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DESIGN AND CONSTRUCTION OF A CAR IMMOBILISER WITH SMS ALERT

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Abstract

As technological knowhow is on the increase, so also are those of criminals and die hard professional thieves who beat existing car security gadgets to carry out their notorious activity. One advantage such criminals enjoy is the inability of existing car security gadgets to establish communication between the car and its owner from the exact instant of intrusion. This gives criminals ample time to deactivate the car security. This work bridges this gap using a common and handy everyday communication tool, the mobile phone. With the very wide GSM coverage, one of its products, the Short Message Service (SMS) can be employed to send an alert to a vehicle owner who in turn sends an instruction to the car, to initiate safe and remote vehicle immobilization.

Keywords: Immobilizer, S.M.S, micro-controller, sensor, and activation/de-activation

Introduction

Most car security devices parade features like doors, bonnet and boot protection, sensor, ignition controller, central window and door locking system, trafficator's flasher, a mono or multi-tone siren to mention just a few (www.oztion.com.au), (www.larmtjanst.se). These however are noted for their characteristic failures and false alarm. Later car securities were furnished with additional features based on Radio-Frequency (RF) wireless technology which is limited to 800 metres radius from the transmitter. The only limitation of this design is that if the car is out of the coverage area, it cannot be immobilized (Aliyu, 2005). With the coming in of GSM/CDMA technology, its application to car security was experimented with success especially in vehicle tracking. Its limitation is that it gives the location of the nearest BTS (Base Transmission Station) the device is communicating with but not the exact location of the car. The next generations in car security system were incorporated with built-in tracking system using GPS technologies. This makes it possible to track the exact car location by communication with the tracking company. Its limitation is that when the car is parked in an underground parking lot it will not work, because there is no clear sky visibility (www.livingdigitalindia.aol.com).

The aim of this work is to take advantage of the wide coverage of GSM technology to design a car security device with ability to report any intrusion to the users' mobile phone by sending an SMS, ability to alert the immediate neighborhood via siren or buzzer and light indicators and most importantly, ability to immobilize the car engine via SMS from the user. This promotes direct communication between car and owner in times of trouble and so helps to reduce the high rate of car thefts.

Design and implementation

Block Diagram: A block diagram is one which shows all the individual functions of a system and how the signal flows through the system (Schuler, 1984). The block diagram highlighting the functional sections for the device is shown in figure 1.