GIS AND GPS INTEGRATION TO IMPROVE FLEET VEHICLE MANAGEMENT

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Abstract

A GIS (geographic information system) makes it possible to visualize those aspects of data that express geographic information. This kind of systems lets you query or analyze a database in a certain format and get the results in a map. Applications for GIS can be, for instance, weather forecasting, sales analysis, population forecasting or traffic information and in general, any kind of data which have important geographic aspects to be processed. GIS Systems allows the user to answer simple questions such as the distance between two points or more complicated questions, such as detecting traffic jams on a road. They provide answers visually, usually as maps or graphs. Information can be combined in layers to give a better understanding of a place. A GIS is not just an automated decision making but a tool to query, analyze and map data. The objective should be giving support the decision making process, because there is a vast difference between seeing raw text in a table of rows and columns and seeing it presented in a map.

Related to Geographic Information Systems, positioning systems are tools that allow to get the position of a mobile device. The data returned can be UTM coordinates, zip codes or province names, depending on the application area. There are different technologies of mobile device localization, such as Cell Identification (CELL-ID), Enhanced Observed Time Difference (E-OTD) and Assisted GPS. Positioning services can be very useful for fleet management. The integration of GIS tools with GPS mobile phones or PDAs makes it posible for an operator to see the exact position of each vehicle of a fleet in real time, because they are represented in a map. The integration of GIS+GPS with a message system allows communication between drivers and fleet managers. Operators can communicate with drivers by sending messages to indicate an alternative route due to a schedule change, while drivers can inform of incidences, check points or whatever unusual event that happens. Drivers can interact with operators using technologies such as GPRS or UMTS. Better information leads to better decisions.