



WE HELPED PUT FLAGGER FORCE'S FLEET ON THE MAP



<p>Objective</p> <p>Improve safety for Flagger Force employees and work zones while improving the end customer experience.</p>	<p>Solution</p> <p>An automated tracking system utilizing in-vehicle GPS coupled with a user-friendly dashboard to monitor and display real-time statuses and enable quick resolution to issues in the field.</p>
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LEVERAGED TECHNOLOGIES

- Microsoft Azure Functions
- MS SQL Server (Azure managed)
- Microsoft Service Bus
- Microsoft Application Insights
- Microsoft Entity Framework
- Google Map API

PLATFORM INTEGRATION

- GPSInsights
- Internal Order System (TDOC)

CORE CAPABILITIES

- Geospatial
- Big Data
- IoT Data Streaming
- Systems Integration
- Cloud (Azure)
- Machine Learning
- UX/UI

By uniting our proven geospatial and system integration expertise, Seisan designed and developed a robust series of custom software applications to streamline Flagger Force's manual business processes.



The shining star of this software show is **TDOC Locate** – a custom application suite that we created for Flagger Force to enable automated tracking and real-time monitoring of its location-based assets in the field.

More than mere monitoring, TDOC Locate boasts a user-friendly dashboard interface that features an interactive map UI (built on the Google Maps infrastructure) allowing users to quickly access vital information ranging from truck locations – including who “owns” that truck, their contact information, truck specifications and capabilities – on

down to which employees were picked up for that particular assignment.

A variety of filters allow users to create custom map views to highlight specific data sets like time status, branch-specificity or resource and order type. Historical inquiries and search capabilities were also instituted to allow users to check past statuses when needed.

Since deployment to all branches in Q1 of 2017, TDOC Locate has delivered improvements in safety with over 93% of employees arriving to site on time.

SEISAN'S APPROACH / FLAGGER FORCE LOCATE INITIATIVE

PROJECT OVERVIEW

The TDOC Locate suite is comprised of three individual products, each of which plays a unique role in empowering Flagger Force to monitor its assets through a singular web application:

On Time Arrivals (OTA) » The flagship application tracks the “on time” status of Flagger Force’s vehicles, towables and employee locations, keeping the dispatch team informed of possible scheduling conflicts. Job sites are marked by road cone icons with optional drill-down details of that particular job order.

Unauthorized Truck Use (UTU) » This application serves to hold Flagger Force’s driver accountable while using company vehicles. By monitoring ignition start/stops, vehicle speed and if a vehicle drives outside of a predetermined geofence, UTU informs audit staff of unauthorized and unsafe vehicle usage. Since launching in 2017, we’re proud reporting statistics have shown a large decrease in vehicle accidents and maintenance.

Travel Time (TT) » True to its name, TT empowers audit staff to monitor and scrutinize routes taken by driver’s in comparison to best-route calculations. The audit team is alerted when a driver chooses a route that varies greatly from what is suggested or goes over the standard mileage threshold.

TECHNOLOGY DETAILS

Based on the client’s requirements, Seisan decided on a Serverless Framework leveraging Microsoft Azure Functions as the system’s main processing power. With mornings typically being busier than afternoons and evenings, the scalability of Azure Functions allowed us to account for fluctuations in varying processing power.

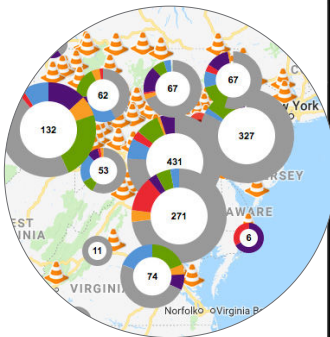
For the persistence layer, Entity Framework 6.1.3 and Microsoft Azure SQL were chosen to allow for a managed service, leaving backups, scaling and tuning in Microsoft’s hands, all the while speeding up development in other areas. A static Single Page Application (SPA) written in Ractive.js was selected for the front end, allowing us to easily serve the site through Microsoft Azure App Service. WebAPI2.0 was utilized to build out RESTful services for the SPA to dynamically populate data.

We also leveraged Microsoft Service Bus as a fault tolerant transportation layer, which allowed queuing of information to be processed by the functions. This was especially useful for integrating with GPSInsight’s webhooks, which allowed for real-time GPS data processing as well as helped facilitate a smoother integration with Flagger Force’s internal Enterprise Resource Planning (ERP) system for processing new and updated data.

RESULTS

Seisan is proud to have designed, developed and delivered a product upon which Flagger Force now relies daily, the results of which have meant increased productivity, increased safety for its workers and work sites and increased customer satisfaction.

And it doesn’t stop there... Since deploying TDOC Locate, our relationship with Flagger Force has grown as we continue to explore new and innovative software solutions to meet the traffic control company’s needs. Stay tuned for an additional case study on a soon-to-launch suite of products that are focused on employee and order scheduling. These applications will ease time-consuming workday schedule planning for field specialists and employee advocates, while simultaneously automating the order dispatch center, which is by far the most important operation for ongoing business at Flagger Force.



FILTERS & CLUSTERING
Users can filter by On Time Status, Resource Type, Historical Data, and other options in order to create the display that works best for them. Assets are grouped into color-coded clusters as users zoom out of the map display.



IB ABEL - SUNBURY
ORDER ID

TODD MARTIN
344470

JOB START: MARCH 22ND, 2:45 PM
ELAPSED: 00:48

CREW MEMBER	ROLE	STATUS
VALERIE SCANDROL	ACL	●
ARIC WEILER	ACL	●

ASSET	STATUS
PICK UP TRUCK, LANE CLOSURE EQUIPPED VALERIE SCANDROL	●
PICK UP TRUCK, LANE CLOSURE EQUIPPED ARIC WEILER	●
LIGHT PLANT ARIC WEILER	●
LIGHT PLANT	●

REVIEW IN REALTIME

JOB SITE DETAILS

Each road cone icon delivers quick details pertaining to a particular job assignment. From Arrival Time Status via color code to truck capabilities and Foreman information, the dispatch team is equipped to make fast decisions as needed.