

Robo Madden '22

Mindy Le, Harlee Petretta,
Dusty Waters, Calvin Wetzel
EF 230 Spring 2022

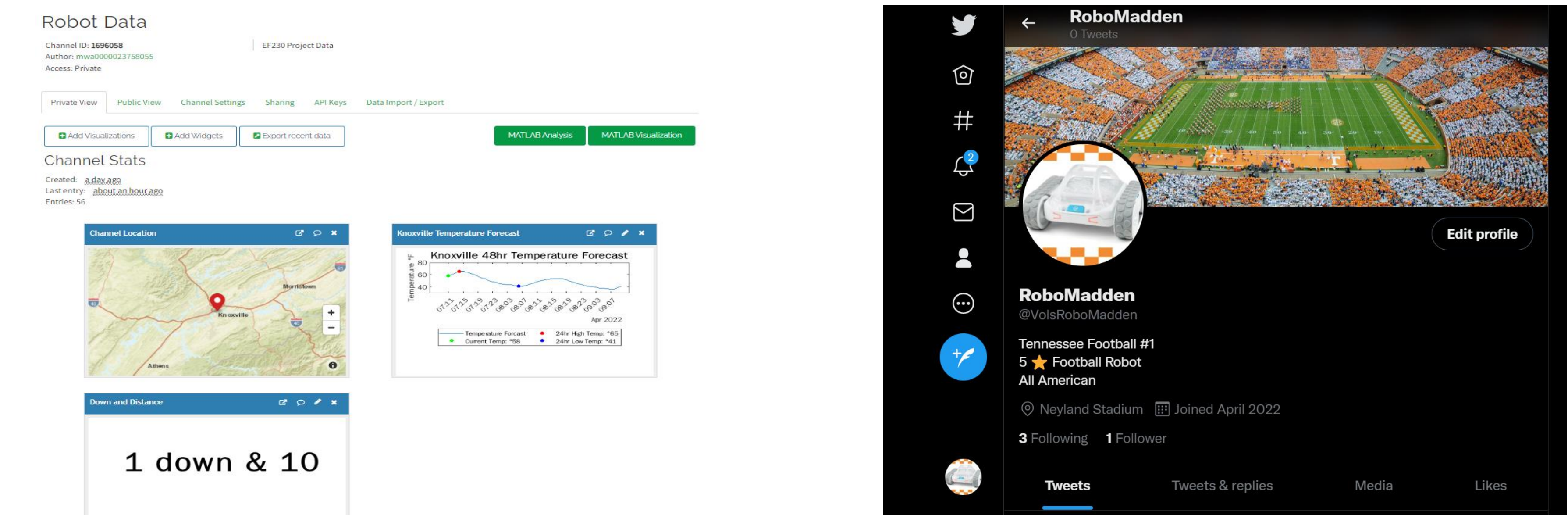
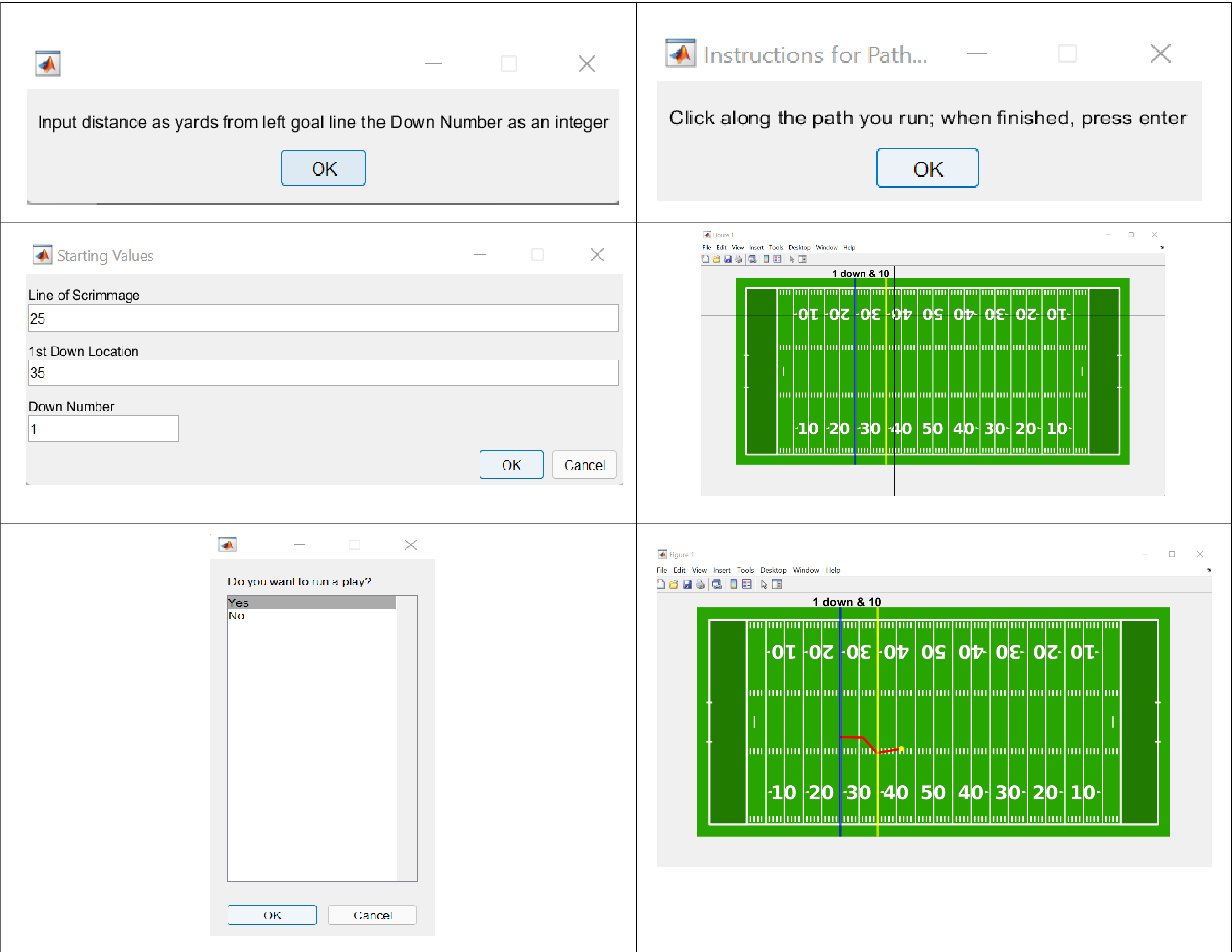


EF230 Project: Robo Madden '22

Calvin Wetzel, Harlee Petretta, Mindy Le, Dusty Waters

- Functions:**
- 1. EF230_Robo_Football
 - 1. Robo_Madden
 - 1. Inputs
 - 1. None
 - 2. Outputs
 - 1. Turn Angles
 - 2. Distance
 - 3. Vector Matrix
 - 4. Sound
 - 2. Robo_Route
 - 1. Inputs
 - 1. Turn Angles
 - 2. Distance
 - 3. Vector Matrix
 - 4. Sound
 - 2. Outputs
 - 1. Commands to RVR
 - 2. Sound through Computer Speakers

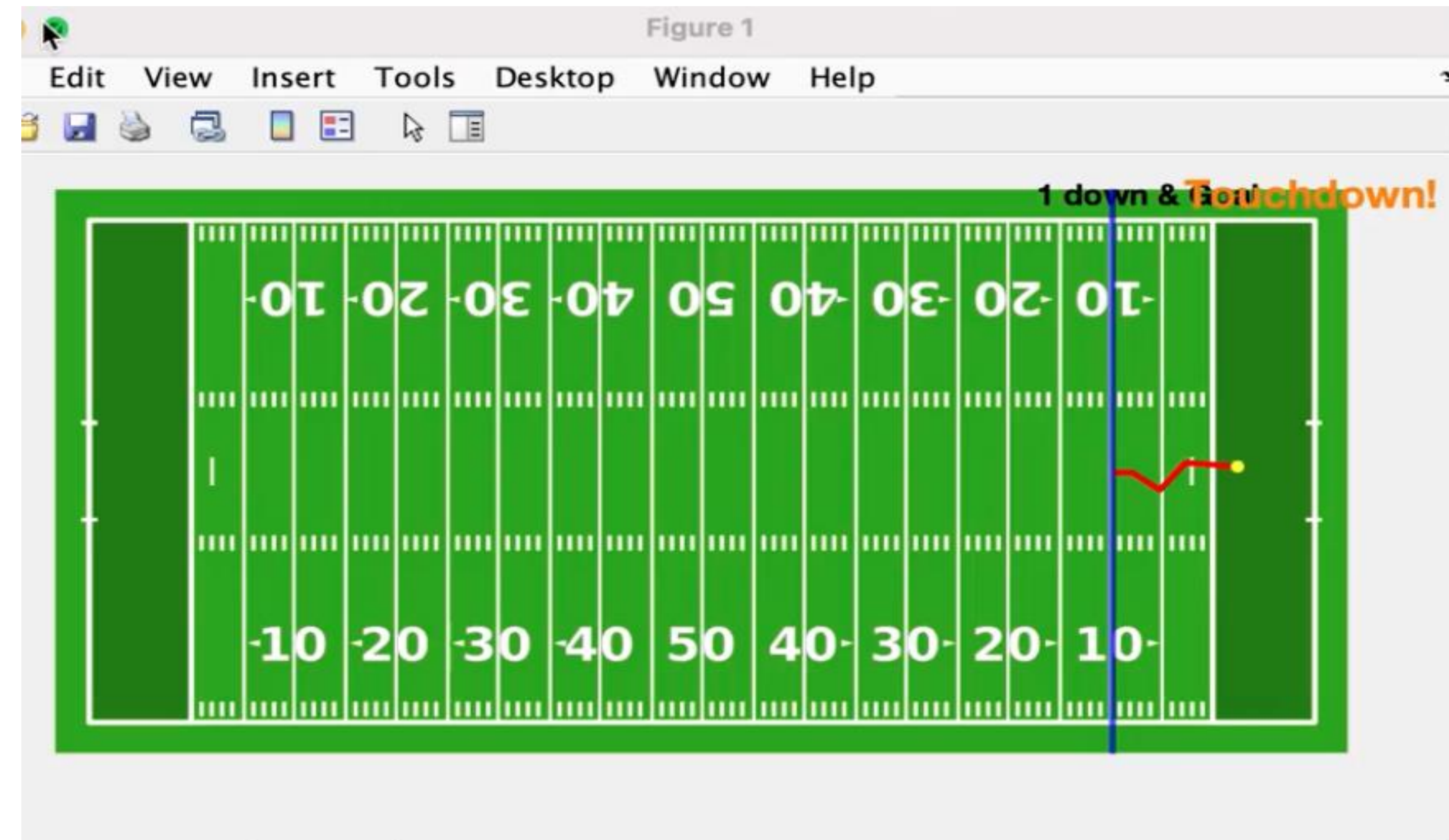
- Externals:**
- 1. ThingSpeak: Forecast, Location, ThingTweet, Down & Distance
 - 2. Twitter Page



- Future Improvements:**
- 1) Faster Robot/*MVP* Robots
 - 2) Robot returns to starting position/runs play indefinitely
 - 3) Boosted Wi-Fi range; use a Neyland
 - 4) Multiple robots/play reenactment/film study

Project Description

- **Objective:**
 - RVR completes path draw by user
- **Description:**
 - Down, Distance, and field position selected
 - Robo_Madden records path draw by user
 - Path's points converted into distance vectors
 - Robo_Route converts distance vectors to time values. Uses turn angles and time of travel values to direct RVR
 - Technical expertise skills: Live updates on the current weather, channel location, and tweets will be sent out.
- **Areas of Expertise:**
 - Live mapping of location (Neyland Stadium)
 - Live weather forecast (48hr Knoxville)
 - Tweeting game updates (Down and distance, touchdowns, 3rd downs)
- **Best/Unique Features:**
 - When the robot scores a touchdown, "Rocky Top" is played.
 - When robot runs into own endzone, safety is displayed
 - Tweets for Down and Distance, 3rd down, Touchdowns
 - Live updates of Down and Distance



Robot Data

Channel ID: 1696058
Author: mwa000023758055
Access: Private

EF230 Project Data

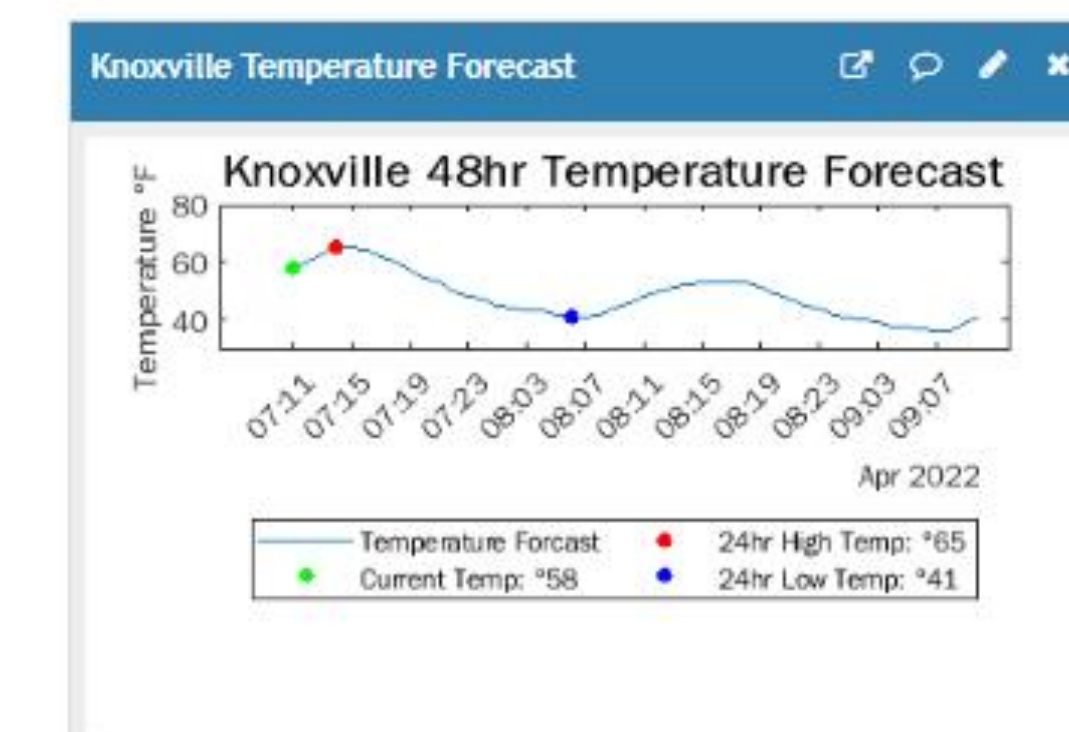
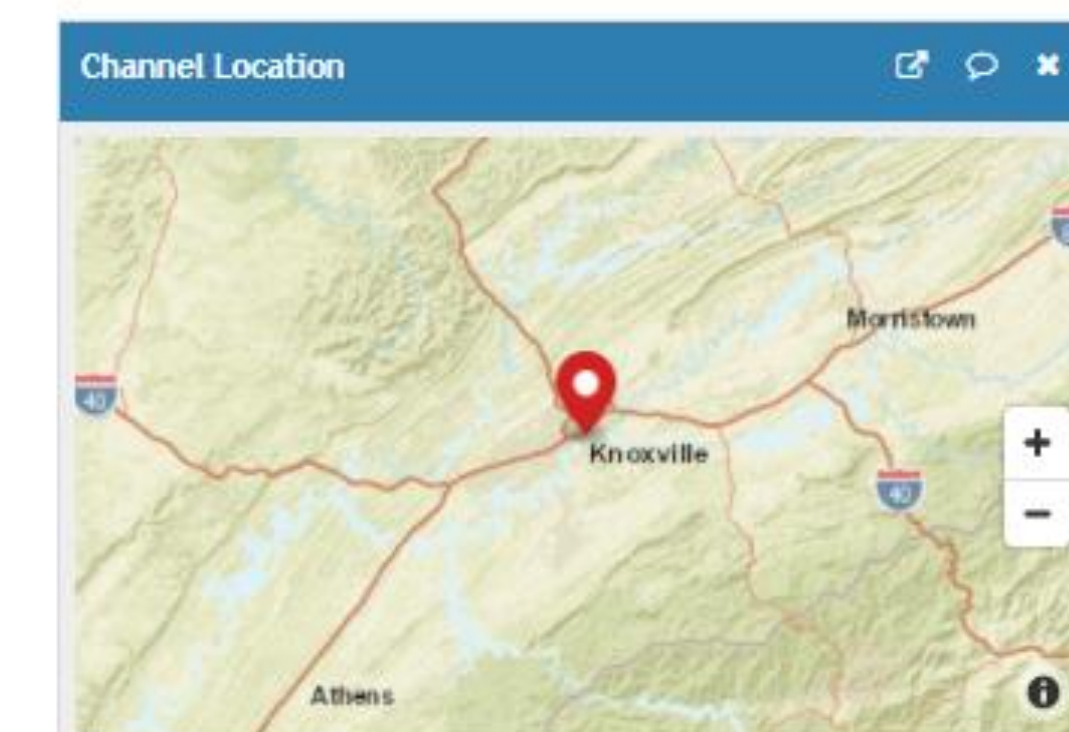
Private View Public View Channel Settings Sharing API Keys Data Import / Export

Add Visualizations Add Widgets Export recent data

MATLAB Analysis MATLAB Visualization

Channel Stats

Created: a day ago
Last entry: about an hour ago
Entries: 56



Down and Distance

1 down & 10

Technical Expertise Photos

Robot Data

Channel ID: **1696058**
Author: [mwa0000023758055](#)
Access: Private

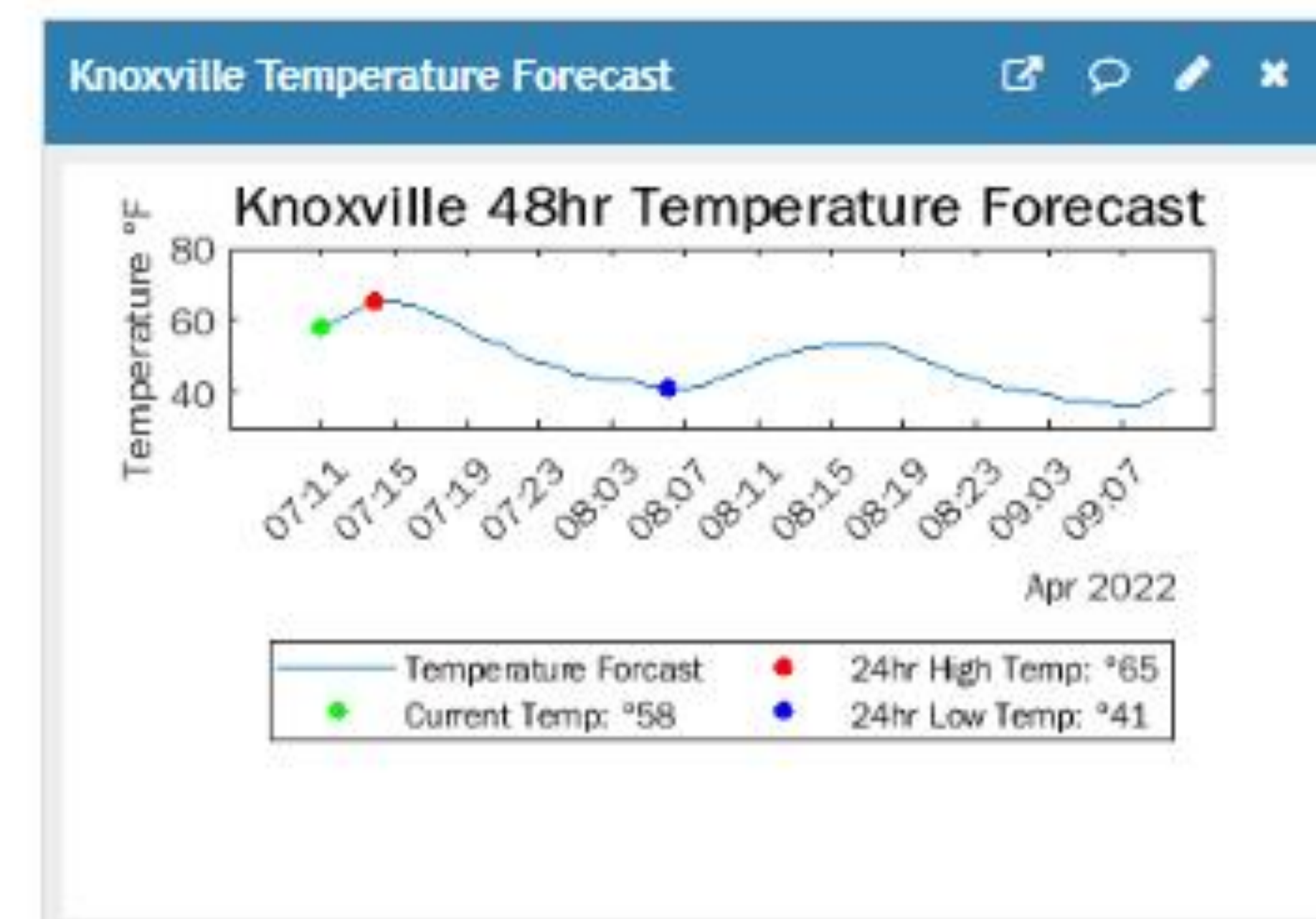
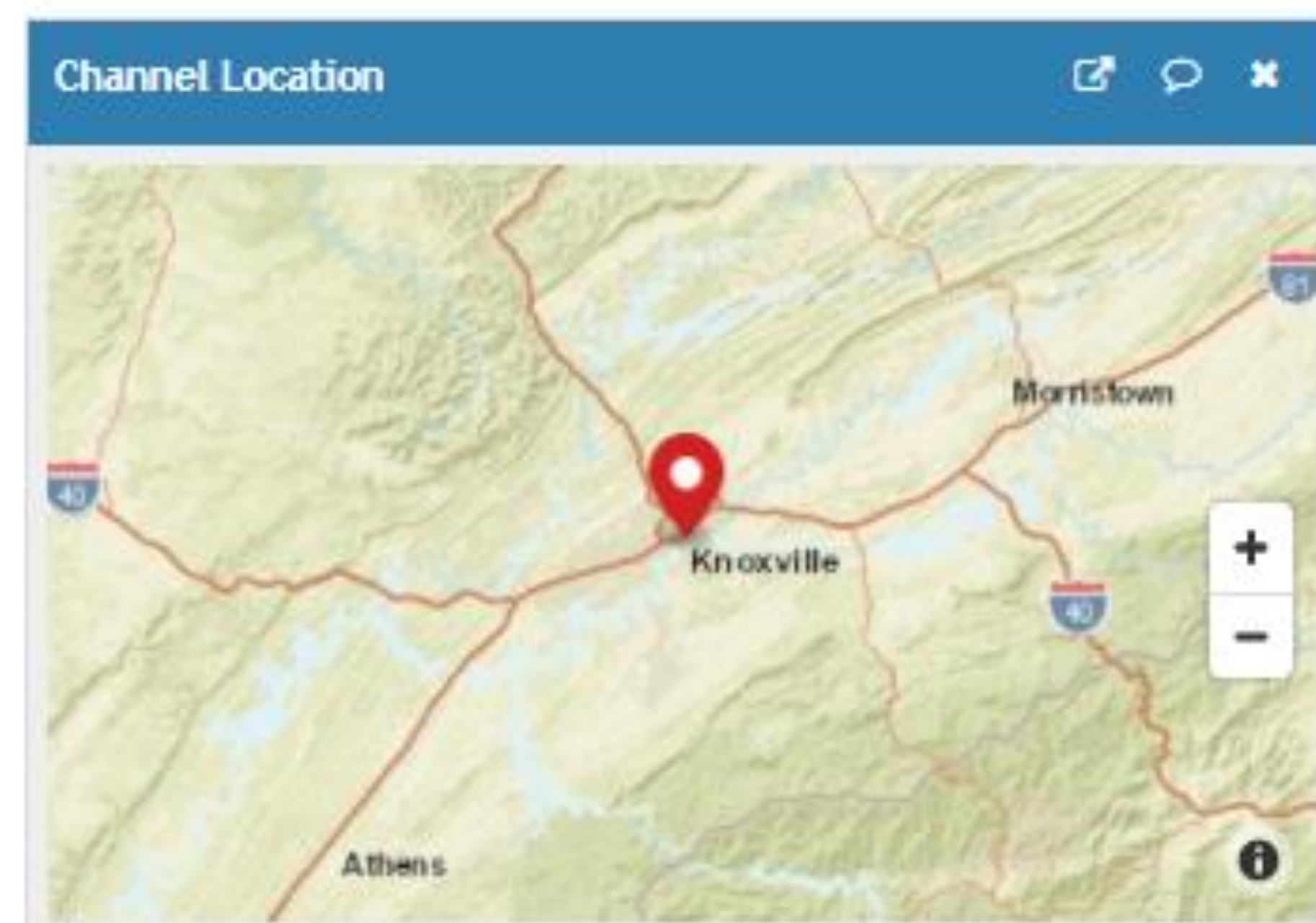
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+ Add Visualizations + Add Widgets Export recent data

MATLAB Analysis MATLAB Visualization

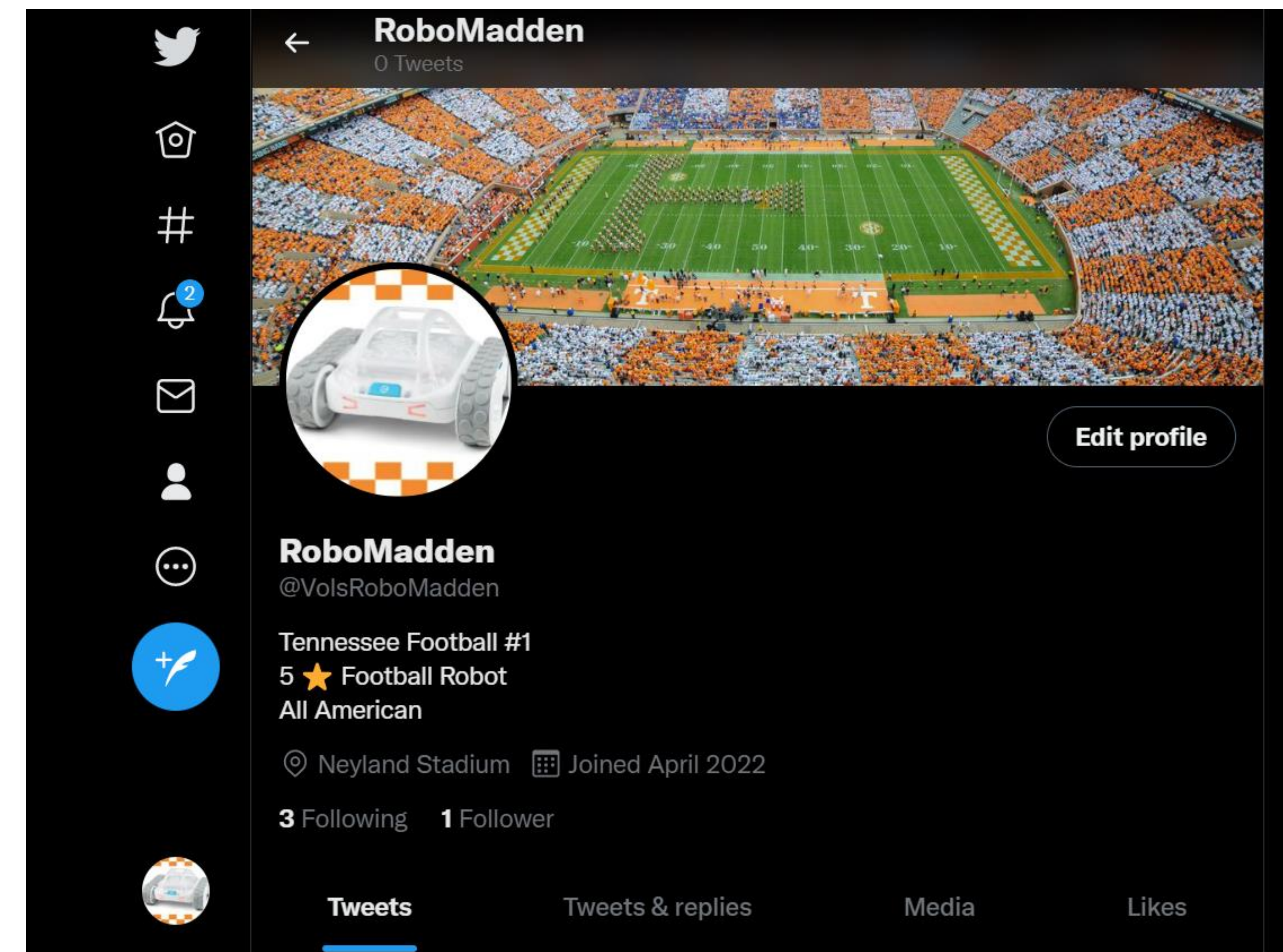
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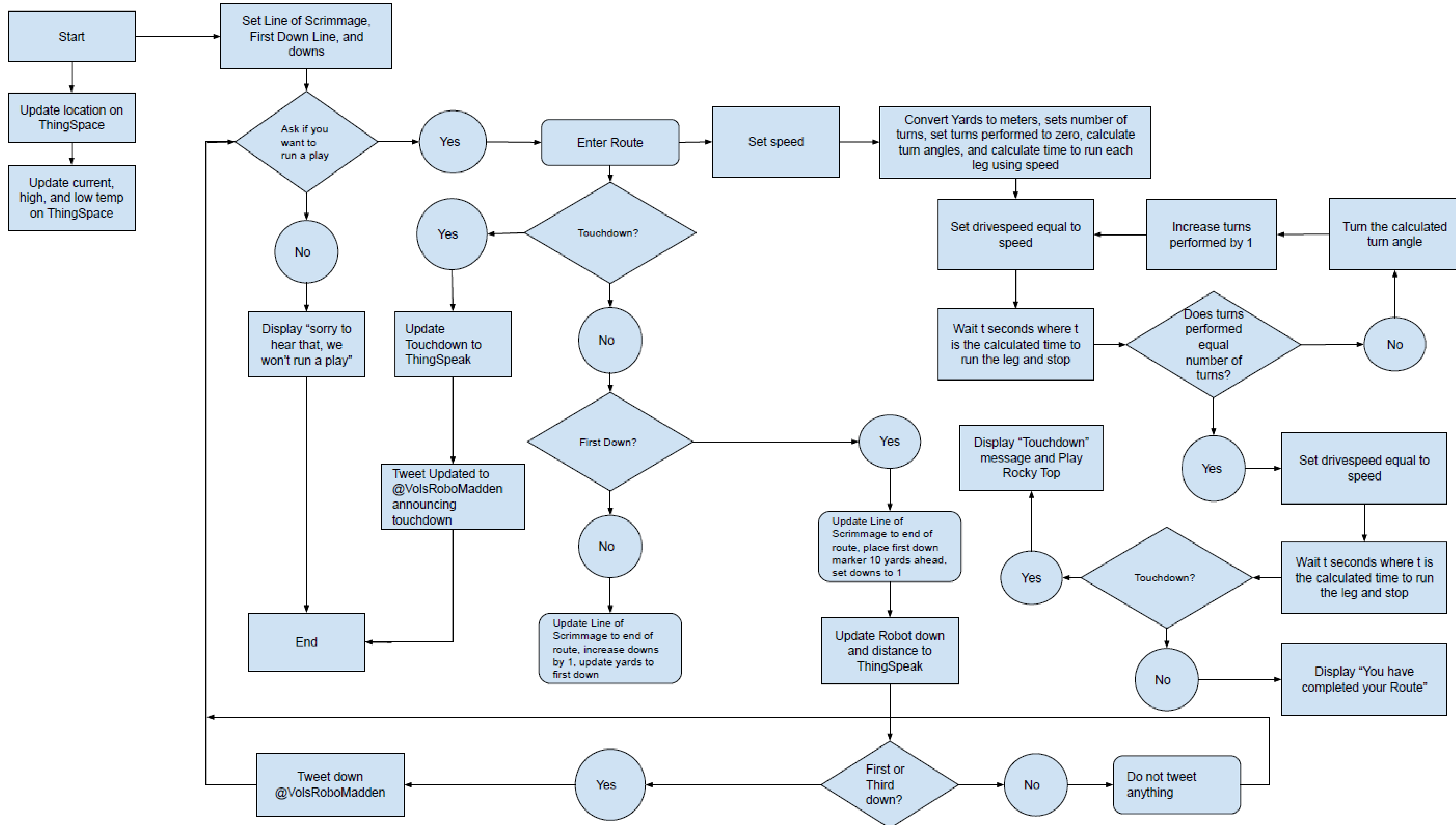


Down and Distance

1 down & 10



Final Logic Flow Chart



Next Step/Future Work/Improvements

If we had more time, we would implement more advanced Areas of Technical Expertise. Such as: ...

- If we had more resources (boosted Wi-Fi), we would test the robot on a large scale, possibly in Neyland Stadium.
- Develop program using *MVP* robots (NFL's padded robots)
- Market to football team: play development, route practice, film study, & play rehearsal
- Use program on multiple robots: run plays as team of robots, run plays indefinitely (return to starting position), etc.