



University of Sofia "St. Kliment Ohridski"

Masters work resume

subject

Processing data from navigation devices in GSM network

Author

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Anotation

One of the vital elements of the contemporary world is the transport. People, goods and raw materials constantly need transport to get from one point to another. Speed and high cost are one of the major problems of every type of transport and to overcome these problems a very strict and precise organization needs to be created, as well as powerful tools for management and control need to be used. Nowadays it is difficult for a man to realize what huge mixture of people, machines, goods etc. the transport companies and organizations are and that they are much more difficult to control and track. The need for vehicle control and management systems is not a problem just for the transport companies. Such systems are needed by security companies and by small and middle organizations that have auto park and want to control it effectively. These problems set the need for an affordable and effective computer system for central vehicle management and control.

The current masters work examines and describes the process of creating one of the elements of such web based system for vehicle management and control namely its communication module. This module is the part of the system that provides M2M (Machine to Machine) communication and data exchange through a GSM network between the central system server and the navigation devices installed in the vehicles as well as processing, validation and storage of the exchanged data. The version that is presented here uses GPRS as data channel and TCP/IP as communication protocol, but the design of the application allows easy addition of support for other data channels such as SMS (Short Message Services) and CSD (Circuit Switched Data). All phases of the design and development process are examined – from the initial study of current

vehicle management and control systems and their shortcomings to design of the application and its realization. The software platform used is Microsoft .NET Framework 2.0, C# and MySQL 5.0 for DBMS (Database Management System)

The following base requirements for the software module are set:

- The communication between the navigation devices and the rest of the software modules of the system needs to be client-server based.
- To ensure simultaneous communication with the navigation devices through at least one of the communication channels of the GSM network – CSD, SMS or GPRS.
- To store the data that is received from the navigation devices and the rest of the user data, needed by the whole system to function, in a database created especially for this purpose.
- To provide robust and easy to use interface for other system modules to use in order to communicate with the navigation devices.

The author sets the following tasks for himself proceeding the base requirements:

- Studying and analyzing current systems for vehicle management and control, their shortcomings, as well as defining the needs of potential clients of the system.
- Defining the appropriate software and hardware platform in order to comply to the requirements set.
- Creating application architectural design that allows easy integration with other similar systems and future upgrading
- Creating a special database which can provide the necessary performance and reliability of system
- Testing the system in real conditions

Keywords

GPS, GSM, GPRS, Location Based Services, Web services, Web based application, .NET, C#, MySql, Vehicle tracking