



Your IT Enabler



Education



Manufacturing



Healthcare



Public Information
and Safety



Mobility

Mobility Case Study

Mobile applications to connect car's On-Board Diagnostics (OBD) device with backend IoT platform

Internet-based mobile application for simplifying vehicle health monitoring

PROJECT BACKGROUND

A fast-paced software start-up wants to build solutions to ease performance monitoring and help in preventive maintenance of cars. The company has spent months in R&D to build a robust big-data driven Internet of Things (IoT) platform and a proprietary On-board Diagnostic device or OBD device. The cars would connect to the platform over the internet and provide vehicle information such as engine status, temperature, fuel level, vehicle location, and other advanced vehicle details and analytics.

The company envisages building a business model by providing this information to the car owners and other industry stakeholders about the fuel consumption, driving patterns, car engine status and the health of the car. The company also wants to build a mobile app on Apple iOS and Android mobile devices, which will be the primary frontend interface of the platform.

THE VATSA SOLUTION

Internet-based mobile application for simplifying vehicle health monitoring

The company wanted to build robust connectivity between the OBD device, the mobile phone and the IoT platform, for which they approached Vatsa. Vatsa developed iOS and Android mobile applications that connected to the OBD device on the one end, and the company's IoT platform on the other. The application development needed to be quick in order to meet stringent time-to-market requirements.

Vatsa collaborated with the company's hardware and microcontroller R&D teams to understand and implement the ELM327 command protocol for smooth and seamless communication between OBD device and the mobile app. The mobile applications connected with the OBD device over BLE (Bluetooth Low Energy) to pull data in real time.

The data is processed by the app to show vehicle condition, engine status, fuel data and many more parameters before sending it to the server for recording and further analysis. Vatsa designed the mobile app's user interface in a way that the user's interpretation of data was very easy and intuitive.

The connected platform at the backend also collects data from third party systems to understand vehicle benchmarks such as average temperature or fuel consumption of a particular make and model etc. Data from these third party systems is also rendered alongside data from the car's device for comparative study.

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RESULTS

The company brought its innovative ideas and product roadmap to the engagement while Vatsa backed them with its end-to-end product development expertise to craft a user-centric product. The mobile app became the face of the company's IoT platform, from which the car owner and other business stakeholders get detailed reports of a vehicle to make critical decisions.

The use of the OBD device and mobile apps helped the start-up company position its device and platform with the following benefits to its customer segments and end users:

- **Car Owners:**

Reports and details to the owner, including:

- a. Reminders for car servicing*
- b. Sharing of live location*
- c. Overview of car health and analysis of variation in driving patterns for preventive maintenance*
- d. Periodic scoring of the car's performance and money saved based on fuel consumption*
- e. Daily activity summary of the drives*
- f. Geofencing, alerts for rash driving, engine errors and continuous idling*
- g. Navigating to the nearest gas stations and real-time rates at the pumps*

- **Car Service Stations:**

Useful and detailed information to the car service stations to save their time by providing reports on any problems and errors in the car

- **Insurance Providers:**

Providing useful data to the insurance providers to help them give insurance quotes and decide insurance premium based on the vehicle's usage and condition

TECHNOLOGY AND TOOLS:

Android, iOS, Java, Objective C, MVC, BLE, OBD, ELM 327, Sentry, Google Analytics, SQLite, REST API, GraphQL, XCTest, Junit





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VATSA has grown from being a software service provider company to a complete solution provider for variety of business needs of its customers. At VATSA, we not only help our customers in problem identification and resolution but also provide a unique touch of trust by owning their business situation while we help them overcome it.

We do this through our talented pool of people, impeccable services and innovative solutions. Our commitment to quality and excellence is evident in every assignment we deliver. With our agile work culture and professional ethics, we have built high level of trust in our customers, which has resulted into repeat business.



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