these switches and dimmers which gives rich user interface. Only admin can add the products and he can give the description about the products like switch id, switch type dimmer id, dimmer type, connectivity type and the description about each products. Any end user can retrieve the information of the switches and dimmers. The information would be like type of switch, switch id and end-user can also know the temperature of the room for every five minutes and where the switches and dimmers are located by using the port number. And these switches and dimmers are made with wide range of backlit icons and designs are exquisite. Our switches and dimmers are loaded with and without connectivity options like Zigbee,Zwave,WIFI,Bluetooth.so that user can operate these switches and dimmers from anywhere in the home.

Key words: Databases, User Interface, Switches, Exquisite, Adapter

I. INTRODUCTION

Test automation tool for smart switches is a software tool built in dot net. Any end user can retrieve the information about external hardware device by establishing a connection between external hardware and our software tool .this can done using an adapter build in interface. An adapter is an

intermediate interface which converts the data or information into user understandable language.

When the end user needs to know the information about particular switches and dimmers, which are located in external field. End-user should make a connection between our software tool and the external hardware switches. Once the connection has been established, He can retrieve the various information like serial number, port number, temperature of room and etc.

End-user can know about serial number of the particular switch, it gives the count that number of times the switch was on and off and also it gives the information like, to what period of time the switch was on means the duration the switch was on.

End-user can also know the information about the temperature in degrees of the hardware device we are connected to. It will allow us to retrieve the temperature about the device for every five minutes. The information about the hardware device like id, port number, address of the particular hardware device.

We have re-invented the switches and dimmers which are of having wide range of options. These switches and dimmers are based on capacitive touch sensors which provide rich user interface. Switches and dimmers are mainly incorporating connectivity with WIFI, Zigbee, and Z-wave which will provide high range of user interface.so the users can operate these products from anytime from anywhere in the home.

Only Admin can add new products, which are next generation electric switches and dimmers. By giving suitable information's like switch id, switch type, connectivity type, and description of the new products. These switches and dimmers have wide range of back lit icons so that the rooms pictures are same as the skin. And the design is Exquisite in their nature. Any end user can retrieve the information from the external hardware device the information would be like switch id, port number, temperature of room, switch type connectivity type ,serial number, sensor capability and etc.

II. SCOPE OF THE SYSTEM

- Any end-user can retrieve all the information of any switches, dimmers which are placed elsewhere, the information would be like serial number, port number, and type of switch by making a single request to hardware device.
- End-user can calibrate the switches and dimmers.
- Only Admin can add new products, which are next generation electric switches and dimmers. By giving suitable information's like switch id, switch type, connectivity type, and description of the new products.
- The switches are made with or without wide range of connectivity options like WIFI, Zigbee, Z-wave, and Bluetooth.

- Switches are re-invented with high experience which provide glass touch interface for the end-users.
- The design of the switches and dimmers is exquisite.

III. EXISTING SYSTEM

- Electric switches remained same for long years, which are used for switch on and switch off lights and other electrical items.
- Switches need manual presence for operations.
- Switches are electro mechanical which are directed manually.
- Switches are made such that switch should be pushed to on and pushed to off the switch.
- The dimming level of the switches can't be control since in existing system switches are used for on and off of the electrical items.
- Switches does not contain any particular designs, there is no custom face plates.

IV. PROPOSED SYSTEM

- Switches are reinvented by making some cosmetic changes by using capacitive touch sensors.
- Provides rich user interface with an easy touch for various electrical performance.
- Users can know information about the particular switch by connecting our software to external switches.
- Switches are made with sensors which provide users a glass feel interface touch capability.
- Switches can be controlled from anywhere in home.
- Information of the room can be known by these switches and temperature of the room can be taken for every five minutes.
- Switches are made with connectivity options like Bluetooth, WIFI, Z-wave, Zig-Bee etc.
- Switches can be monitored form anywhere by using connectivity options.
- Users can make new connectivity to other switches or they remove connectivity to connected devices.
- Switches are of wide range like toggle switches, motion switches, light sensor switches and programmable switches.

V. MODULE DESCRIPTION

A. Home Page:

In this page developer will give brief description about the company and the products. The switches and dimmers which are newly created are posted by the developer.

B. Products:

Developer will post the products which are invented by the company, mainly switches, dimmers and wheels with the images and brief description about the particular products.

C. Switches

Switches are re-invented by making some cosmetic changes which provide rich user interface. These switches are programmable, sensor control and connectivity switches. There are many kinds of switches programmable timer, toggle switches and dimmers.

1) Toggle switch:

These are the switches are touch to on and off and the status of the switch is indicated by back light. This switch can be used for fans, blubs and many electrical devices

2) Programmable Timer:

These switches are programmable in time. Switches were off when time got elapsed. These switches have audio indication when there are switching off.

3) Light Sensor Switch:

These switches purely work on ambient light which is built in light sensor. Switches were on when it is dark and switches were off when light comes. This switch contains unique algorithm and performs accurate in time.

4) Motion Sensor Switch:

These are the switches which are mainly representing motion presence. The switches were on and off according to motion and presence.

D. Dimmers:

These are the devices which are mainly used to control the brightness of the light. By using Dimmers we can change the voltage that has been applied to light, we can lower the intensity output of the light.

1) Wheel:

This dimmer are used to change the output voltage.it can be done by sliding your finger across the dimmer level. Wheel dimmers are mainly used for blubs and fans.

2) Slider:

Sliders works from 100v to 240v.these are similar to wheel but dimmer level can been seen through proportionate dimming levels.

E. Add Products:

In this screen admin will add new generation products which are invented. Admin will add suitable information about products. The information would be like switch id, switch type, connectivity type and etc.

VI. CALIBRATION PARAMETERS

Calibration is made for accuracy of the product. It is achieved using measuring with another device. Mainly calibration is user to remove the error mode in the products .By using calibration parameters we achieve correction and error correction of the products

A. Model Number:

It tells that product model number and also specifies serial number of the products. Serial number of the product indicates the model number and the category of the products. So that it's easy to find products which are missed.

B. Voltage:

Voltage tells us that how much volts of power should pass to the light. Average of 240v of power supply should pass to light. Voltage monitors the power of the light. If any incorrect voltage has supplied may damage to the switches and for electrical items.

C. Types of Switches

These switches are made of capacitive sensor technology and switches are loaded with are without connectivity options .there are variants of switches like

- Toggle switches.

- Programmable switches.
- Touch with motion sensor switches.
- A switch with push button action.
- Touch with light sensor.

D. Number of Switches

There are number of switches are made of black lit icon and all switches are loaded with are without connectivity options. These switches are mainly consist sensor technology so that these switches can be operated from anywhere in home.

VII. DIAGRAM FOR TEST AUTOMATION TOOLS

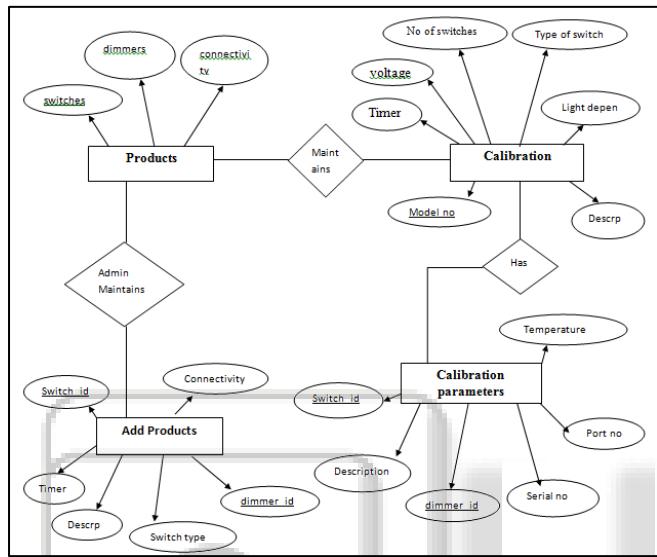


Fig. 1: Diagram for Test Automation Tools

VIII. SCREENSHOTS

A. Home Screen:

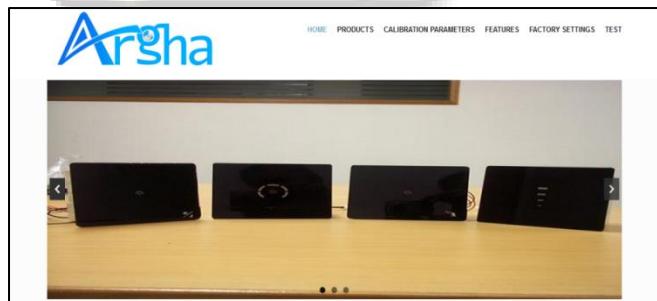


Fig. 2: Home Screen

B. Products Screen:

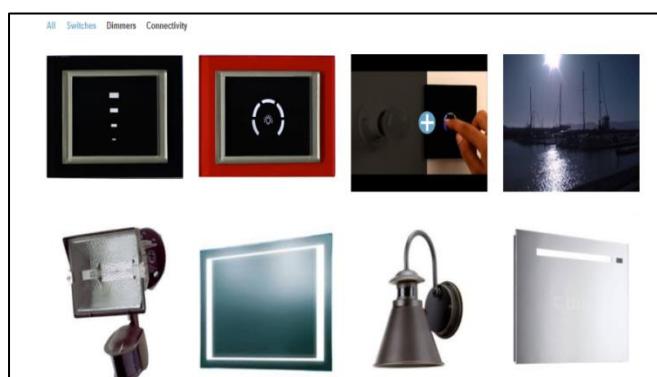


Fig. 3: Product Screen

C. Add Products:

Fig. 4: Add Products

D. Calibration Screen:

Fig. 5: Calibration Screen

IX. REQUIREMENT SPECIFICATION

A. Hardware Requirement:

- Processor: Intel Core i3.
- Processor Speed: 1.80 GHz.
- Hard Disk: 500 GB.

B. Software Requirement:

- Software: Microsoft Visual Studio.
- Language: C#
- Database: Sql
- Operating System: windows 7, windows 8.1

X. CONCLUSION

Test automation tool for smart switches is developed in Asp.net and database is SQL Server2008. The objective of the software is to show smart switches and dimmers for current generation with contain various options like connectivity with touch appearance with sensor technology. User can access the information about the switches and dimmers and also he can know the status of the room, details of the products also be known by connecting our software to it.

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