

POWER DISTRIBUTION CONTROL SYSTEM FOR NETWORK PLANNING DIVISION

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ABSTRACT

This paper describes a solution for the power saving solution for a busy office using a system which enables the users to control main power switches remotely. Most users in a busy working environment forget to switch off power at their workstation. To avoid this power wastage, we propose a web based system with a Wifi module that controls the main power. Using this system, any user can switch off anything connected to the main power. Web interface is designed for users to control the device with a user-friendly graphical user interface. With this system, companies benefits minimizing power wastage and save operational costs.

Keywords: *Power Distribution, Wifi Module, Web Server*

1.0 INTRODUCTION

At Work station there is an initiative to save power. But at network planning division it is not done more regularly. Because most of the employees have to go out suddenly and the duration varies most of the time so they might not come to office again to switch the lights and AC off or there can occur unexpected errors and might have to go out again without any notices also there can be employees that simply forgets to switch it off. When such an event occurs, when the employee remembers that he did not switch it off the employee does not have a way to switch it off. Because almost all the employees at network planning has a smart phone or a device that has internet access and at office their computers are switched on 24x7 going for a web based solution was the best option regarding the resources that they have. We can use a computer that is switched on 24x7 as the web server and Wifi network at office so new wire connections are less needed.

2.0 EXPERIMENT

The proposed system was based on a web server and a Wifi module. The Wifi module is implemented to get signals from the web server using whatever the port that the client want and switch equipment in the main power grid using relays¹. Wifi module is used to communicate with the web server without any cables (using the existing Wifi network). The web server is used to host the web page that we developed. Web server is in the same network with the Wifi module. Web page is developed using basic HTML and PHP for port communications².

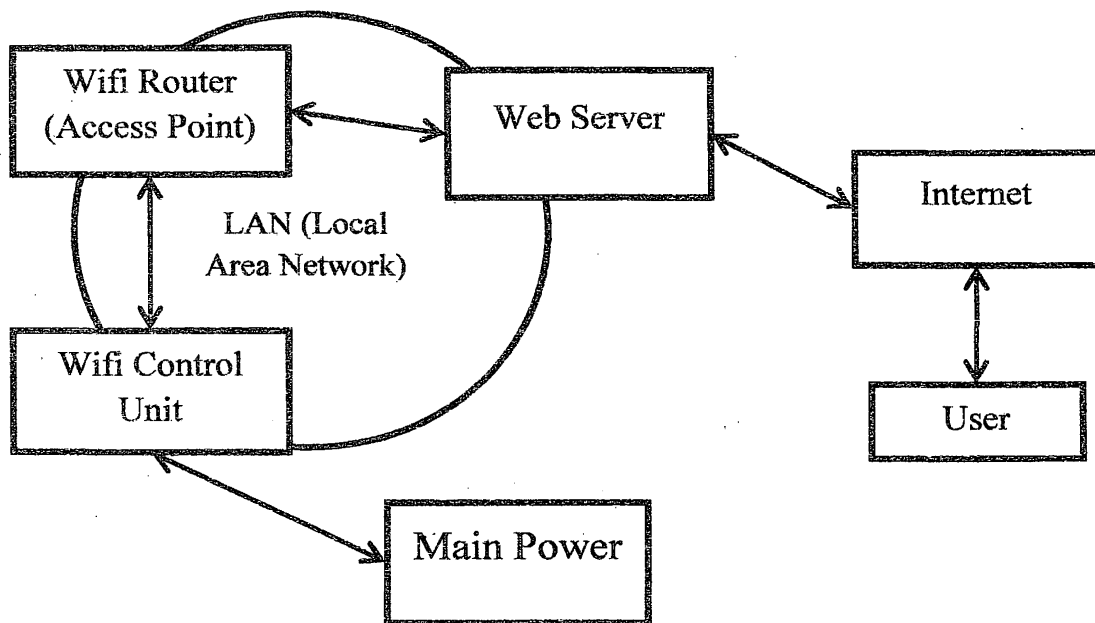


Figure1:Block Diagram

User access the web server using the internet and the web server is in the same local area network. Access point provides the local area connectivity where the Wifi module connects. The Wifi module is connected to a relay shield where it can control switches in the main power ^[3]. Circuit is built to protect the module using diodes and light emitting diodes are implemented to indicate which relay is switched on⁴.

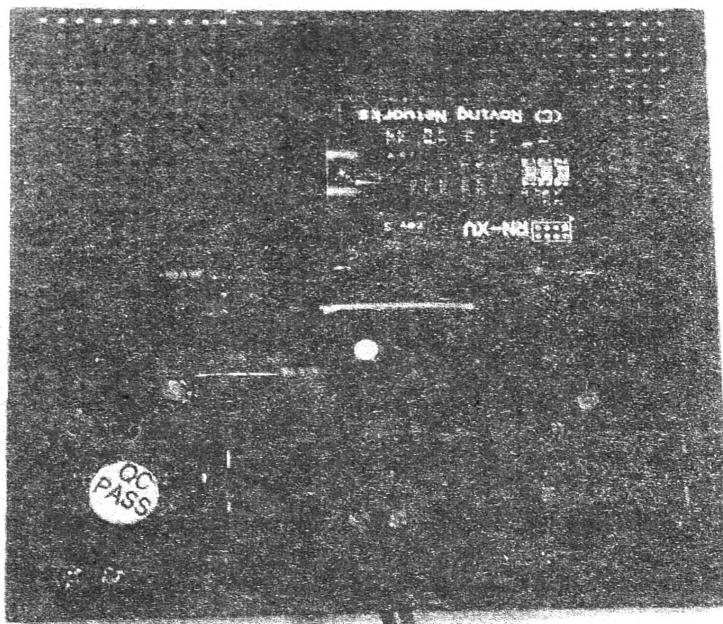


Figure 2: Implemented Circuit

Web page is created using the basic HTML code just to provide the interface needed for the user to interact with the user. When the web server communicates with the Wifi module it uses the port 2000 to pass the plain text message where the module is listening in port 2000 also. The web page is programmed using PHP for port programming².

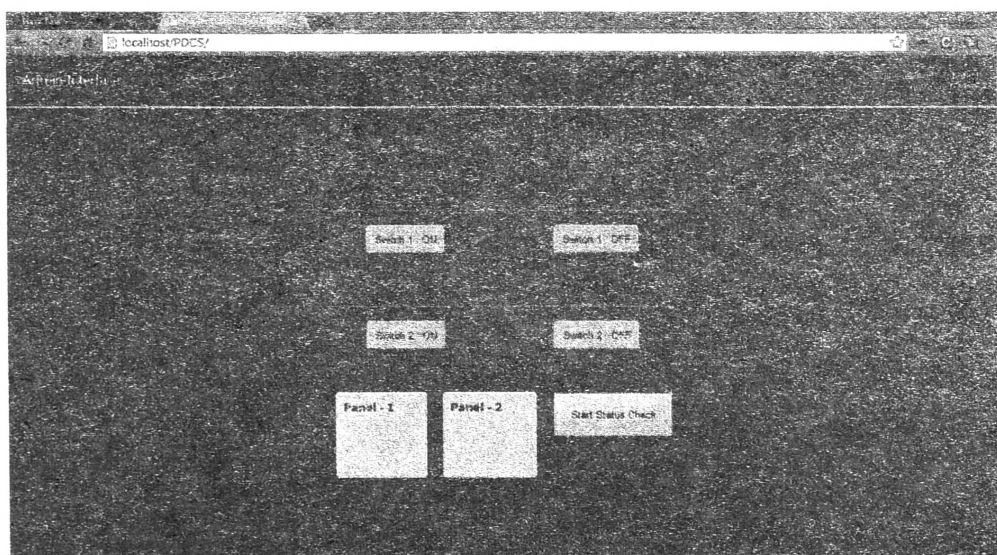


Figure 3: Web Interface

3.0 RESULTS AND DISCUSSION

Using the Roving Network Wifi module with relays main power grid switches could be controlled using the web server. By assigning IP to the Wifi module and using the port 2000 it communicates with the web server. According to the signal received from the web server. Web page is created using HTML and for port programming used PHP². Furthermore the system can be more secure by adding a login page. Although we used Ajax multiple browsers need to be more configured in order to perform smoothly in other browsers. When using touch input devices the web page must be able to adapt to gestures that are available in touch devices (viewing size with screen resolution, zooming and scrolling).

4.0 CONCLUSION

There is huge power wastage at working environments due to inability to turn off lights and other electrical equipment, especially when employees are out of office. In this study we attempted to propose a web based solution to minimize power wastage in such an office environment. This system has an interactive user interface to control the equipment which is connected to the main power, far away from the office. Using this system, companies can cut down power wastage and save a lot of money.

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