Text Message Service Based Home Care System

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In the modern world, house robbery has become a great issue. Relevant authorities face difficulties in giving reasonable solutions for this problem. In this paper we propose a cost-effective permanent solution for home security with some advanced features. The system is based on GSM network and a sensor and actuator network. The developed system can be used to control and monitor the user's house through mobile phones.

There are four main parts of this system. They are: the controlling circuit on a microcontroller platform; the sensor and actuator network; GSM communication equipment; and the user's mobile phone. The implemented sensor and actuator network has sensors such as proximity sensors, gas sensors and read switches. Further, in some actuators, relays to turn on/ off any device and audible alarms are present. The control system utilises 5v regulator output which draws the maximum 100 mA without actuators.

The user is informed by a SMS when a security or other issue (for example, fire or gas leak) arises. The system will simultaneously send SMSs to relevant authorities like the police station or fire brigade. The user can always control the devices in the house by sending a SMS to the control unit and the user will receive an acknowledgement from the controller. As an example, the user can provide commands to switch on/ off devices such as water pump, bulbs, TV etc. and receive acknowledgments. The system updates the user within a maximum of two seconds on each and every task. Furthermore, a J2ME user interface was developed to use in the mobile phone of the user.

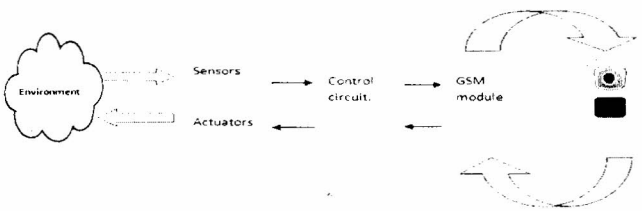

Figure 1. Block diagram of the system

Even though the concept has been developed for home automation, it is possible to use the same scenario for various applications. For example, in a control system, it is necessary to send references and get feedbacks. The developed system can be used to receive current status (feedbacks) of the control system and send control commands (references) to it. By combining the GSM section with a GPS receiver, a tracking system can easily be developed for fleet management, animals, stock maintainence etc. For these applications, a computer interface can be developed between the computer and the control circuit via serial port communication.

These research outcomes are especially useful for low-cost automation systems as all the GSM service providers provide GSM service at a very low cost. Considering all aspects, the Short Message Service Based Automation System is a low cost, reliable solution for many domestic and industrial applications..