

INTERNET OF THINGS (IOT) ENABLED ELECTRICAL APPLIANCE CONTROLLING SYSTEM

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Abstract :

Nowadays, the electrical home appliance is the most essential prototype for controlling and maintaining the current status of technologies. The electrical home appliance wastage can be controlled by GPRS techniques with the support of GSM protocol through an SMS (Short Messages) mobile device and command from input string of ON and OFF controlling suitable while reducing the wastage of electrical waves through the GPRS receiving the control signal. An automatically enable the control switching ON and OFF process from the user controls. The user maintaining the home appliances like light, AC, fan, heater, washing machine, etc. These appliances can integrate with microcontrollers and GPRS network interface. This interface can be implemented by Embedded C commands with a supportive way of API microcontroller interfaces. The system is activated when the user sends the control signal to control the home appliance. The microcontroller unit automatically controls the electrical home appliances by switching ON or OFF the device according to the user direction.

IndexTerms – GSM, GPRS, microcontroller, C commands

1.INTRODUCTION

An embedded system is an application that contains at least one programmable computer and which is used by individuals who are, in the main, unaware that the system is a computer. It is an excellent platform for developing embedded c. use 8-, 16- or 32-bit embedded processors. A remotely controlled electrical appliance. An embedded system can be thought of as a computer hardware system having software embedded in it. An embedded system can be an independent system or it can be a part of a large system. An embedded system is a microcontroller or microprocessor-based system which is designed to perform a specific task. An embedded system has three components: It has the hardware. It has application software. It has Real Time Operating system (RTOS) that supervises the application software and provide a mechanism to let the processor run a process as per schedule by following a plan to control the latencies. RTOS defines the way the system works. It sets the rules during the execution of the application program. A small scale embedded system may not have RTOS. So we can define an embedded system as a Microcontroller based, software driven, and reliable, real-time control system.

Microcontroller programming is used to write the programming code to translate the input string to turn ON or OFF the relay. Relay module will receive the orders from the PIC to turn ON and OFF. PIC stands for Peripheral Interface Controller coined by Microchip Technology to identify its single-chip microcontrollers. These devices have been phenomenally successful in the 8-bit microcontroller market. The main reason is that Microchip Technology has constantly upgraded the device architecture and added needed peripherals to the microcontroller to 'suit customers' requirements. PIC microcontrollers are a family of specialized microcontroller chips produced by Microchip Technology in Chandler, Arizona. The acronym PIC stands for "peripheral interface controller," although that term is rarely used nowadays. A microcontroller is a compact microcomputer designed to govern the operation of embedded systems in motor vehicles, robots, office machines, medical devices, mobile radios, vending machines, home appliances, and various other devices. A typical microcontroller includes a processor, memory, and peripherals.

MPLAB IDE is a software program that runs on a pc (windows, Mac os, Linux) to develop applications for microchip, microcontrollers and digital signal controllers. It is called an integrated development environment (IDE) because it is used to develop code for embedded microcontrollers. MPLAB IDE allows you to write, debug, and optimize. PIC micro MUC applications for firmware product designs. MPLAB IDE includes a text editor, simulator, and project manager. MPLAB IDE also supports the MPLAB-ICE and PICMASTER emulators, PICSTART Plus and PRO MATE II programmers, and other Microchip or third-party development system tools.

2. LITERATURE SURVEY

Ahmed Elshafee, Karim Alaa Hamed, "Design and implementation of a WIFI based Home Automation System" in International Journal of Computer and Information Engineering (IJCIE). 2012 IEEE students, conferences, Egypt.

This paper presents a design and prototype implementation of a new home automation system that uses Wi-Fi technology as a network infrastructure connecting its parts.

Marriam Butt, Mamoona Khanam, Aihab Khan, "Controlling Home Appliances Remotely Through Voice Command" in Department of software Engineering Fatima Jinnah Women University, (FJWU),2013 IEEE student conference Pakistan.

The main concern in systems development is the integration of technologies to increase customer satisfaction. Research presented in this paper focuses mainly on three things first to understand the speech or voice of user second is to control the home appliances through a voice call and third is to finds intrusion in the house.

J.J. Baviskar, A.Y. Mulla, A.J. Baviskar, N.B Panchal, and R.P. Maskwana, "Implementation of 802.15.4 for designing of home automation and power monitoring system, " in Electrical and

This paper provides a brief overview of the existing home automation systems and describes ZigBee technology, along with its comparative study with other protocols.

3. OBJECTIVES

To develop a device that allows a user to remotely control and monitor multiple home/office appliances using a cellular phone. It is powerful and flexible at any time, and from anywhere with technologies. Possible target appliances include a climate control system, security systems, lights anything with an electrical interface.

4. SYSTEM ARCHITECTURE

The system architecture is a conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system.

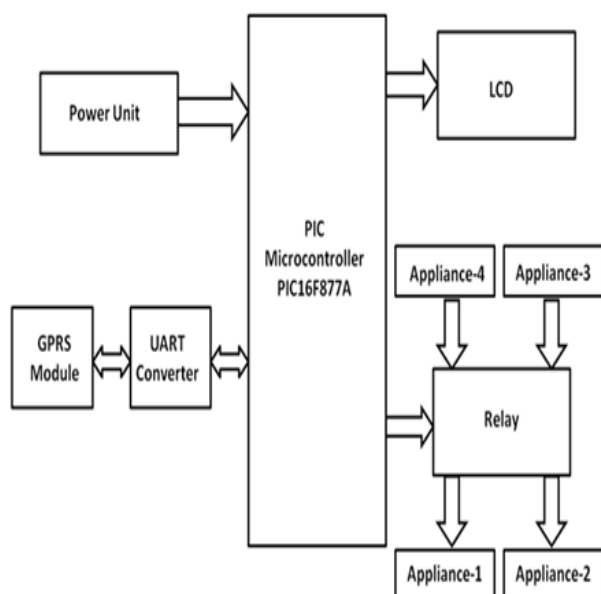


Fig 1 : System Architecture

5. CONCLUSION

From the conducted prototype design, it can be seen that the prototype worked as expected. By using GPRS Module and PIC microcontroller, a relay module controlled by the IOT can be designed. Prototypes can also provide feedback signal from the command given previously. Furthermore, these prototypes can be applied to control the actual electrical appliances.

6. REFERENCES

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