
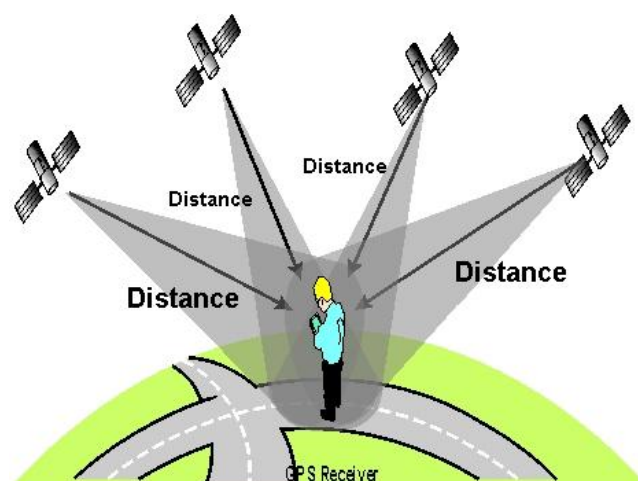


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| Trends in vehicle electronics | Exercise 1 |  <p data-bbox="1059 488 1259 519">ZPSiSS, 2011</p> |
| <h1 data-bbox="517 394 616 439">GPS</h1> | | |

1. Basic about GPS

The **Global Positioning System (GPS)** is a space-based global navigation satellite system (GNSS) that provides location and time information

A **GPS tracking** unit is a device that uses the Global Positioning System to determine the precise location of a vehicle, person, or other asset to which it is attached and to record the position of the asset at regular intervals. The recorded location data can be stored within the tracking unit, or it may be transmitted to a central location data base, or internet-connected computer, using a cellular(GPRS or SMS), radio, or satellite modem embedded in the unit. This allows the asset's location to be displayed against a map backdrop either in real time or when analysing the track later, using GPS tracking software.



It uses between 24 and 32 Medium Earth Orbit satellites that transmit precise microwave signals. This enables GPS receivers to determine their current location, time and velocity. The GPS satellites are maintained by the United States Air Force.

GPS is often used by civilians as a navigation system. On the ground, any GPS receiver contains a computer that “triangulates” its own position by getting bearings from at least three satellites. The result is provided in the form of a geographic position – longitude and

latitude – to, for most receivers, within an accuracy of 10 to 100 meters. Software applications can then use those coordinates to provide driving or walking instructions.

2. Experiment description

On this laboratory we are going to use EXPLONA GPS tracking system (fig.1) which records vehicle velocity in the internal memory. Using vehicle we have to conduct a few test laps on a known distance. All data will be read on computer. Goal of this laboratory is checking precision of GPS system.



Fig. 1. Explona GPS