Mobile Phone Based Home Surveillance System

G. K. Singh[1], S. J. Sharma[2]

[1]Department of Electronics, A. N. College, Warora, Dist. Chandrapur, Maharashtra, India
[2]Department of Electronics, R.T.M. Nagpur University, Nagpur, Maharashtra, India

ABSTRACT

This paper presents an application of the GSM technology. Using the public GSM networks, a mobile phone based home surveillance system has been designed. The system automatically sends sms messages to specified phone / phones in case any door or window is opened by some intruder. The system also allows the homeowner monitoring and controlling the electrical home appliances via the mobile phone by sending commands in the form of SMS messages and receiving the appliances status. Virtual control panel is realized using VB on windows 98. Electronic circuit to control security and electrical appliances is interfaced to PC using PCL-812 Lab card. This home surveillance system has been tested and found to very effective in security control as well as controlling and monitoring electrical home appliances virtually from any place.

Keywords: Home Surveillance System, GSM, SMS, Virtual Control System, Mobile Phone-PC Interfacing.

I. INTRODUCTION

Security is the prime concern in the modern society. Using some sort of surveillance system helps to protect homes, business and even people from others who are tempted to commit a crime if the criminal thinks he or she may be on the video or home owner or some specified persons would be suddenly informed.

Also, switching on lights in the evening for security reasons, and switching on a water heater from the office so that by the time he/she arrives home hot water is available readily for a bath, remotely, would be very useful in the modern busy society. Many remote home/office automation/control applications using Internet [1-2] and GSM network [3-6] show the growing interest on the subject.

In the present work, a mobile phone based home surveillance system has been designed that can provide the security and make it possible to switch on/off electrical appliances remotely. Virtual control panel is realized using VB on windows 98. Software coding is done in VB. Nokia 6610 is interfaced to PC using USB cable. PCL-812 Lab card is used to interface electronic circuit for security and electrical devices interface. The system automatically sends sms message to specified phone / phones in case any door or window is opened by some intruder. The system also allows the home owner monitoring and controlling the electrical home appliances via the

mobile phone by sending commands in the form of SMS messages and receiving the appliances status [7-8]. The home surveillance system has been tested and found to very effective in security control as well as controlling and monitoring electrical home appliances virtually from any place.

II. SETUP

The proposed mobile phone based home surveillance system is shown in Fig.1. Nokia handset (model 6610) is interfaced to PC with USB cable. A program developed in VB 6.0 uses Nokia PC Connectivity SDK3.0 [9] and Nokia Suite [10] to read the SMS received in the mobile phone or send SMS to specified mobile phone/phones. The electronic circuit to control security and electrical home appliances are interfaced to PC using PCL-812 lab card. Communication with this system for measurement, control and monitoring is made through another mobile with specified mobile number.
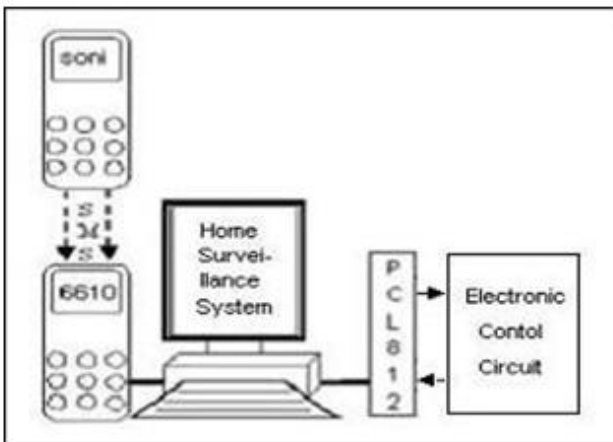

Fig.1: Mobile Phone Based Home Surveillance Setup

III. DESCRIPTION

Screen shots of the GUI of mobile phone based home surveillance system interface is shown in Fig.2. Control software developed in visual basic continuously monitors doors and windows. If any door or window is opened by some intruder, system automatically sends sms message to specified mobile phone / phones. It continuously checks for new message and on receiving new message, electrical home appliance is switched ON / OFF. Status of any door / window or electrical appliance is monitored. Fig.3 shows flow chart of logic used in development of mobile phone based home surveillance system. Circuits of lamp/heater switching and sensing are shown in fig.4 and fig.5 respectively.
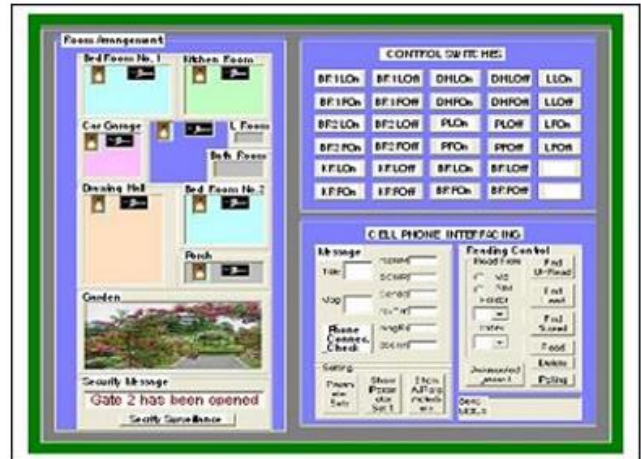

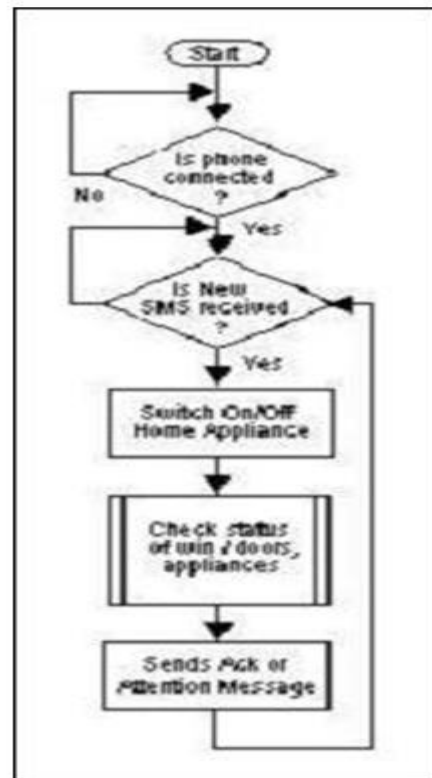Fig.2: Screen Shot of Mobile Phone Based Home Surveillance System
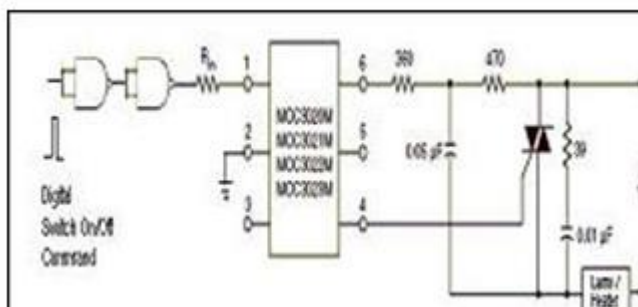

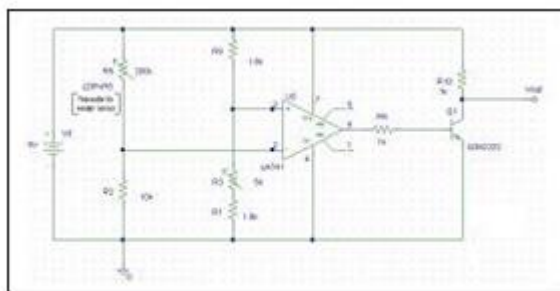Fig.3: Flowchart

Fig.4: Lamp / Heater Switching Circuit

Fig.5: Lamp / Heater Sensing Circuits

IV. CONCLUSIONS

Mobile phone based home surveillance system is desined and tested. System is found to be working satisfactorily. It is thought to be very useful providing security to home as it sends message automatically to the specified phone/phones in case any door or window of the home is opened in absence of home owner. Also, home owner can switch on light at night from any remote places that adds security to home at night. A water heater can be switched on to heat water to the specified temperature.

V. ACKNOWLEDGEMENT

VI. REFERENCES

[1]. H.E. Perera, A.I. Kaluarachchi, R.S. Senaratne, Miss D.G.N. Dayaratne, "REMOTE CONTROL OF ELECTRICAL APPLIANCES", www.elect.mrt.ac.lk/p7_2001_02.pdf

[2]. Danielius Eidukas, Sarunas Kilius, Algimantas Valinevicius, "REMOTE CONTROL OF SYSTEMS OF A BUILDING", Scientific Proceedings of RTU. Series 7. Telecommunications and Electronics, 2003, vol.3

[3]. Mafalda Seixas and Joao Palma, "REMOTE ALARM AND COMMAND SYSTEM FOR RESIDENTIAL DOMOTICS TROUGH GSM – SMS", www.aedie.org/9CHLIE-paper-send/312-seixas.pdf

[4]. Rifat Shahriyar, Enamul Hoque, S.M.Sohan, Iftekhar Naim, Md.Mostafa Akbar5 & Masud Karim Khan, "REMOTE CONTROLLING OF HOME APPLIANCES USING MOBILE TELEPHONY", International Journal of Smart Home Vol. 2, No. 3, July, 2008

[5]. Dr.Mikael Sjodin, "REMOTE MONITORING AND CONTROL USING MOBILE PHONES", Whitepaper – November 2001

[6]. Rifat Shahriyar, Enamul Hoque, S.M. Sohan, Iftekhar Naim, Md. Mostafa Akbar & Masud Karim Khan, "REMOTE CONTROLLING OF HOME APPLIANCES USING MOBILE TELEPHONY", International Journal of Smart Home,Vol. 2, No. 3, July, 2008

[7]. G.K.Singh, S. J. Sharma and S.Rajagopalan, "DESIGN OF MOBILE PHONE BASED PRECISE TEMPERATURE CONTROLLER", Paper accepted and scheduled for poster presentation at 'National Symposium on Instrumentation'(NSI-32) at K.S.Rangasamy College of Technology, Tiruchengole-637 209, Tamil Nadu, India.

[8]. Ahmed Arif, Wenhai Huang and Chi Hang Ip, "INTEGRATED SENSING SYSTEM FOR

HOUSING APPLIANCES", engnet.anu.edu.au/DEpeople/Salman.Durrani/_teaching/TA4.pdf

[9]. Nokia PC Connectivity SDK 3.0 for Nokia Phones, www.forum.nokia.com /tools

[10]. Nokia PC Connectivity SDK 3.0 Component Library Reference, For Nokia Phones, www.forum.nokia.com /tools