COLLEGE OF ENGINEERING

Electrical Engineering and Computer Science

THE PROJECT

- “Imagine a tool for finding interesting data sources, understanding them, and visualizing them in map, chart or summary tabular form in a pleasing layout of your own design – in your browser – for which you didn’t need to write any code. This is something that the US fire/EMS community desperately needs (97% of 40+ fire/EMS respondents to an informal survey last year identified this as their largest un-met information need).”
- That was the vision. The team at Levrum Data Technologies tasked us (as well as previous OSU Capstone teams) with the development of a “WYSIWYG” (What You See Is What You Get) web tool. This tool is intended for accessing, interpreting, and visualizing data sources relevant to Fire/EMS professionals, for the purposes of making better, more informed strategic decisions in the line of duty.

TECHNOLOGIES USED

- **Languages:**

  C#/.Net for server-side

  JavaScript/React for client-side

- **Development Tools:**

  Visual Studio / VS Code / Swagger.io

- **Server:**

  .Net server implementing key classes

- **Libraries/Frameworks:**

  React.js for UI components

  Context API for state management

  Observablehq/plot for data visualization

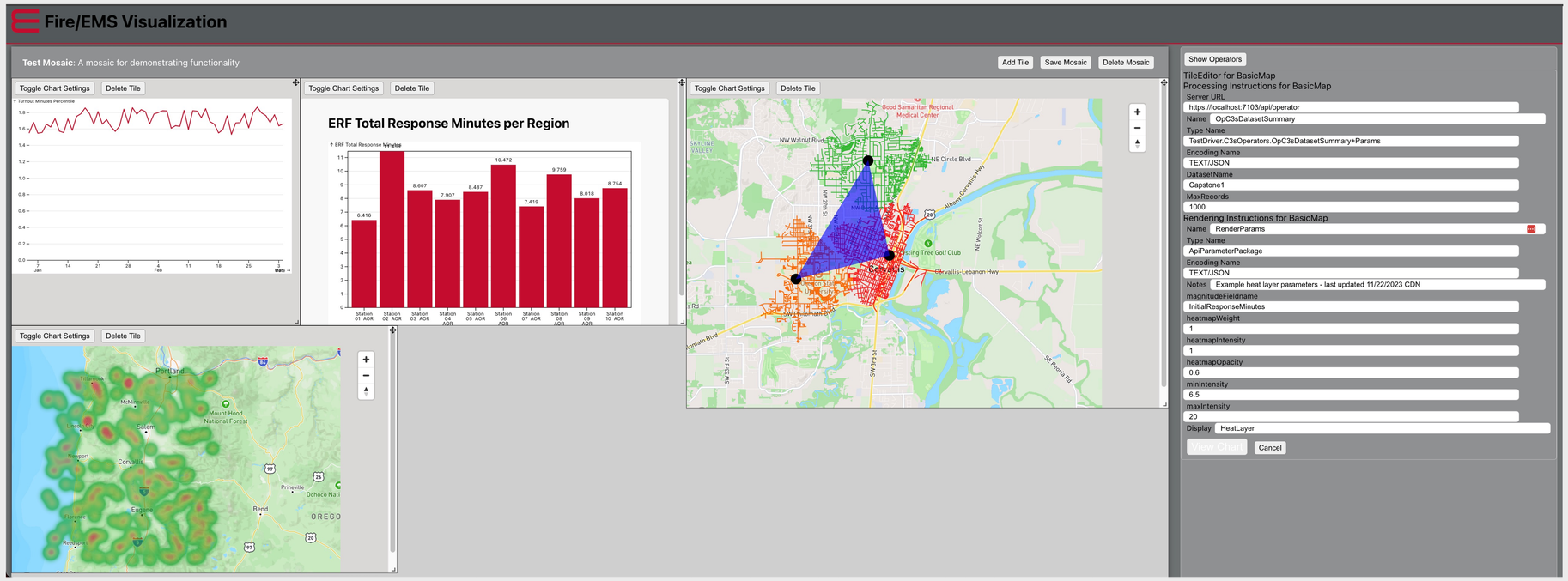
  React-Grid-Layout for generating movable/resizable components

Oregon State University

FIRE/EMS VISUALIZATION CLIENT

WINTER 2024 CAPSTONE IN PARTNERSHIP WITH LEVRUM DATA TECHNOLOGIES

John Langrell – Daniel Bracamontes – Jesse Curran – Rakiyah Mullings



OVERVIEW

The project largely focused on the front-end implementation of a custom editor providing users with a friendly interface for defining visualizations of important data sources.

Data can be displayed in four ways:

Series chart: Plots data points over time with contextual information on mouse-over.

Scalar chart: Represents data in bar or graph style, suitable for trend analysis.

Heat Map: Renders coordinates and supports a heat map display for visualizing current situations.

Vector Map: Plots specific points and outlines map areas for triangulation purposes.

EDITOR FUNCTIONALITY

Allows users to input desired information and packages it into a format readable by the API.

Receives information from the back end and transforms it into the desired visualization.

CLIENT FEATURES

Functionality for creating, naming, editing, and manipulating mosaics (collections of visualizations) and tiles (customizable data visualizations).

Ability to save changes to mosaics, delete them, and resize or delete tiles.

Dedicated editor mode and view-only mode available.

FUTURE PLANS

Long-term plans include:

Enabling users to build custom templates for visualizations, shareable with others for data viewing without manipulation.

Allowing for scalability and changeability based on peripheral (desktop, mobile, tablet).

Add more visualization types and options for selecting data sources.