MECHATRONICS BOOK SERIES

SYSTEM DESIGN AND SIGNAL PROCESSING

VOLUME 2

Editors
Md. Raisuddin Khan
Md. Mozasser Rahman
Muhammad Mahbubur Rashid
Shahrul Na'im Sidek

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CHAPTER 10

INTRUDER AVOIDANCE SYSTEM VIA SHORT MESSAGE SERVICE (SMS)

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10.1 Introduction

Cars getting stolen have become a common occurrence nowadays. This is not only problematic for the car owners, but also for insurance companies who have to fork out large sums of money to compensate the policyholder. Car thefts occur despite the cars being fitted with alarm systems. This is because the current alarm systems have inherent weaknesses. Most car alarms available in the market are only capable of emitting loud noise or siren from the car and flash the headlights when there is an intrusion [1-4]. If the owner of the car is somewhere far away from his or her vehicle, or if they are inside a building, then they might not be able to hear the sound coming from the car alarm. Furthermore, most cars have similar alarm sirens; there is no distinctive siren for each different car, thus a car owner will never be able to distinguish whether the siren is coming from their car or coming from another car. Therefore, a car thief can easily steal a car without the owner even realizing what is going on.

The security system is designed to notify an owner of a car via Short Message Service (SMS) once the car alarm has been triggered. With a rapid increase in the number of vehicles on the road, there has also been an increase in thefts of vehicles, particularly cars. According to Seventh United Nations Survey of Crime Trends and Operations of Criminal Justice Systems (1998- 2000) [5], Malaysia has among the highest rates of car thefts in the world. In the year 2000 alone, 55,879 cases of car theft were reported, 2.41 per capita (per capita figures expressed per 1000 population) [6]. Malaysia is ranked no. 13 for the highest number of car theft cases in the world and no. 15 for the highest number of car thefts per capita. These alarming statistics necessitates for an enhanced security system, such as this project, that would minimize the probability of theft and give the car owner some peace of mind. Cars fitted with such a security system would be much sought after by potential buyers.

10.2 Software Development

The tasks that are involved in this stage include adjusting the settings of the GSM modem, programming of the Programmable Logic Controller (PLC) as well as using the Hyper Terminal Software to verify the PLC programming. The GSM needs to have its settings adjust so that it would be enabled to conduct the Short Message Service (SMS). The GSM Modem is connected to the Personal Computer (PC) via the RS232 interface. The following steps show how the initial settings were saved in the GSM modem.

Step 1: The Hyper Terminal program in the PC is opened
Step 2: The connection name is given and connected using the COM 1 port