MICHIGAN STATE UNIVERSITY **Project Plan Presentation MSU Enviroweather Mobile The Capstone Experience** Team MSU Enviroweather Malachi Hollins Michael Moss **Frederick Pagadam** James Noh **Haoxiang Zhang Emily Dubuque** Department of Computer Science and Engineering Michigan State University Spring 2024

From Students...

Project Sponsor Overview

- Enviroweather is a collaborative project between the Michigan Climatological Resources Program and the MSU Integrated Pest Management Program.
- Their goal is to create a weather-based information system that helps users make pest, plant production, and natural resource management decisions in Michigan

Project Functional Specifications

- A mobile friendly application for providing detailed weather information for farmers in Michigan
- Ensures easy access to relevant and dependable weather data for informed decision making in agricultural pest, production and natural resource.
- Provides timely and sustainable weather information facilitating strategic planning and resource allocation for improved agricultural practices in Michigan.

Project Design Specifications

- Design a user-friendly mobile app
- Interactive point-based map and searching functionality for weather stations
- Collect and visualize data from client and NWS service database
- Customized models of information based on selected weather stations
- Support different weather model selections

Screen Mockup: [Map and Search Bar]







Screen Mockup: [Data Visualization]

	Free
Latest Observations	
Service Service	cast 🖀 Station into 🗁 Me
Temperature	Humidity
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Dewpoint	Precipitation
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Screen Mockup: [Customized Models]

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Screen Mockup: [Model Selections]



Project Technical Specifications

- Front End
 - React Native, JavaScript, and CSS
- Back End (API)
 - Enviroweather PHP Server and the National Weather Service
 - Postman for testing API
- Building
 - Expo Application Services and Expo Go

System Architecture Slide Notes



Project System Components

Hardware Platforms

Android/IOS Mobile device

- Software Platforms / Technologies
 - National Weather Service API
 - Enviroweather API
 - Expo and NPM
 - React Native

Project Risks

- Mobile compatibility of Expo
 - Features of IOS app may not be compatible on Android
 - Constant testing and optimizing app on both Android and IOS
- Integrating Graph API into React Native
 - Graph to display Meteogram needs to be integrated into react native
 - Deciding with client which API and content for this feature on mobile
- Offline support of application
 - Application will be used in areas with limited cell phone service
 - The app should cache and show previously loaded data
- Integrating client's API
 - Establishing connection between mobile app and client's backend
 - Test with postman and decoding client's JSON objects

Questions?

