PC BASED GPS



INTRODUCTION -:

The advent of new high-speed technologies and the growing computer capacity provided realistic opportunity for new cost effective technologies and realization of new methods of innovations. This technical improvement together with the need for high performance techniques created faster, more accurate and more intelligent products using new drives and advanced control algorithms.  
  
This project describes a new economical solution of Global positioning systems. The presented PC BASED GPS DRIVER can be used for different sophisticated applications. The control system consists of a PC, a GPS receiver that collect data from the satellite and an interface kit to send the data to the PC through the serial port.  
  
The position conversion software has been developed using high-level graphical programming language (visual basic). A complete solution of a global positioning solution is presented in this project. The GPS receiver receives the latitudinal and longitudinal data, from the satellite for finding the exact position of the receiver kit on the Earth’s surface and also the real-time position can be viewed from the map.

**What Is GPS?**

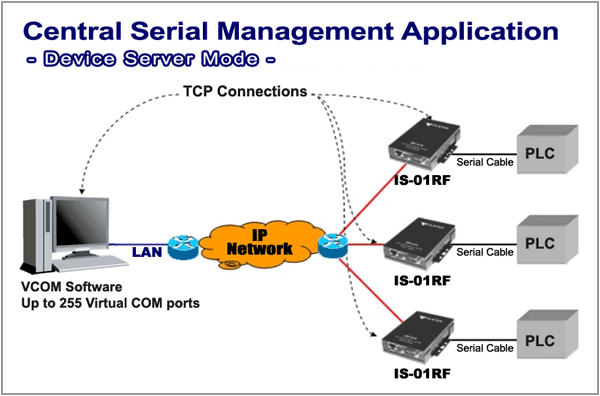
A Global Positioning System (GPS) is a satellite navigation system that works by continually transmitting high-frequency radio signals containing the time and location of the satellite in relation to earth. A GPS receiver on the planet's surface obtains this information from three or more satellites and the GPS receiver calculates the user's position on the planet. The receiver pinpoints (between 3 and 15 meters) where the device and thus the user is located. With multiple measurements, the receiver can also calculate speed, trip time, distance to destination, altitude, sunrise and sunset, and more.

THEORY-:

The methods of serial data transmission imply that data are transmitted the following way: data are transmitted from transmitter to receiver bitwise simultaneously using only one line. For this purpose the serial port takes 8, 16 or 32 parallel bits from the data bus and transforms them to get 8, 16 or 32-bit serial bit flow. That's why serial communication got its name - every information bit is transmitted serially one by one.

In theory when organizing serial communication to transmit the signal from one device to another one should use only two wires - signal and ground. But practical work shows that this way of data transmission is not always usable, especially when data transmission is lengthy. It is connected with the fact that when receiving, the receiver may miss some bits and so they may be lost. This would cause changes in the result of the whole transmission. Even if one bit is lost, this may cause the following: when the whole data batch is received the bits coming after the lost bit may be shifted and erroneous data may be obtained when transforming into parallel code.

That's why in order to achieve reliable serial communication one should overcome all possible errors when receiving data. One of the possible solutions may be application of RS-232-C standard which describes the methods of synchronous and asynchronous data transmission in serial data format.



CONCLUSION-:

A highly accurate monitoring solution for active network measurement is provided without the need for GPS, based on an alternative software clock for PC's running visual basic. With respect to clock *rate,* its performance exceeds common GPS and NTP synchronized software clock accuracy. It is based on the TSC register counting CPU cycles and offers a resolution of around 1ns, a rate stability of 0.1PPM equal to that of the underlying hardware, and a processing overhead well under 1µs per timestamp. It is scalable and can be run in parallel with the usual clock. It is argued that accurate rate, and not synchronized offset, is the key requirement of a clock for network measurement. The clock requires an accurate estimation of the CPU cycle period. Two calibration methods which do not require a reference clock at the calibration point are given. To the TSC clock we add time stamping optimizations to create two high accuracy monitors, one based on window xp and the other on vista. The TSC-RT-Linux monitor has offset fluctuations of the order of 1µs. The clock is ideally suited for high precision active measurement