# GLOBAL POSITIONING SYSTEM (GPS) BASED CAR SECURITY SYSTEM

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## ABSTRACT

This project presents the design and implementation of Global Position (GPS) based car security system. The GPS security systems involves using the GPS receiver to track the location of vehicles, devices e.t.c. The GPS receives real time signals from satellites which contain various information. The information on the location of the car can be extracted from the signal in terms of latitude and longitude.

The objective of this project is to send the location of the car to its owner wirelessly whenever it is moved after it has been locked. A GPS Receiver is used to 'lock' the position of the car in terms of latitude and longitude. The new location of the car is sent wirelessly to the owner of the car. The owner can then send a signal to the car in order to stop the engine from working.

An EM-411 GPS Module receives signal from the satellite which contains National Marine Electronics Association (NMEA) sentences. The sentences are parsed using a PIC16F877A to get the latitude and longitude. The location is the sent wirelessly using the Universal Synchronous Asynchronous Receiver Transmitter (USART) pin of a PIC16F877A Microcontroller. The received signal by the car is displayed on a Liquid crystal Display (LCD).

In conclusion, the prototype was built and the location (latitude & longitude) was extracted and sent wirelessly to the car. A signal was sent successfully from the car to switch off the engine. The GPS was also connected to the computer using the serial port and the NMEA sentences were displayed.

*Keywords: EM-411 GPS Module, NMEA sentence, PIC16F877A, USART and serial port*