

Client/Company/Organization: _____

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Project Contact: _____ **Email:** _____

Project Title:
Real-Time Map Data Visualizer

Project Abstract:

The goal is to develop an interface and proof-of-concept for a real-time visualizer of meteorological and other data that takes as input various publicly accessible data streams (radar, satellite, wind, air traffic) and produces as user configurable map overlays.

The team will develop software to take advantage of libraries that support existing standards for managing geographic data (e.g. KML, GeoJSON) and will create a touch-based user interface for either a standard touchscreen monitor, or more ambitiously a spherical display.

If the selected team has an interest, this project could also be extended to acquiring and processing real-time satellite data.

Most state-of-the-art examples for map visualization 1) use a browser interface, 2) provide a limited free API, or 3) do not operate in real-time. While these resources can be used as an ideation and comparison point (see <https://www.nesdis.noaa.gov/content/imagery-data-0>, or even <https://www.windy.com/>)

Expected Deliverables:

An interactive display, with full documentation for future extension to additional data streams.

Specialized Resources Provided by Client:

Anticipated Cost: _____ **Financial Resources Provided by Client:** _____

Preferred Students for the Project:

- Electrical Engineering
- Computer Engineering
- Software Engineering
- Cyber Security Engineering
- Other:

Other Special Skills:

Anticipated Client Interaction (estimate):

- 1 meeting per week
 - In person, Over the phone, Web / video conferencing
- 1 meeting per month

- In person, Over the phone, Web / video conferencing
- 2 or more meetings per month
 - In person, Over the phone, Web / video conferencing
- 1 meeting per semester
 - In person, Over the phone, Web / video conferencing

Meeting ABET Criteria

Please rate the following statements as they relate to your proposed project:

0 – Not at all *1 – A Little* *2 – Somewhat* *3 – A Lot* *4 – Completely*

On this project, students will need to apply knowledge of mathematics, science, and engineering 0 1 2 3 4

This project gives students an opportunity to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability 0 1 2 3 4

This project involves students from a variety of programs, i.e., CprE, EE, and SE 0 1 2 3 4

This project requires students to identify, formulate, and solve engineering problems 0 1 2 3 4

This project gives students an opportunity to use the techniques, skills, and modern engineering tools necessary for engineering practice 0 1 2 3 4

Project Approval – for use by ECpE Senior Design Committee

- Approved: _____
- Project Assigned: sdmay22-21
- Advisor(s) Assigned: Joseph Zambreno (zambreno@iastate.edu)