MICHIGAN STATE
U N I V E R S I T Y

Project Plan
Mobile Avionics Satellite Imagery

The Capstone Experience

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From Students…
…to Professionals

Project Overview

- GE Aviation now has access to ultra-high resolution satellite imagery.

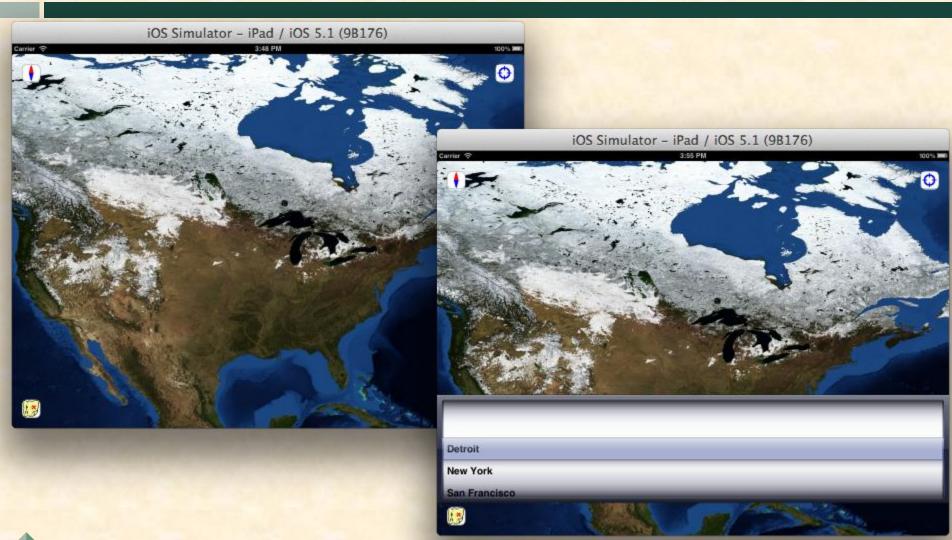- They see a need to be able to easily display and view these images using an iPad device.

Functional Specifications

- An iPad app which allows the viewing of an ultra-high resolution image and allows the user to:

  - Select the image to view

  - Pan, zoom, and rotate the image

  - Display the coordinates of a particular point the user touches on the image

Design Specifications

- The iPad app should be fast in the displaying of these ultra-high resolution images and remain responsive.

- It will utilize familiar touch-screen gestures such as sliding one finger to pan, pinch to zoom, and using two fingers to rotate the image.
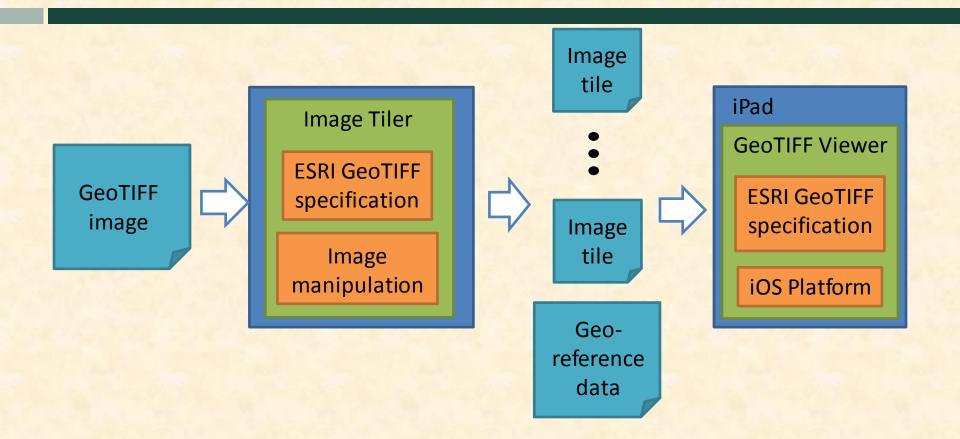
Screen Mockup: iPad Interface

Technical Specifications

- Our project will consist of two main parts:
  - An iPad app for the displaying of these ultra-high resolution images to the user
  - A backend application which will process the rather large GeoTIFF files into a format more manageable for the iPad app

System Architecture

System Components

- Hardware Platforms
  - iPad 2
- Software Platforms / Technologies
  - iOS platform
  - ESRI GeoTIFF image specification
  - Image manipulation

Testing

- Since performance is our primary concern with the iPad app, we plan to regularly test the performance of the app while developing.

- We also plan to incorporate some usability testing in order to meet the requirement that the app be easy to use.

Risks

- iOS Platform
  - Our team has very little prior experience with the iOS platform.
  - We plan to spend time early on to ramp up to developing for the iOS platform.
- ESRI GeoTIFF image specification
  - We are also unfamiliar with the GeoTIFF image format.
  - We plan to spend time early on researching the GeoTIFF format.

Risks

- Handling of very large image files
  - The images our app will be using will be around 1-4 GB in size, but the iPad 2 only has 512 MB of memory.
  - We will be investigating different techniques for handling and displaying these large images including the CATiledLayer class that last year's team used.