Switch Automation System Using Arduino

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Abstract— A switch control system is an intelligent network based power control solution that incorporates communication between various system inputs and outputs related to switch control with the use of arduino. Switch control systems serve to provide the right amount of power where and when it is needed. The Arduino based switch automation system consists of receiver end at which Arduino board are interfaced. The Android mobiles are used to send ON/OFF command signals to the switch. Thus, by receiving these commands from mobile phone, main switch can be turned ON/OFF remotely using this system.

Keywords — Arduino, GSM module, Switch Automation, Android, Mobile Phone, Short Messaging Service (SMS)

I. INTRODUCTION

Automation can be defined as a process or procedure is performed without human. It reduces operation time and work handling time. In this paper, Focuses on the controlling of home appliances and switches remotely when the user is away from the place. The Arduino is used for status notification such as power failure or switch ON/OFF. The commands are sent in the form of text SMS to the gsm module and then the arduino on the basis of SMS takes a decision of a particular task. The system is SMS based and uses wireless technology. This system provides solution to the problems faced by peoples in daily life. It Describes how to manage and control switches using mobile phone, people can also use this system to switch ON/OFF in their place from a far place before they reach.

II. RELATED WORK

Bluetooth based automation is implemented. Which works for limited range area in with Bluetooth is connected. Bluetooth with globally available frequencies of 2400Hz is able to provide connectivity up to 100 meters at speed of up to 3Mbps depending on the Bluetooth device class. The capabilities of Bluetooth are more than enough to be implemented in the design. Also, most of the current laptop/notebook or cell phones are come with built-in Bluetooth adapter. It will indirectly reduce the cost of this system.

III. PROPOSED WORK

The topic “Switch Automation System using Arduino” consist of Internet of things. In our system we are going to use the “ARDUINO chips”. These chips help us to connect the hardware and software application to handle the process or work. First we have to install the hardware component like Aurdino, Relay switch. After this installation process admin will approve new user request and system will provide id/password to the user. After login user can access the application using his/her mobile. By using this application, the user can easily operate the switch from anywhere. User can set timer to get notification. As User will receive a notification as the Switch is ON, he/she can OFF it from anywhere.

IV. SYSTEM ARCHITECTURE

Arduino-Arduino can be used to develop interactive objects, taking inputs from a variety of switches and controlling a variety of lights, motors, and other physical outputs.

Relay Switches- a relay can operate different things.

GSM module-A GSM module is a specialized type of modem which accepts a SIM card, and operates over a subscription to a mobile operator, just like a mobile phone.
From the mobile operator perspective, a GSM modem looks just like a mobile phone. When a GSM modem is connected to a computer, this allows the computer to use the GSM modem to communicate over the mobile network. While these GSM modems are most frequently used to provide mobile internet connectivity, many of them can also be used for sending and receiving SMS messages.

Android Mobile- For sending sms and checking status of appliances.

V. IMPLEMENTATION

Admin Panel

Fig. 1 Login Page

Fig. 2 User Requests

Fig. 3 Change Password for admin

Fig. 4 Feedback of users

Android Application

Fig. 5 Splash Screen
Fig. 6 Login Screen

Fig. 7 Registration Form

Fig. 8 Status Checker Screen

Fig. 9 Timer for notification
VI. CONCLUSION

Design and implementation of the Switch automation for Android mobile phone has been discussed. The purpose of this system is to use mobile phone’s inbuilt SMS facility and GSM Modem for automation. In conclusion, this low cost system is designed to improve the standard living and save your time and effort. The arduino board is directly installed beside the electrical switches whereby the switching connection is controlled by relay. The system is designed in user-friendly interface which can be used by every user. All the future work is expected without spending extra cost and more reliable system for users.

REFERENCES