Unlocking Economy and Flexibility: Transitioning from an OBD chip to the OBD Experts OBD Protocol Stack

Abstract:

This white paper discusses the shift from using an OBD chip (also known as an OBD to UART Interpreter) to licensing the OBD Protocol Stack produced by OBD Experts. The telematics industry is constantly looking for new ways to improve the reliability, cost, and flexibility of On-Board Diagnostics (OBD) systems. As automotive technology improves, stakeholders look for solutions that not only fulfil current standards but also ensure their systems are future proof. This article provides a thorough examination of how the OBD Protocol Stack is a superior alternative to an OBD chip, providing improved performance, adaptability, and cost effectiveness.

Introduction:

On-Board Diagnostic (OBD) data plays a crucial role in modern vehicle telematics, enabling efficient monitoring, diagnosis, and maintenance. An OBD chip has long been a staple in telematics implementations, providing essential functionality for data communication and diagnostics. However, as the automotive landscape evolves, there is a growing need for more advanced solutions capable of meeting the demands of next-generation vehicles and emerging industry standards.

Limitations of an OBD Chip:

While an OBD chip accomplishes its job, it has some limitations that make it unsuitable for increasing telematics needs:

a) **Limited Flexibility**: An OBD chip's functionality is fixed, making it difficult to adapt to new OBD standards (such as J1979-2 - OBDonUDS).

b) **Lack of Customization:** Integrating new features or changing functionality, for example reading OEM parameters like odometer, is typically difficult with an OBD Chip.

c) **High Cost**: Purchasing and integrating an OBD Chip can incur a high set cost and unscalable upfront expenses. Even at large volumes an OBD chip can be a significant cost on your BOM.

d) **Lack of Control**: Long lead times and chip availability can delay projects.

Benefits of the OBD Protocol Stack from OBD Experts:

In contrast to an OBD Chip, the OBD Protocol Stack developed by OBD Experts offers a myriad of advantages, making it an ideal replacement:

a) **Off-the-Shelf Solution**: Fully tested and pre-ported OBD software can be up and running on your hardware in one afternoon.

b) **Modular Architecture**: The OBD Protocol Stack's modular architecture and delivery as C source code makes it simple to customize to fit unique needs and integrates seamlessly with current systems.

c) **Pick-and-Mix Protocols**: The OBD Protocol Stack comprises ISO 9141, ISO 14230 (KWP2000), ISO 15765 (CAN), J1850 (PWM), J1850 (VPW), J1939 and the new J1979-2 (OBDonUDS). The OBD Protocol Stack can be licensed in the exact package that suits the project.

d) **Cost-Effectiveness**: The OBD Protocol Stack is licensed with a perpetuity license on a one-off payment therefore each telematics unit sold decreases the per-unit cost.

e) **Futureproofing:** The OBD Protocol Stack is C source code and the license permits it to move from product to product within the same company. This means that as technology advances the OBD Protocol Stack can easily adjust.

Three Case Studies: Transitioning to the OBD Experts OBD Protocol Stack:

To illustrate the benefits of adopting the OBD Protocol Stack, consider the following case studies:

Case Study 1:

Company X, a small telematics device manufacturer, seeks to upgrade its OBD dongle to include J1979-2 (OBDonUDS) and improve diagnostic capabilities and capture a larger share of the market. After evaluating various solutions, including upgrading the existing OBD chip, they opt for the OBD Protocol Stack from OBD Experts.

The transition to the OBD Protocol Stack enables Company X to:

- Be one of the first device manufacturers to offer this new J1979-2 (OBDonUDS) increasing their customer base.
- Enhance diagnostic functionality, leading to improved vehicle performance and customer satisfaction.
- Reduce development costs and accelerate time-to-market for new OBD-enabled products.

Case Study 2:

Company Y, a leading fleet tracker, has encountered trouble with long lead times for its OBD chip of choice. After evaluating various solutions, including changing the existing OBD chip, they opt for the OBD Protocol Stack from OBD Experts.

The transition to the OBD Protocol Stack enables Company Y to:

- Save money by choosing to mount the OBD Protocol Stack on a cheaper microprocessor.
- Enhance diagnostic functionality, by easily adding OEM specific parameter requests such as odometer, tire pressure, and ignition status.
- Ensure future compatibility as hardware and microprocessors evolve, safeguarding their investment.

Case Study 3:

Company Z, a prominent dashcam manufacturer, recognizes the growing demand for integrated OBD functionality within their products. In response to customer feedback and market trends, they embark on a project to enhance their dashcams with OBD capabilities. After evaluating various solutions,

Company Z decides to integrate the OBD Protocol Stack from OBD Experts into their existing product line.

The integration of the OBD Protocol Stack enables Company Z to:

- Offer enhanced functionality: By leveraging OBD data, their dashcams can provide users with real-time vehicle diagnostics, including speed, engine RPM, fuel consumption, and more, enhancing the overall user experience.
- Improve safety and security: With access to OBD data, dashcams can automatically capture and timestamp critical events such as sudden acceleration, harsh braking, or engine faults, providing valuable insights for both drivers and fleet managers.
- Differentiate their product: By integrating OBD functionality seamlessly into their dashcams, Company Z sets themselves apart from competitors, offering a comprehensive solution that meets the evolving needs of consumers in the automotive aftermarket.

Conclusion:

The switch from an OBD chip to the OBD Protocol Stack provided by OBD Experts is an appealing opportunity for telematics firms looking to improve their OBD offerings. This move not only enables greater capability and flexibility, but it also provides a simple and cost-effective path forward. With seamless integration, greater performance, and long-term cost savings, migrating to the OBD Protocol Stack is not only simple, but also financially advantageous in the long run. By embracing innovation and agility, telematics companies can future-proof their OBD systems while providing excellent value to customers.