

Abstract

Mohamed Saad Zaghloul

Modern Architecture Tracking System Using Modern GPS Module

This paper concerns the practical design and implementation of professional tool using GPS in tracking and fleet management, the GPS is the premier satellite navigation system in the world. Not only is it used for military navigation but also it has become a major commercial and benefit as new applications have been found and low- cost GPS radios have become available, required for operation of all installed navigation equipments, aircrafts, ships, cars, trains, and most of tracking sys-tems, etc. . A small system containing GPS receiver is installed in each vehicle of the fleet supported by GPRS communication module. This unit will allow the fleet manager to control all the vehicles' movements: present, previous positions, start of the journey, and non movement periods. Using the proposed designed system we can track all the ships, cars, trains, vehicles all time, with GPS positions and sensor data being received every minute. Optional add-ons include cost management, integrated navigation module for drivers, two-way text communication, fuel control and automatic driver identification. Data collected from the vehicles is processed, to get reports. Those reports can be sent automatically to the assigned position mailboxes by email in right time. Difficult situations are also immediately detected and reported by email and SMS as an alarm. All you need to access system is an internet connection and a web browser at anywhere. In our design, GPS Module was utilized with the SkyNav SKM53 Series has embedded GPS antenna enable high performance navigation in the most stringent application and solid fix even in harsh GPS visibility environment, and microcontroller 16F877. For programming of the microcontroller, soft-ware PIC Basic pro was used, a window based Software. The complete designed system has basic and optional features as we operate in real time GPS tracking solution, GPS positioning, and use GPRS communication which is a packet oriented mobile data service on the 2G and 3G cellular communication system's global system for mobile communications (GSM), vehicle status report, two way communication, automatic reports and alarms. Other optional features are SMS messages for mobile phone, cost management, anti –theft vehicle protection, and can be integrated for fuel status. More over the designed system will be demonstrated as anti crash anti collision system.