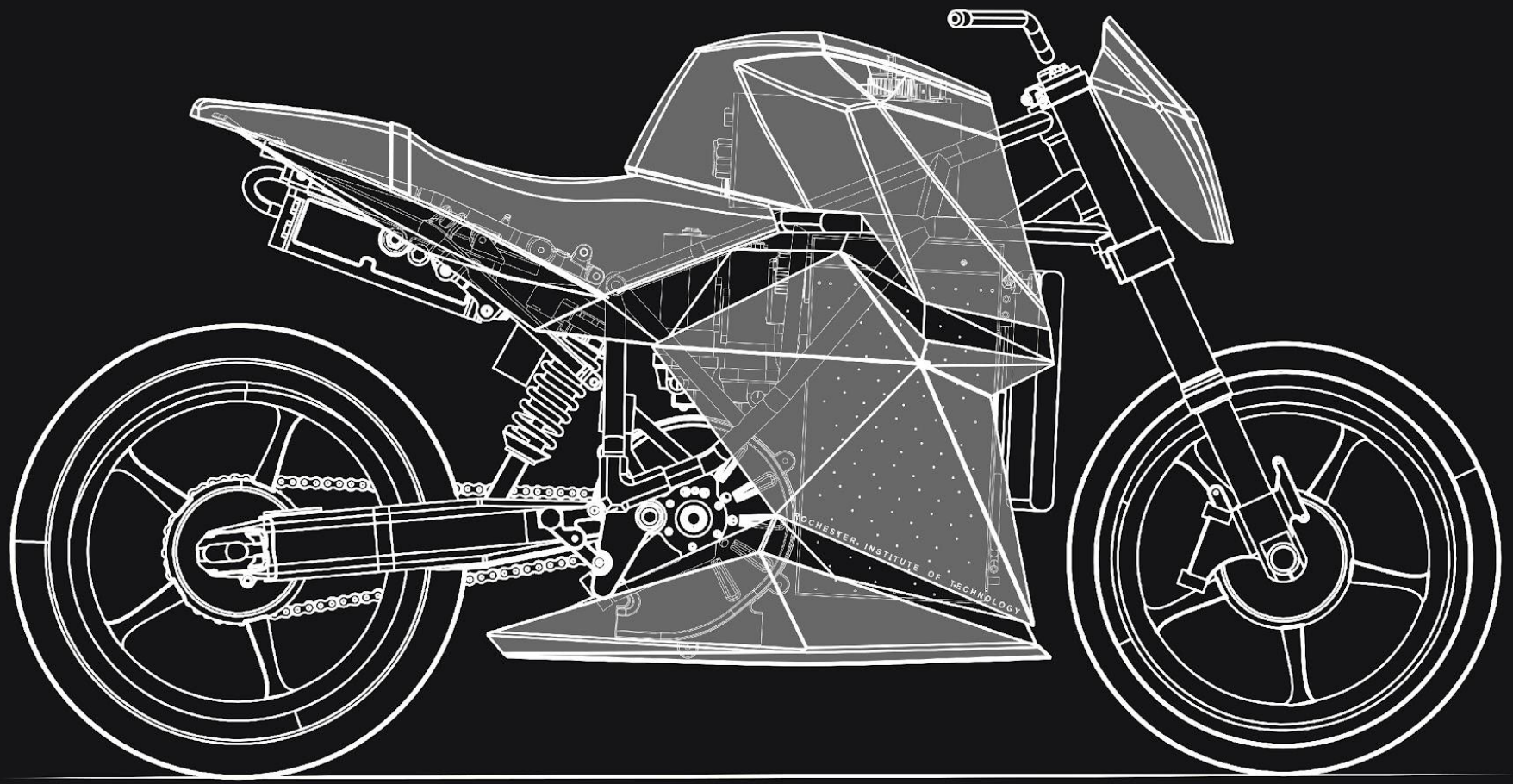
Bike Data Visualization Tool

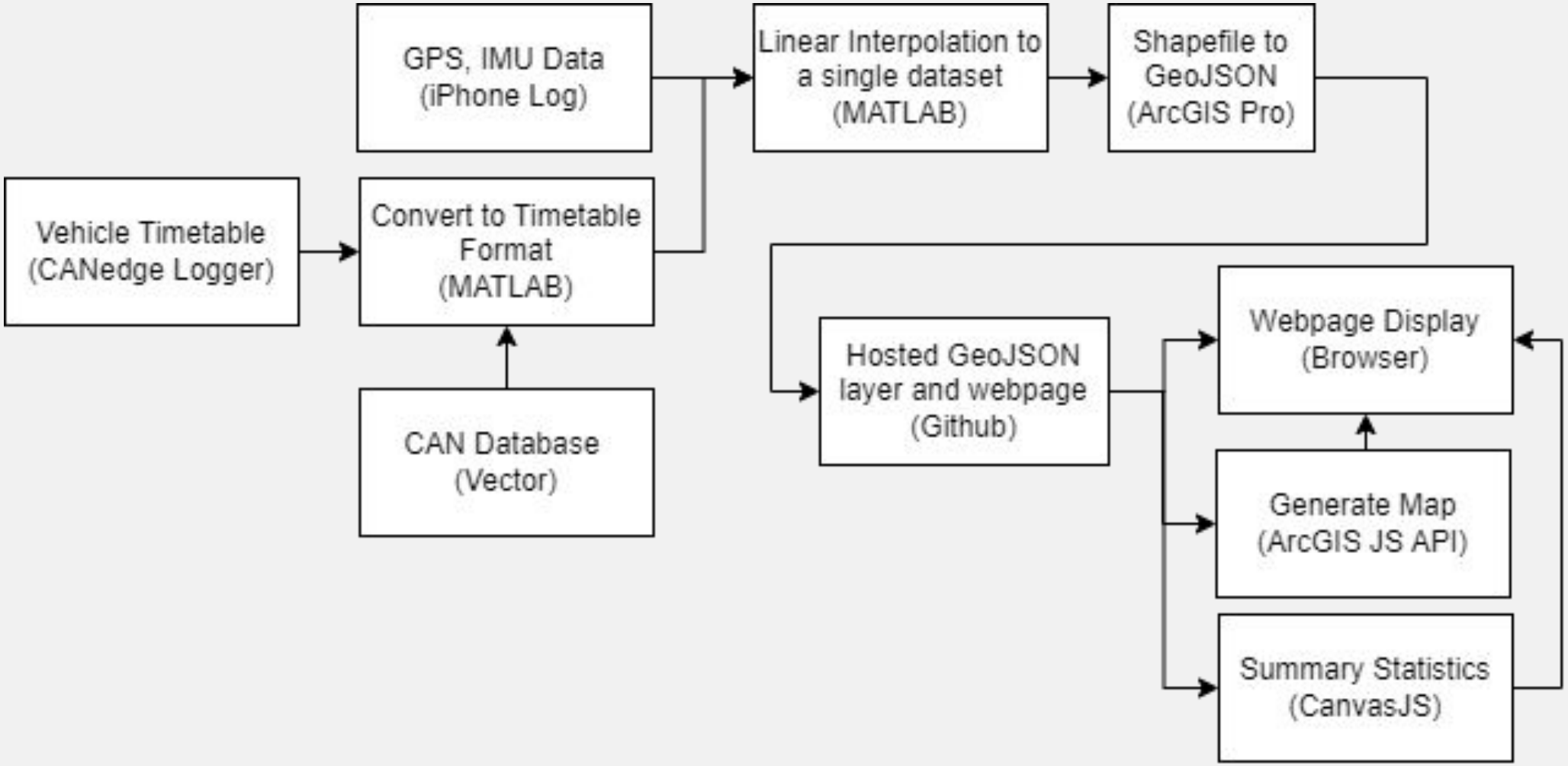
IGME 386 Final Project | LJ Boone | RIT ELECTRIC VEHICLE TEAM

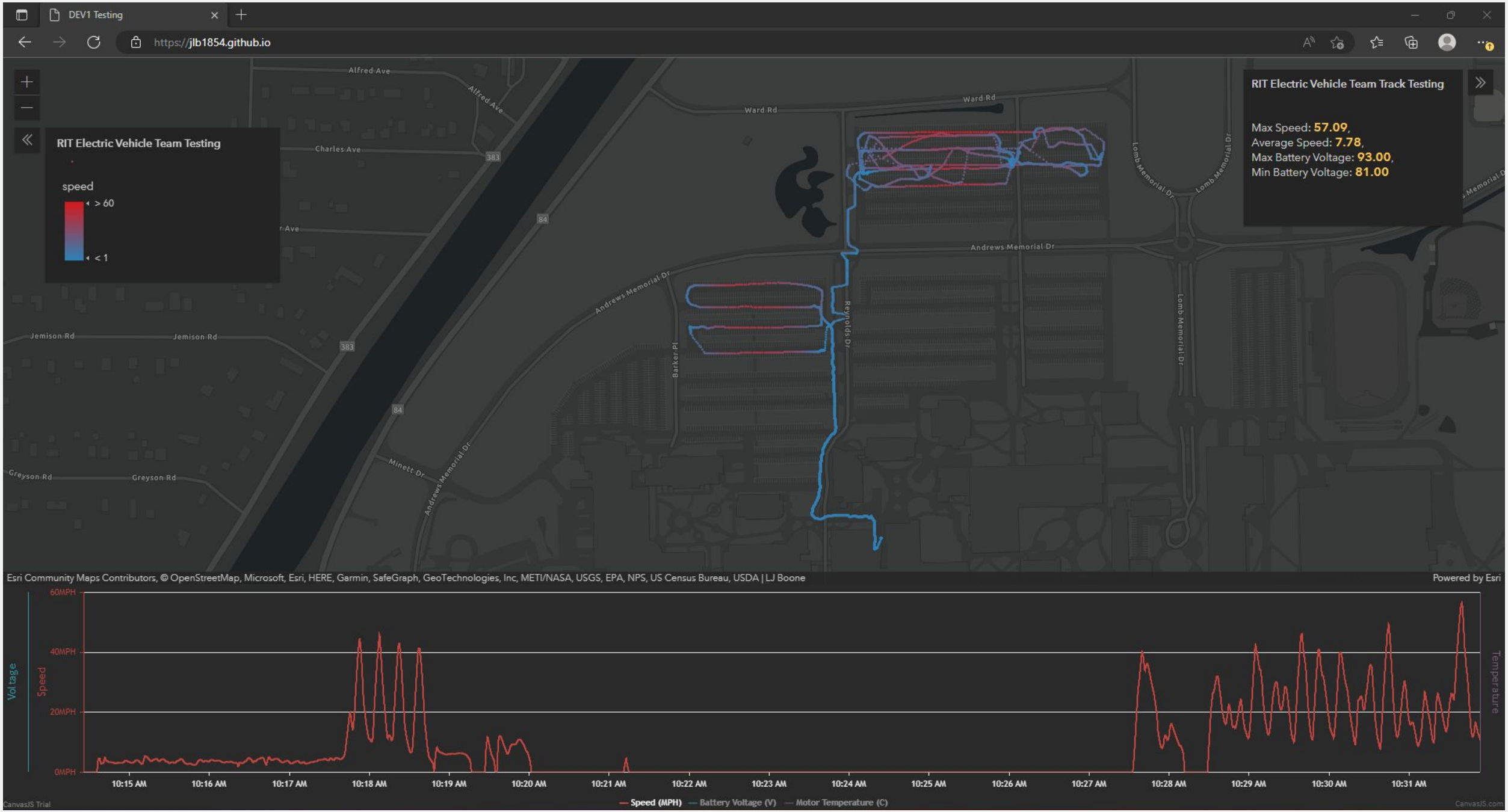


Project Background and Goals

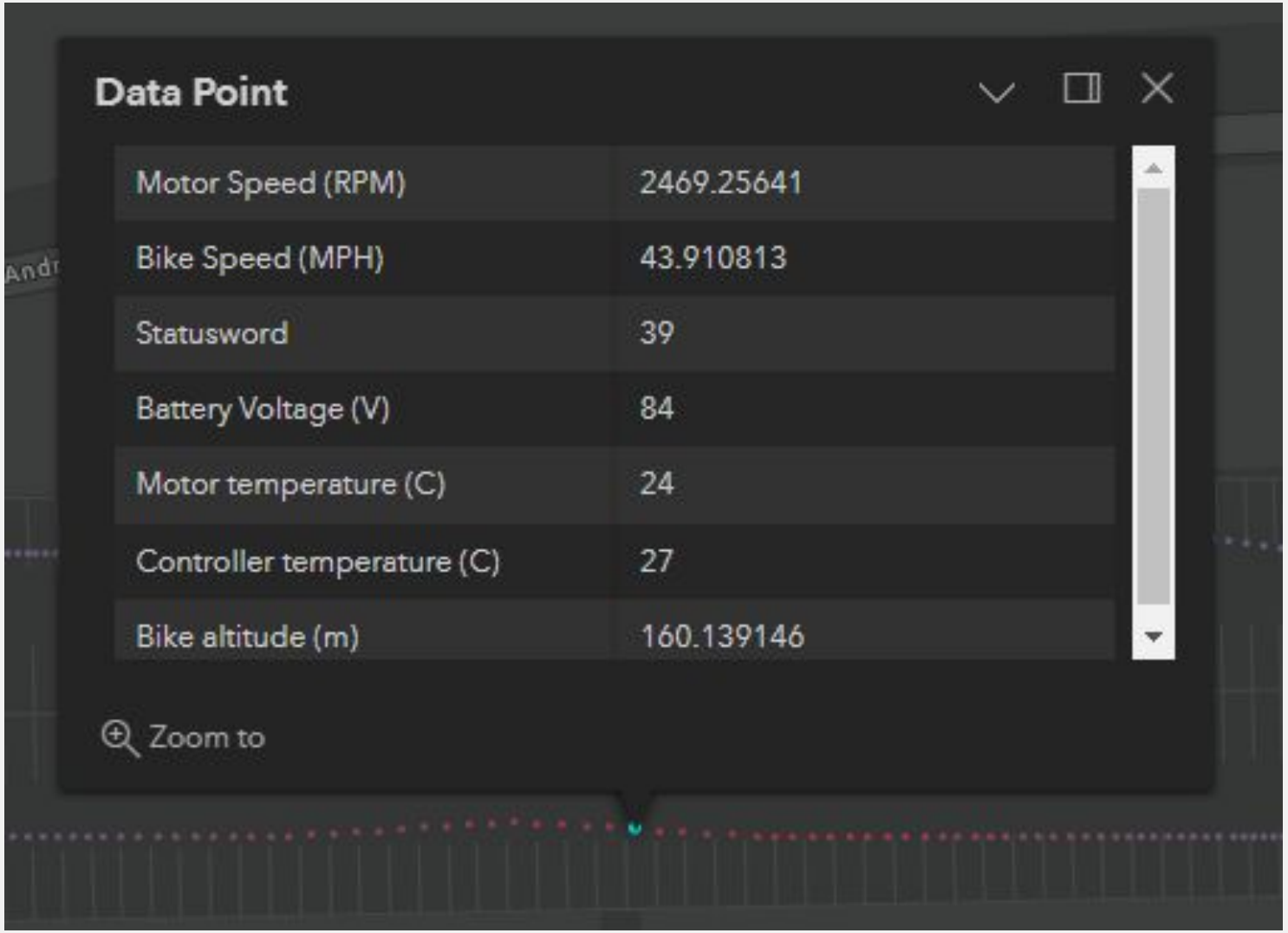
- The RIT Electric Vehicle Team has data from GPS as well as CAN (Controller Area Network) Logs from our dirt bike include temperatures from multiple points including the motor, controller, cooling system. Battery voltages, motor current, speed, and torque.
- Data will be retimed and interpolated into a single timetable that contains the above fields in MATLAB.
- A web based map will be created to visualize the data on a map.
- Using the skills learned in this class a better visualization of the data collected as the bike operates spatially and over time.
- The end result is a UI that helps gain understanding of how and *where* the bike operates and relationships between speed, temperatures, and battery voltage.

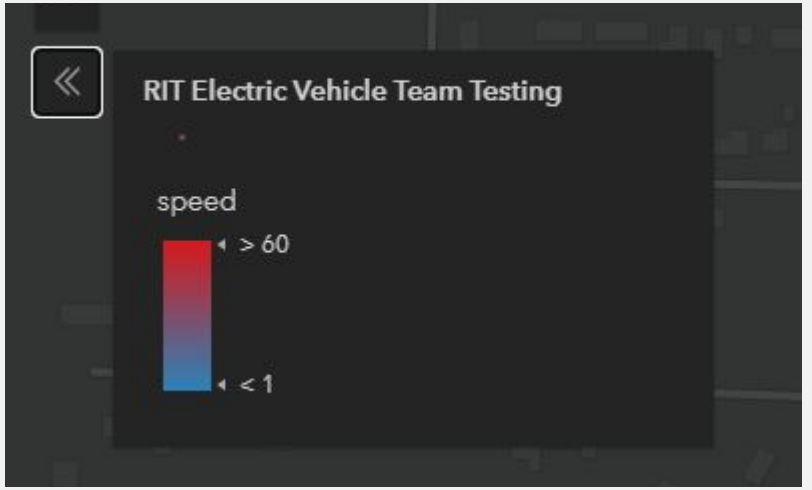
Project Flowchart




DEV1 Testing
https://jlb1854.github.io
RIT Electric Vehicle Team Testing
speed
> 60
< 1
RIT Electric Vehicle Team Track Testing
Max Speed: 57.09,
Average Speed: 7.78,
Max Battery Voltage: 93.00,
Min Battery Voltage: 81.00
Alfred Ave
Charles Ave
Ward Rd
Lomb Memorial Dr
Andrews Memorial Dr
Reynolds Dr
Barker Pl
Jemison Rd
Minett Dr
Greyson Rd
383
84
Esri Community Maps Contributors, © OpenStreetMap, Microsoft, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA | LJ Boone
Powered by Esri
60MPH
40MPH
20MPH
0MPH
Voltage
Speed
Temperature
10:15 AM
10:16 AM
10:17 AM
10:18 AM
10:19 AM
10:20 AM
10:21 AM
10:22 AM
10:23 AM
10:24 AM
10:25 AM
10:26 AM
10:27 AM
10:28 AM
10:29 AM
10:30 AM
10:31 AM
CanvasJS Trial
Speed (MPH)
Battery Voltage (V)
Motor Temperature (C)
CanvasJS.com

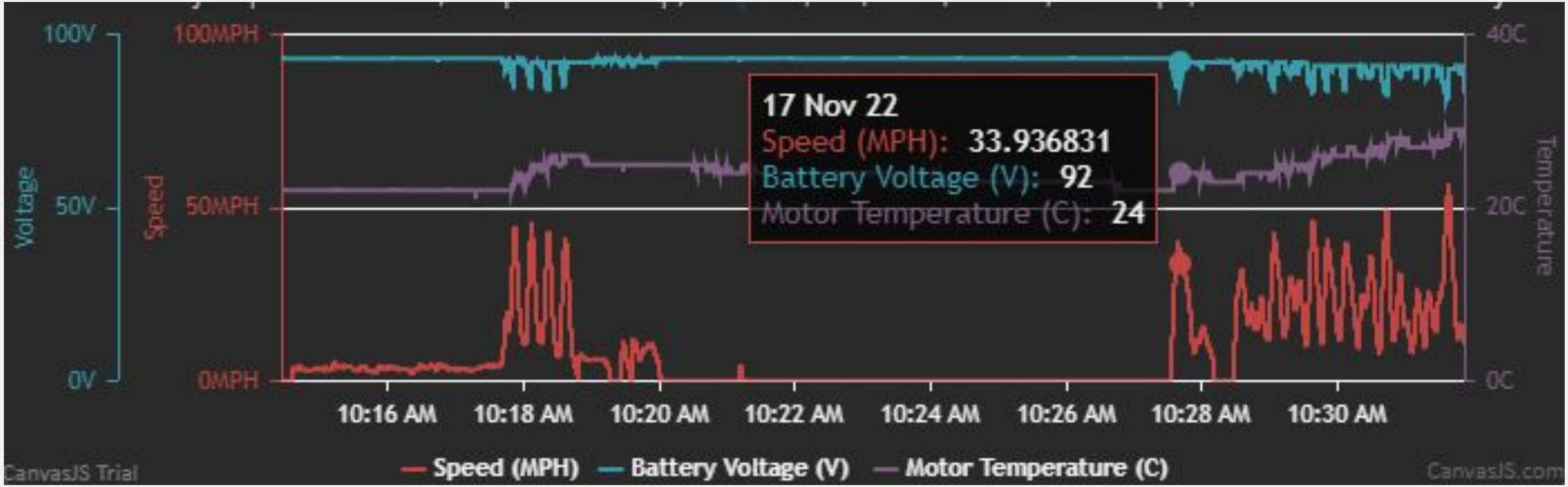
Tooltip, Summary Statistics, and Legend





Charts

Interactive with tooltip and ability to hide graphic by clicking on legend entry.

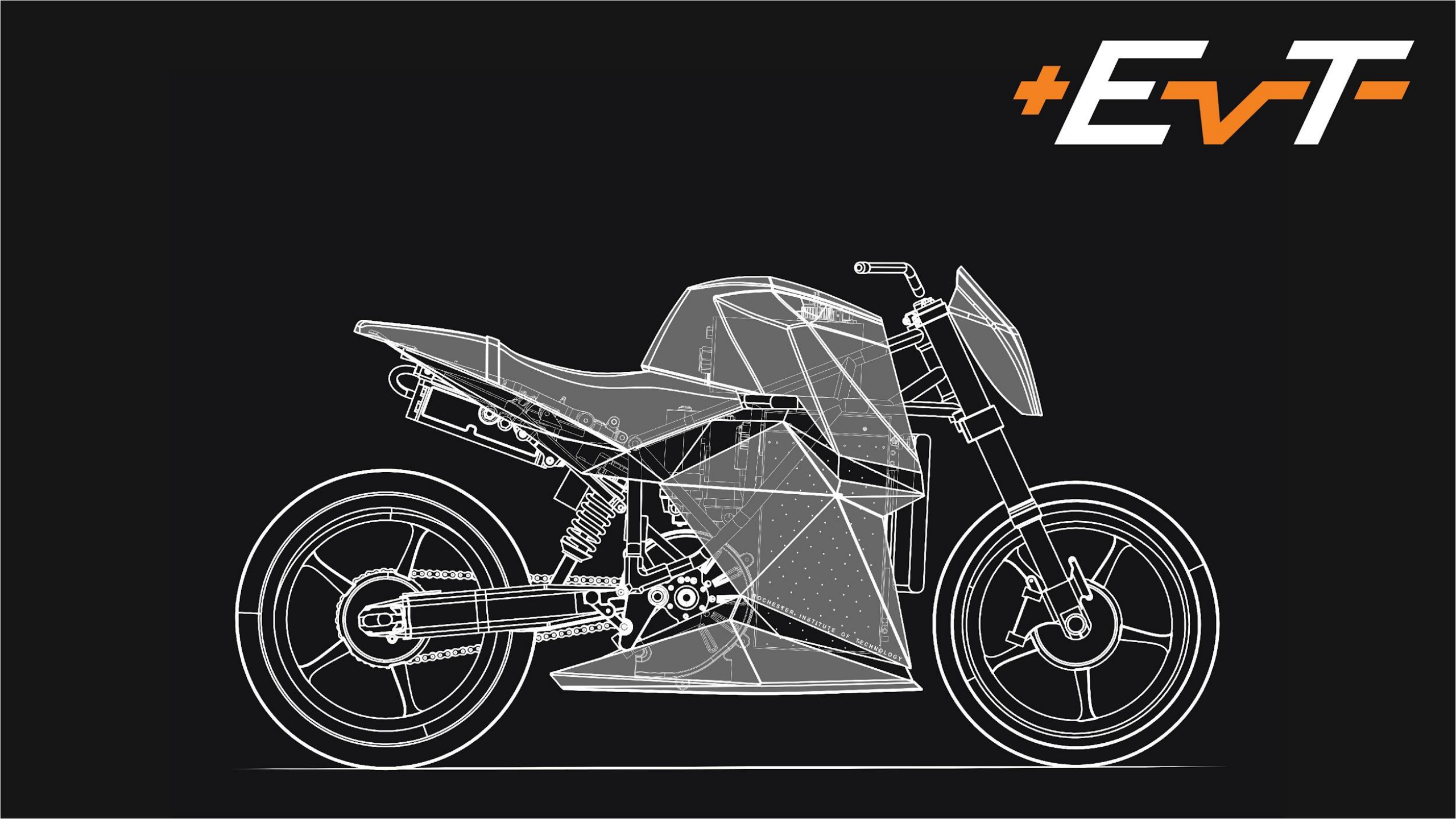


Link to site

https://jlb1854.github.io

Result

- Web map displaying bike data with interactive tooltips and color based symbology to show speed of the bike in 2D.
- Line graph displaying important information with tooltips and parameters over time.
  - Ability to toggle data on the graph to focus on specific information.
- Summary statistics of the data.
- Scripts that support changing of the data such that the interface can easily be reused with other data when collected.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