



Your IT Enabler



Education



Manufacturing



Healthcare



Public Information
and Safety



Mobility

 Mobility Case Study

Android, iOS and web platform based application for detection of leakages in Natural Gas pipelines

End-to-end enterprise system for data management and workflow automation

PROJECT BACKGROUND

A leading US-based company manufactures a wide range of instruments to detect leaks in the natural gas pipelines. These instruments are used by natural gas producers and distribution companies to help prevent hazardous fire situations in residential communities, commercial establishments and long distance pipelines across the United States, European continent and China. A field technician carries the appropriate instrument (e.g. hand-held or car-mounted) to conduct a survey of a localized area. The instrument sucks in the air in its vicinity to calculate the amount of methane, a highly inflammable gas. A higher percentage than a threshold amount indicates a potential leakage and needs to be immediately communicated and acted on to avoid a fire.

The manufacturer wants to develop an end-to-end enterprise solution consisting of a mobile app that connects to the gas detection instrument via Bluetooth Low Energy (BLE) as well as over a wired connection, a multi-tenant backend system for storing and analysing the data sent by mobile devices, and a feature-rich web-based portal to provide many capabilities including managing the client accounts, planning inspections, assigning and tracking surveys to technicians, rendering survey readings in real time on a map, and more.

THE VATSA SOLUTION

End-to-end enterprise system for data management and workflow automation

Vatsa built a mobile application that could be connected to the gas detection instruments using Bluetooth and wired connection. Vatsa created a robust and scalable data architecture that could collect a large volume of data coming every second from the instrument to the app and further transmitted to the server. The technicians traverse alongside the gas pipelines and record methane levels, which are passed on to their ruggedized mobile device (built to withstand high stress and extreme conditions). The app shows each reading to the user while simultaneously recording and transmitting the location of the data. The app also performs limited processing of essential data to show to the user while the survey is being conducted. Field offices with backup units and fixing equipment use the same app, and are immediately notified using push notification in case of unusual levels. Individuals and teams are assigned using the web-based portal and sent to the location as part of a streamlined and continuous workflow.

Vatsa also implemented new and custom features catering to specific requirements of the company's sales and marketing team for their business development needs. Further, since the app was used across remote parts of North America, Canada, Europe and China, it needed localization. Vatsa enabled support for 8 different languages as well as localization to make it usable. The app also supported calibration tests of the instruments which assure that the instruments are showing correct values of the gas.

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RESULTS

Vatsa helped the company pitch and evangelize their product to gas distribution companies across the globe. Vatsa's technology expertise enabled the company to create a robust application that spanned data collection, transmission, processing and workflows for hand-off to backup teams and fixing units. The mobile solution ensured faster and easier accessibility to the field staff and technicians in real-time. The direct benefits of the app included:

- Connecting seamlessly with the instruments and collecting data
- Alerting the right teams in case of gas leakage for corrective action
- Faster and easier adoption across the globe with localization
- Auto-generating survey reports on methane gas leakage
- Calibration-testing the instrument for high levels of accuracy and reliability

TECHNOLOGY AND TOOLS:

- Web Platform - ASP.NET, C#, VB.NET, Java, Java REST API, SQL Server
- Mobile - Android (java), iOS (SWIFT), MVC, Rs232, BLE, Location Service, ArcGIS, Google Maps, XCTest, JUnit

Interested in achieving similar results for your business? Contact us.

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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