

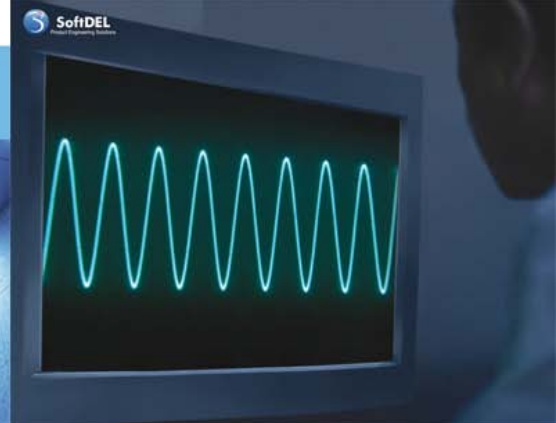


factory &
process automation
solutions

building automation
solutions



SoftDEL



test & measurement
solutions

Partner to global industrial product companies for control & connectivity based engineering solutions.

Automobile Diagnostic Tool

The Customer

The customer is global manufacturer, distributor of rugged and reliable serial, and data communication products for commercial and industrial applications.

In addition to manufacturing, it is a value distributor for quality vendors. This enables it to have an in-depth knowledge and insight into data communication problems and issues making it a one stop solution provider.

Customer Need

The customer approached SoftDEL to develop a PC-based scan tools for diagnosing and troubleshooting OBDII-based light duty vehicles having different protocols. The customer wanted a user friendly UI which would assist the end user to diagnose their vehicle and accomplish some minor repairs and maintenance. The existing product line was not getting the upgrade required to maintain and grow its revenue base due to lack of internal company resources.

On-board diagnostics (OBD)

OBD, in an automotive context, is a generic term referring to a vehicle's self-diagnostic and reporting capability. OBD systems give the vehicle owner or a repair technician access to state of health information for various vehicle sub-systems. OBD-II provides access to numerous data from the ECU (Electronic Control Unit) and offers a valuable source of information when troubleshooting problems inside a vehicle.

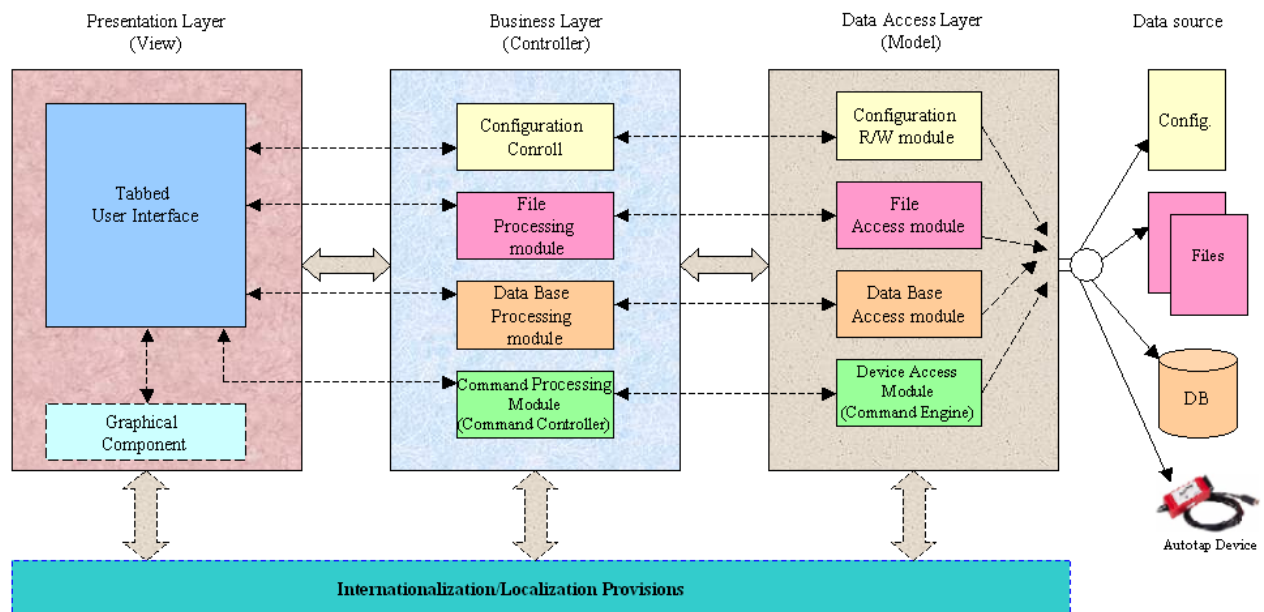
Diagnostic tool supports following protocols:

- SAE J1850VPW
- SAE J1850PWM ISO 9141-2
- ISO 9141-2
- ISO 14230-4 (KWP2000)
- ISO 15765-4 (HS CAN)

SoftDEL Solution

SoftDEL took on the entire product sustenance, new UI development, new feature development and interconnectivity development to free client resources to focus on newer product concepts and development.

The following block diagram shows major modules and the interconnections among them:



The diagnostic tool software consist of following layers

- Data Source Layer
 - Files – Text and Configuration
 - Database
 - Diagnostic Device
- Data Access Layer
 - Configuration R/W module
 - File Access Module
 - Database access module
 - Device Access Module

- Business Layer
 - Configuration Control Module
 - File Processing Module
 - Database processing Module
 - Command Processing Module
- Presentation Layer
 - Tabbed User Interface
 - Graphical Component.

Registration Requirements

The diagnostic software has to be registered with one piece of hardware serial number. This causes the software to work with the registered serial number only.

Database

A database is maintained which stores the multilingual strings, files and the diagnostic trouble codes information in various tables.

Real time data Display and Sensor Diagnosis

Display sensor information enabling users to diagnose any sensor problem with an uptime of 10 seconds. Sensor information is gathered from different sensors in vehicle like Oxygen sensor, Fuel Sensor etc. Users are given facility to view these values in tabular and pictorial format (maximum 4 values) at a time. This aids in effortless scrutiny of the information.

Retrieve and Display Diagnostic Trouble Codes

This module informs user about the diagnostic trouble codes, which are existing and forthcoming. It also gives the MIL (Malfunction Indicator Lamp) status.

GUI

User-friendly GUI was developed to showcase data in the prescribed format. (Real time trend, PID names and values etc)

Assistance Manual

An Assistance Manual is provided to user to help them carry out the trouble shooting of vehicle with all the necessary information this is enabled with print screen option. The software has an instruction area which builds in user confidence while trouble shooting.

Software Installation and up gradation

Easy to install and upgrade without disturbing the previous installations for end users.

Key Features

Following are the basic features of Diagnostic tool software -

- Modular Design
- Communication with the Device using the LDV commands and OBDII protocols
- Read and Display Freeze Frame Information
- Clear Diagnostic Trouble Codes
- Graphical component development
- Integration of graphical component
- Display the number of Emissions Related DTCs
- Status of the available continuous monitoring systems
- Emissions testing and readiness information
- Vehicle Snapshot Data
- Read and Display Emissions Related Sensor Data
- Provision for 3rd Party Branding (change in logos, references to Diagnostic tool, and help files)

Impact

- Multi-language support, the first two languages being English and Spanish.
- Solution abreast with latest technologies
- User friendly UI developed
- Customer could use in-house resources to develop next generation products, while SoftDEL efficiently took on existing product upgrade and maintenance lifecycle

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