

Speed Meter

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Introduction:

The Speed Meter finds out the velocity and acceleration of a moving vehicle using the GPS coordinates. The location coordinates are used to calculate the velocity and acceleration using predefined formulae. The results are sent to an Android application over Bluetooth to be displayed in real time using graphs. The application displays other results such as trip data, average speed and average acceleration as well.

System Specifications:

The Speed Meter system is comprised of the following Components:

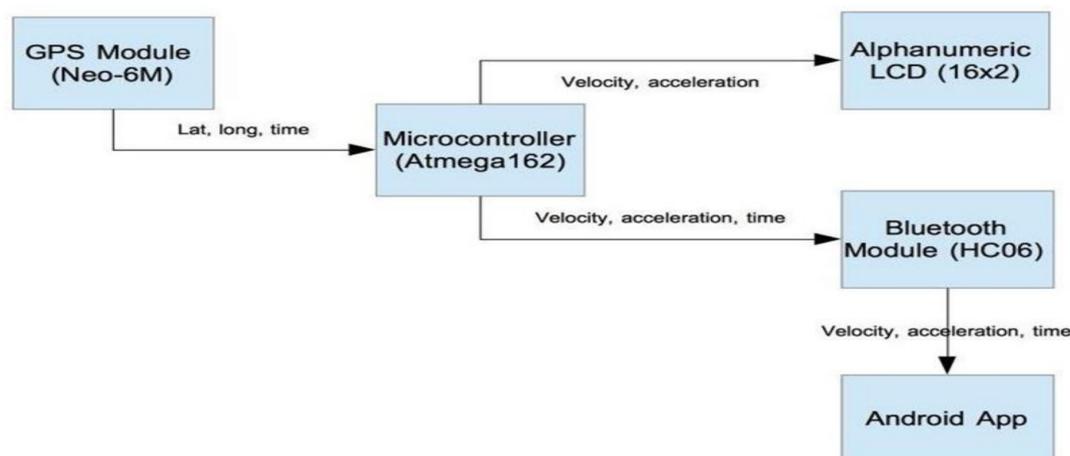
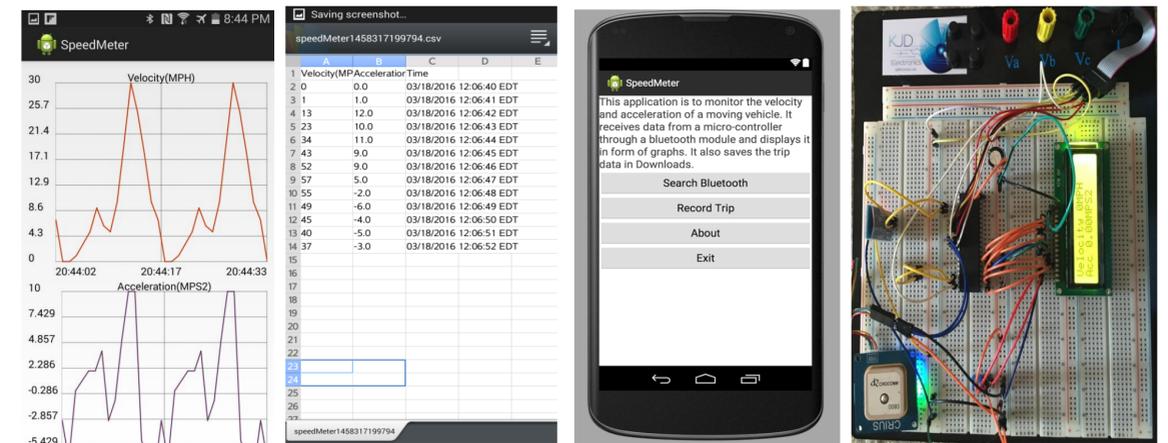
- & GPS Module (Neo-6M)
- & Microcontroller (Atmega 162)
- & Alphanumeric LCD
- & USB connection
- & Bluetooth Module (HC-06)
- & Android Application

GPS Module: This module is used to find out the location of the moving vehicle continuously. The Velocity Track a Speed Over Ground (VTG) Sentence is used to find out the speed and acceleration. This is used to find out the velocity of the moving vehicle.

Microcontroller: The microcontroller has a 16K flash memory to hold the code to control the other components of the system. Specific code is written to the microcontroller which helps it to signal the GPS module to collect location coordinates and then use these coordinates to calculate the velocity and acceleration of the moving vehicle.

Bluetooth Module: The Bluetooth module used in this project is a HC-06 which is compatible with the Atmega 162 microcontroller for easier transmission. The HC-06 Bluetooth module is a slave module.

Results: The Android application was tested using the Bluetooth module and the microcontroller was tested by a simple circuit used to control LEDs on a bread board. A full system test will be done when the project is completed and then the results and analysis will be updated here.



Components	Cost
GPS Module (Neo6M)	\$90
Microcontroller (Atmega162)	\$25
Alphanumeric LCD Module	\$20
Printed Circuit Board	\$5
Circuit Elements (Resistors, Capacitors, Diodes)	\$10
Miscellaneous	\$20
Total Cost	\$170



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