

CASE STUDY

Tyre Pressure Monitoring System for Automotive Supplier

THE COMPANY

Our Client is an international automotive supplier, providing special units and control systems for commercial vehicles and supplies all the world's leading commercial vehicle manufacturers.

Besides that the company provides driver assistance solutions.

THE CHALLENGE

One of the main markets for Our Client is the shipping industry as most of the products support trucks and other transportation vehicles. During the long-distance shipment drives on abandoned roads it is extremely important for the drivers to be able to monitor the state of the wheels (e.g. pressure, temperature). In case of malfunction or leakage these characteristics change therefore with precise monitoring fatal accidents are avoidable.

TPMS (Tire Pressure Monitoring System) is an on-the-road wheel pressure control system with a small display in the driver's cabin that has built-in alert functions. The demands for the system were extensive:

- Option of providing garage support with diagnostics and parameterization;
- Axle, wheel number and sensor layout configuration either manually or automatically;
- 2 or 4 wheels per axle, with a 2 sensor coverage;
- Capability of handling 6 different sensor states
- Validating the changes made by the 'auto-learning' function;

The application had to be adapted to auto-learning to support the external configuration of the implemented sensors.

MORTOFF GROUP

www.mortoff.hu

www.mortoff.ro

www.i-deal.hu

www.probi.hu

1138 Budapest, Dunavirág str. 2.,
1st tower 3rd floor

+36 1 319 55 11

sales@mortoff.hu

www.mortoff.hu



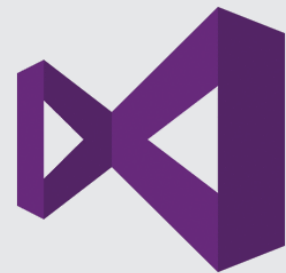
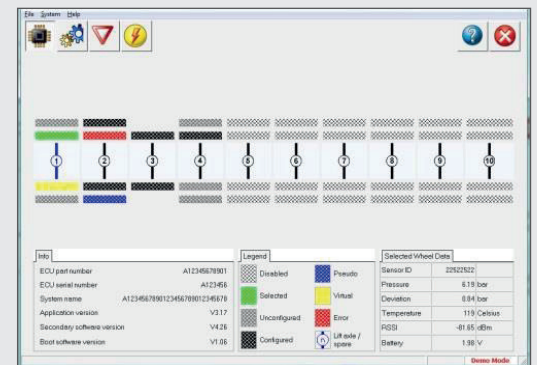
THE SOLUTION

To reach these objectives, they decided to ask **Mortoff** to develop the **TPMS tool**. Mortoff used the Client's ECU communication platform as a base of the application, also the enterprise regulations for diagnostic software were applied. The ECU configuration was supported by their XML based parametrization language.

The design was object oriented decomposing the user interface to small reusable objects (as axles) and other background operation objects.

Used tools: Microsoft Visual C++, the ECU platform C++ API.

The design of the UI was split in two. The upper part was mainly the parameterization, configuration and axle/wheel layout handling while the lower part was the manual or automatic sensor configuration and the selected sensor's real-time values.



WHERE WE ARE NOW

The solution provided by Mortoff was successfully implemented, and is in use for the satisfaction of the Client. Since the implementation no major bugs were reported, merely small changes had to be implemented.

MAIN BENEFITS

The main direct benefit of the implemented software was the increased safety on the roads. However several indirect benefits occurred leading to cost cuts and enhanced value:

- **Improved garage support:** with the usage of the application the sensors and tire settings can be reconfigured only a few minutes within the detected changes.
- After the implementation and thorough testing, TPMS became integrated in our Client's EBS system package – therefore as a result of this development, the EBS system has an **added value** now.
- **Cutting costs, avoiding waste:** with the application the state of the sensors can be monitored precisely, therefore the likeliness of uncorroborated sensors replacements are reduced to zero.