PC BASED GPS RECEIVER

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Project Aim

To build a PC based GPS receiver

Project description:

This is a PC-based GPS receiver that lets you find the location of a place and also gives the standard time on your PC. It may be useful in remote areas where no other wireless network for mobile and the Internet is available. The GPS receiver is also useful for research and other sophisticated applications.

Hardware Used:

- Power supply
- MAX232
- GPS module

Approach:

1. The system consists of a PC, a GPS receiver that collects data from the satellite and an interfacing circuit to send the data to the PC through the serial port.
2. The only circuitry involved is the serial connection between the PC and the GPS module.
3. The system requires 5V as well as 3.3V DC supplies—5V for the MAX232 and 3.3V for the GPS module.

Working of GPS module:

1. The iWave GPS module requires 3.3V DC supply.
2. The basic working of the system is based upon decoding of the NMEA protocol.This protocol includes a set of messages which use ASCII character set and have a defined format. These messages are continuously sent by the GPS module to the interfacing device.
3. These messages include GGA, GGL, GSA, GSV, RMC, VTG and ZDA. Here you need not know about all of these messages. You need only the GGA message string which

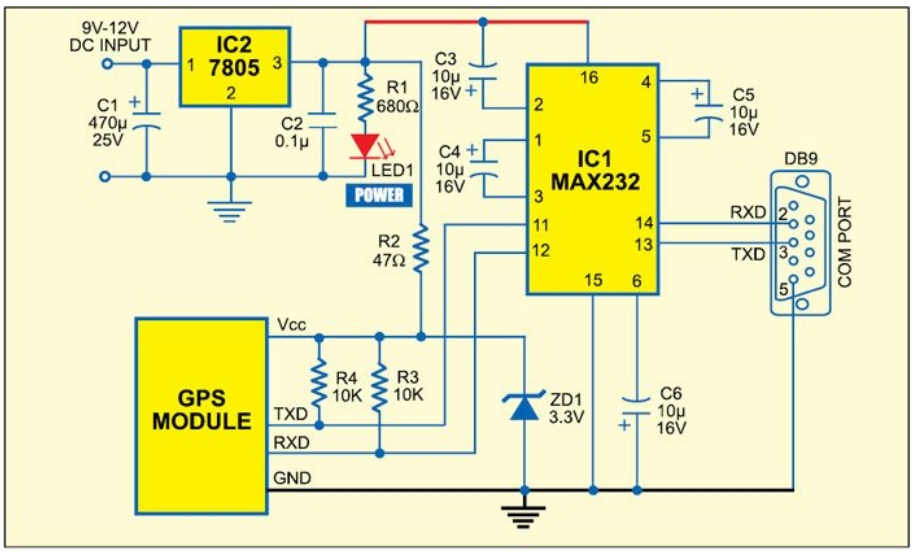

Figure 1: Circuit Diagram

represents the time, position and fixed data for this application. This string has a format like:

"$GPGGA, 002153.000, 3342.6618, N, 11751.3858, W, 1.2, 27.0, M, -34.2, M,, 0000*5E"

where each field separated by comma (,) represents a particular information.

4. We have used only five of these fields for our purpose of displaying the time, latitude, latitude-direction, longitude and longitude-direction, which are second, third, fifth, fourth and sixth fields, respectively.

5. Further a program can be built to use this information to produce location and time based on the information received