BLUETOOTH CONTROLLED OFFICE

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ABSTRACT

The main task of this project is about the Bluetooth control of office electrical appliances. Three electrical appliances have been chosen to be controlled by the Bluetooth. The first is the fluorescent light, second is the fan and the third one is the air conditioner. For the third electrical appliance, which is the air conditioner, the actual way on how to control the temperature is not demonstrated; however an equivalent control system had been developed in this project. The equivalent control system means, construct a similar system but in a different method which representing the air conditioner on how it is controlled by the Bluetooth. The main concern on the air conditioner control is the temperature. The temperature can be increased and decreased by just using the Bluetooth control system. Similarly, for the fan part, it is not just about control ON and OFF of the fan, but also includes the speeds. They are three speeds can be controlled by the Bluetooth. One is high speed; second one is medium speed and the last one is low speed. All the speeds can be controlled by one computer where it has the Bluetooth system.

To have a better control system using Bluetooth, a GUI (Graphical User Interface) window has been developed. This GUI is written in Visual Basic language. It is interface with computer Bluetooth through the communication port. Once the Visual Basic identifies the constant communication port that is used for Bluetooth, then a GUI window on controlling the electrical appliances can be developed easily. A GUI window consists of 9 buttons which are light on, light off, fan on, fan off, speed 1, speed 2, speed 3, temperature increase and temperature decrease.

The speeds of 1 to speed 3 are used to control the fan's speed whereas the temperature increase and decrease buttons are used to control the temperature of the air conditioner. Although actual air conditioner is not used in this project, a LCD which shows the increased and decrease of the temperature will be constructed and response to the Bluetooth signals when it's controlled from the GUI window.

To support the GUI window and response on the clicks of GUI window, a hardware or circuit is constructed. This circuit consists of Bluetooth receiver chip – Bee 2.0, PIC16F877A microcontroller, LCD display and relays.

The Bluetooth receiver chip – Bee 2.0 which has two data pins are connected to pin 25 and 26 of the PIC16F877A microcontroller. Pin 33 to 38 of the PIC16F877A microcontroller are connected to LCD display. Pin 19, 21, 27 and 29 are connected to relays. Pin 20, 22, 28 and 30 are connected to LED each for signal indication purposes.

When Bluetooth signal is received from the computer, the PIC16F877A microcontroller will process the signal and trigger the LED as well as the respective relay. The relay will then make a connection between the source and the loads, hence it will control the ON/OFF, the speeds as well as the temperature of the load.