

# Digital Transformation Drives Safety and Optimization for a leading Fleet Management Company



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## Industry

Transportation

## Business Value

- Two to fifteen districts growth within a short span of time
- Zero cost on cellular data usage
- Enhanced software security using IMEI traceability
- Increased accountability through driver login/logout information

## About the Client

A leading technology solution provider with a mission of safe school bus-riding through fleet tracking, safety, and optimization. The company has, over the years, focused on ensuring safe, efficient and convenient bus-riding experience for stakeholders such as school administrators, bus drivers, students, and parents.

## Background

While school bus tracking has matured and is now accepted as the norm for increasing child safety, there are still gaps in meeting the needs of both providers and riders. The company wanted a technology transformation that would exploit the digital era to make the school bus-riding experience safer, efficient and convenient for parents & bus riders; and improved management and operational efficiency for fleet managers, dispatches, support center operators, and routing administrators.

The IoT solution would include web and mobile applications that effectively track buses, and help schools manage their bus fleet, large or small, at an affordable cost. The client wanted a mobile app to help parents and their bus riders know precisely when to arrive at their bus stop. It should help the bus drivers with scheduled and alternate routes and display information of students to be picked up or dropped in each bus stop.

## Technology Stack

- Cloud Architecture
- LAMP Stack – Linux
- Apache, MySQL, PHP
- Android, SQLite
- HTML 5, CSS3, JQuery, JQuery Mobile
- Google Maps
- Open Street Maps
- PayPal Integration

## Solution

- Trigent helped the client to translate their digital transformation vision into reality by building a cloud-based unified technology solution consisting of mobile and web applications that can be used by school administrators, drivers and parents. By following the DevOps methodology the full-scale application development design-to-deploy cycle was shortened.
- By utilizing the data derived from the transformation, Trigent's engineers unified data sources from across multiple systems, to design complex, predictive real-time algorithms that increase the safety and efficiency of bus fleets and allows bus-riding households to know precisely when their bus will arrive. This became an important aspect of Trigent's value proposition of providing unique experience and capabilities that were not available across other competing products.
- The web application is optimized for the administrators use and the mobile application for parents and drivers.
- The system operates with low operational cost and uses low-cost tablet devices that do not need a cellular network, instead uses Wi-Fi network at schools and depots.

## Features

- SaaS-based solution with the ability to customize or delivered as a hosted solution
- Real-time tracking of bus movement on maps that can be viewed on both PC and mobile devices
- Bus route tracking with diagnostics
- Bus route analysis and modeling
- ETA for pickup and drop points
- Effectively tracking driver work schedule
- Route information and navigational assistance to drivers – Real-time navigation using maps to reach next bus stop
- Ability to automatically register students' entry and exit of the bus through RFID readers and GPS locations without impacting the load and unload process
- Ability to work with reduced functionality while in offline mode
- Online payment facility for subscriptions

## Client Benefits

The digital transformation allowed the client to expand and grow their business with zero or minimal operational constraints. Other benefits and results include:

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- The business grew from just a couple of districts to 15 districts within short time
- With high reliability and ease of use, user adoption and satisfaction improved many fold
- Zero cost on cellular data usage - The application uses only the Wi-Fi points available in the school or bus depots
- Enhanced software security - Complete server controlled information flow to each tablet using IMEI (International Mobile Equipment Identity)
- Information traceability - Track bus movement by accessing data from the tablet
- Increased accountability - Driver login/logout information is notified to depot managers
- Leadership position - The unique and innovative application has established the company's leadership position in the area of school bus fleet management