

Design and Development of OEM Independent Remote Vehicle Diagnostic System



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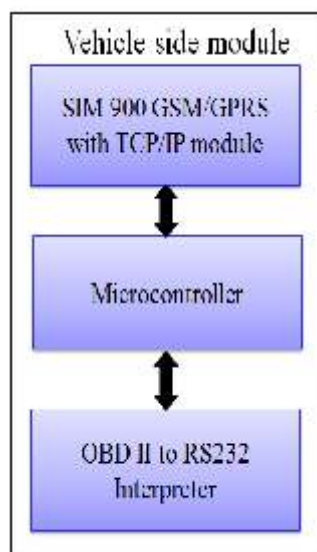
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Abstract:

Usage of embedded systems in vehicles has enhanced the safety and comfort in modern day vehicles. The advent of OBD I and OBD II in the automotive industry have enhanced vehicle diagnostics further reducing the vehicle emissions and improving fuel efficiency. At times, when the vehicles are not in the vicinity of technicians, remote assistance is required for diagnostics. The remote diagnostics services that are available currently are OEM dependent .So there is an imminent need for an OEM independent Remote diagnostics along with OBDII.

In the present project a cost effective, easy to use real time, OEM independent Remote Vehicle Diagnostic System is developed. This system is capable of retrieving the DTCs, live sensor data and other diagnostic related parameters from the remote vehicle. The developed Remote Vehicle Diagnostic (RVD) System consists of various sub systems namely GSM communication unit, GPS unit and STN1110 based OBDII to UART interpreter chip which are integrated with LPC 1768 ARM Cortex M3 based controller. The vehicle can establish communication with the Remote Diagnostics Server application via a TCP connection. Remote Diagnostic Server was developed with Microsoft Visual Studio 2010 on .NET Framework and C# language. The system was tested on vehicles from different OEMs and validated.

The developed system uses a 2G based GPRS network for the data communication and can be upgraded to 3G based networks for higher data rates. The software developed for this project served its purpose and can communicate with a single vehicle at a time and this issue can be addressed by implementing a sophisticated algorithm for data base storage and multiple vehicle communication.



Remote vehicle diagnostic system with results