

ABSTRACT

The E-traveler device is designed and developed for company purposes. It is capable of recording the company's car data such as distance travelled, time of departure and arrival. It is a mobile device that can be brought along in the car and anywhere, as well as return to company reporting for checkup. Company employee is able to read the data by connecting it to the computer via serial port.

E-traveler is mainly controlled by PIC 16F877A, a 40 pin microcontroller, which has numbers of I/O lines and program memory capacity for calculating and storing data. Vehicle sensors and actuators are all interfaced to this microcontroller. Data will be automatically stored into EEPROM of the microcontroller in order to keep the data safe even when the power is cut off.

Twelve to five volts step down voltage converter, IC7805 is employed to provide a constant five volts supply and only one amp maximum output current from the microcontroller which it originally draws the current from the car battery that has twelve volts with the average of 45 amps. Real time clock is built in for recording the travel time of the driver.

For the mechanical side of this project, vehicle speed sensor (VSS) is replaced by a rotary encoder. Both are having the same working principle which produces a series of pulse train when the wheel rotates. In addition, fuel sensor is taken originally from the car for measurement but then with an extra buzzer added to warn the driver when refueling is needed.

To summarize, the objectives and goals of the system are achieved with satisfying results. The E-traveler device is able to record the calculated data and send the data to the computer via serial port connection.

Keywords: PIC Microcontroller, Serial Port, Vehicle Speed Sensor, Rotary Encoder, Real Time Clock, Fuel Sensor, buzzer.