IOT Based Touch Panel for Electric Board

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Abstract—The internet has been connecting people and making life simple by providing all kinds of information with the button. The next big wave in this domain is the internet of things that will enable physical objects used in day to day life to connect to internet. That allows the user to automate all the devices and appliances of industry and integrate them to provide seamless control over every aspect of their industry. The system will give the actual status of device wheather its on or off and it allows the user to control the household devices from anywhere on status bases. We have developed a project for controlling the industrial appliances using 3 methodology:

1. GUI using RI-PI screen

2. Android application

3. Web page for any part of country

It also uses the master switch. We are using the relays to drive the appliances at AC mains supply and current transformer for live status.

Wireless Home Automation system(WHAS) using IoT is a system that uses mobile application as well as web page to control the home functions automatically through internet from anywhere around the world, an automated home is sometimes called a smart home. It is meant to save the human energy and electric power. We are using this similar technique but for the industrial purpose. So as to make the smart industry.

*Keywords—Raspberry pi, IoT-Internet of Things, Android app, Web page, GUI.*

I. INTRODUCTION

In following years, the engineering environment has project focuses on assisting the users to control as well as to know the exact status of their electrical appliances that to instant by using devices that are following wireless communication. In present days it consist of GUI that is easy to use as well as an attractive way for presenting. Therefore the interaction between new technologies (such as computers) and humans has been developing into a more sophisticated field and wide areas. Industrial automation is a system that helps a user to operate between various electrical appliances from a single input place. The device used for GUI is Ri-Pi screen as an input which is very easy to use similar to a tablet.

II. PROBLEM STATEMENT

Here we are developing a system which will give a easy access to the home appliances for physically challenged people(luxury homes) and for industrial appliances to be controlled from anywhere as well as it will prevent human interaction with the switches, that would be controlled over an android application, web page and touch screen.

III. BLOCK DIAGRAM
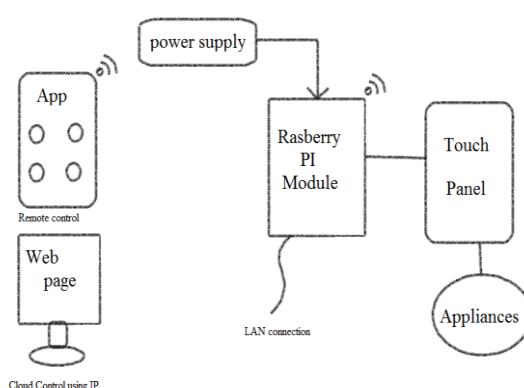
The raspberry pi 3 'model B' board consists a program memory called RAM (1GB), A processor (64 bit) and graphics chip, CPU, GPU, one Ethernet port with a inbuilt WiFi, 40 GPIO pins, Xbee socket, UART, power source connector, 4XUSB 2 ports And also various interfaces for other external devices such as mouse and keyboard.

It also require storage, for that we use an SD flash memory card. So that raspberry pi board will boot from this SD card similarly as a PC boots up into windows from its hard disk. Here we have used a rasbian OS called as JESSIE that has an ever 6 months up radiation.

Here the 4-channel Relay driver module is mounted on a PCB that makes it simple and convenient to drive loads of 12v relays from simple 5v digital outputs of your Raspberry PI board.

Here if you need just 1-2 devices to be used that to is possible just connect same to the relays and leave the remaining slots open disconnected.

IV. METHODOLOGY

Here in this system we have used 3 ways of controlling the method of each of this 3 ways is shown below.

But here the master piece is the web page controlling done newly.

We have installed a master switch that's a Fuse in each method for completely shutting ON or OFF the whole system setup. Plus all the 3 methods are sync with each other as the result of one method changes that is the status of a device from one method is changed it gets updated on all the remaining 2 methods.

Now we start the brief explanation of all methodologies.

1. Graphical user interface:

It is the Ri-Pi touch screen which is used for this GUI purpose with touch ability so the people near to the board can access it even with the finger touch. The image of the appliances are displayed over the screen using code so its easy for them to understand without reading the device name below you can also edit them.

Here also the device status column is given that shows the actual status of ON/OFF of device using the current transformer connected near the relay.

The below image shows the results for the GUI screen on the Ri-Pi screen used.

2. Android Application:

It is a closed loop system in which a user controls all type of the appliances on the site where the setup of project is installed.

The raspberry pi model B is interface with the relay board in which as user has an android app to control the system designed for his specifications.

In the app when he presses a key an input is send to the pi processor and the relay board which is interfaced with the pi it gets triggered and the current is supplied to appliance and it gets turn ON as soon as the user again presses the switches the switch gets off and the current is cut by relay board and the appliance turns OFF.

The closed loop system here is that the app gives feedback to the user that is the appliance actually turned ON or OFF. This feedback is taken after the relay board output using the current transformer. Following image shows the result of android app.
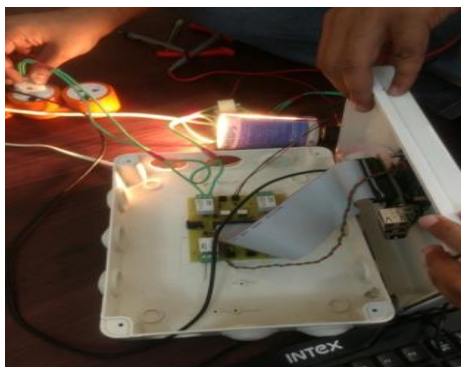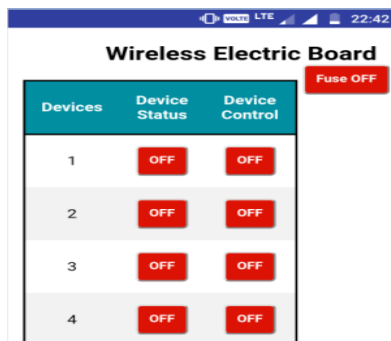
3. Web Page:

Here's the newly used system that we have developed. Next the user has an access to the appliances in his house/industry that also can be controlled by the web page designed.

Here the page is a designed using a php code which shows the live status of the appliances that is connected to this system.

The status shown at front end is only whether the devices connected is ON or OFF but at the backend all the process that is going on has all the system in hand to be controlled.

This webpage has a url that is to entered by the user for controlling appliances.

Following image shows the result of the web page used.

V.   CONCLUSION

This project proposes a secure, universally accessible, auto-configurable, android app & web page controller. The close to discussed in the paper is original and has achieved the mark to control home appliances using the Wi-Fi technology to connect system parts, satisfying user needs and requirements. Wi-Fi technology synonyms solution has proved to be home security. It is absolutely an affordable system.

The system design and architecture were discussed, and prototype presents the basic level of home appliance control and remote monitoring has been implemented.

VI.   XPECTED RESULT

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