

**MECHATRONICS BOOK SERIES**  
**SELECTED PAPERS FROM**  
**ICOM'01, ICOM'05 AND**  
**ICOM'08**

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## **Controlling Electrical Appliances Using Global Mobile System**

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### **ABSTRACT**

Monitoring of processes, plants and equipments through reliable but economical means are very much needed for remote monitoring and control. The problems associated with distances and the obstruction by the objects in the middle and the high cabling costs make it necessary to use wireless means for such application purposes. In this work a GSM MODEM (MSM-03), using the existing cellular networks for communications, is connected to the serial port of a computer, which is recognized by a computer program written in Visual Basic. The program has got an interactive interface, which on execution asks the users for registration with the system as authorized users.

This work upon receiving an SMS message concentrates on activating the required pin so that the connected appliance is turned ON or OFF accordingly. The system is under the review of the authors on how to use it for obtaining data from real-time analog inputs and transferring that data via the cellular networks of GSM for remote communications.

### **1. INTRODUCTION**

GSM (Global System for Mobile Communication) is allocated the bands 890-915 MHz for the uplink (mobile station to base station) and 935-960 MHz for the downlink (base station to mobile station) for mobile communication.

In this work a GSM MODEM (MSM-03) is connected to the serial port of a computer, which is recognized by a computer program written in Visual Basic. The program has got an interactive interface, which on execution asks the users for registration with the system as an authorized user.

The program, when is run, makes a communication between the GSM MODEM and the computer for checking to see if the user, who is asking for using the system, is among the registered users. In case if a user is not one among the registered list, a message "**Access Not Allowed**" is displayed on the user interface. In the case of a registered user, the message and phone number are received and interpreted by the program.

After having checked the authenticity of the phone number the program initiates appropriate action via the parallel port of the computer. The action taken depends on the category of message strings embedded in program. For example, if the message reads "L1 ON", the program will send a command to the parallel port of computer in order to activate an appropriate action by putting a 5V logic level on a required pin of the parallel port. This alternatively activates the required pin and the connected device is turned ON accordingly. The system is under the review of the authors on how to use for transferring data via the GSM system of communication. Similarly, event recording is another feature to be embedded under a future implementation program.

### **2. SYSTEM DESCRIPTION**

Most of the electrical appliances are normally controlled manually. However, over the years it has been becoming common to control electrical appliances such televisions, radios through remote means using wireless remote control. This work is focused on developing a GSM-based system which can be used to control electrical appliances via wireless with unlimited range of