MICHIGAN STATE UNIVERSITY

# Project Plan Presentation

## Crowd-Sourced EV Emergency Recharge

### The Capstone Experience


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*From Students…*
*…to Professionals*

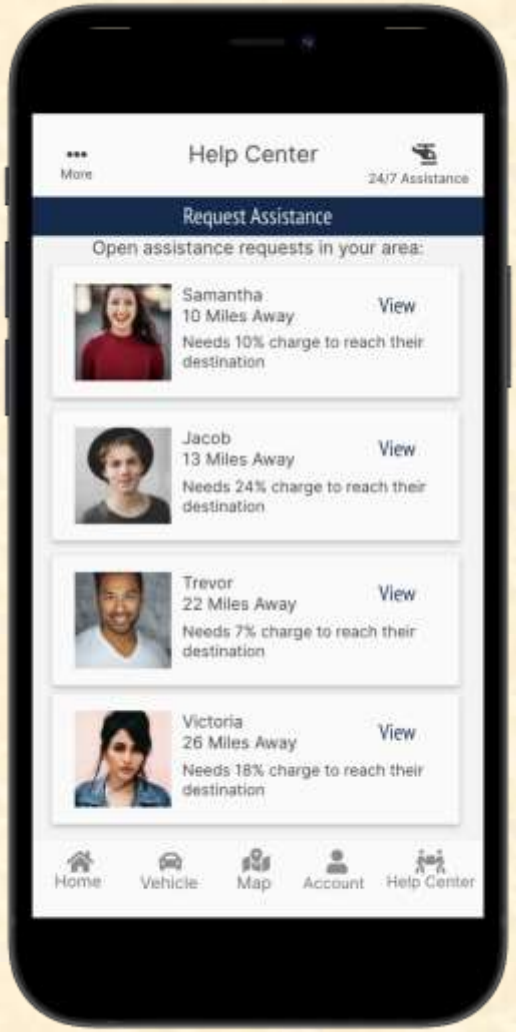
# Functional Specifications

- Our mobile application aims to provide peace of mind to owners of fully electric vehicles
- When owners of fully electric vehicles are stranded on the road due to lack of charge, they can use our application to ask for assistance
- Nearby owners of fully electric vehicles can respond to requests for assistance on the app and assist those who are stranded for a given price

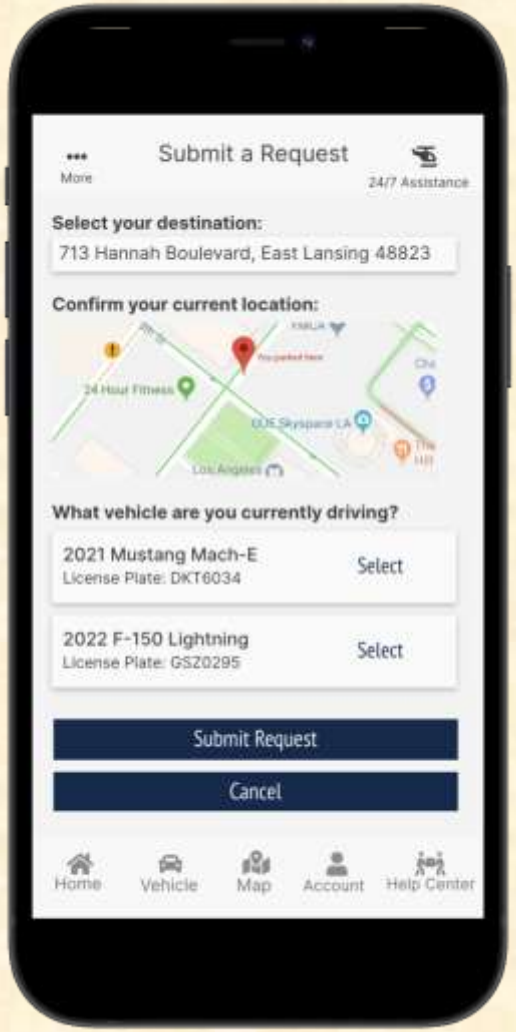
# Design Specifications

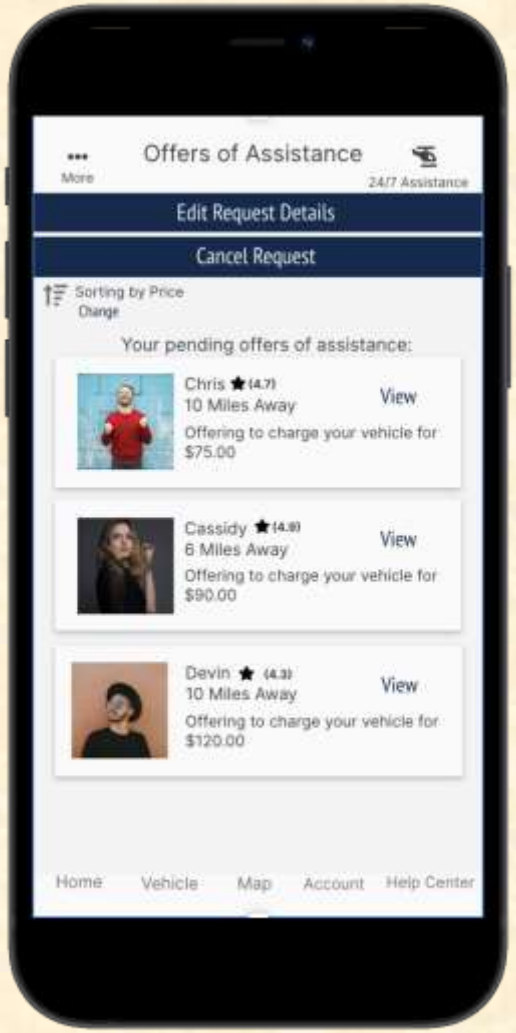
- Our application will have a Help Center that will allow owners of fully electric vehicles to ask for and provide assistance via ‘Help Requests’
- The application will send push notifications to alert users to new Help Requests or to provide users with updates on their current Help Request
- The application will include a navigation screen that users will use when traveling to each other
- The application will include the ability for fully electric vehicle owners to call and chat with each other during a Help Request

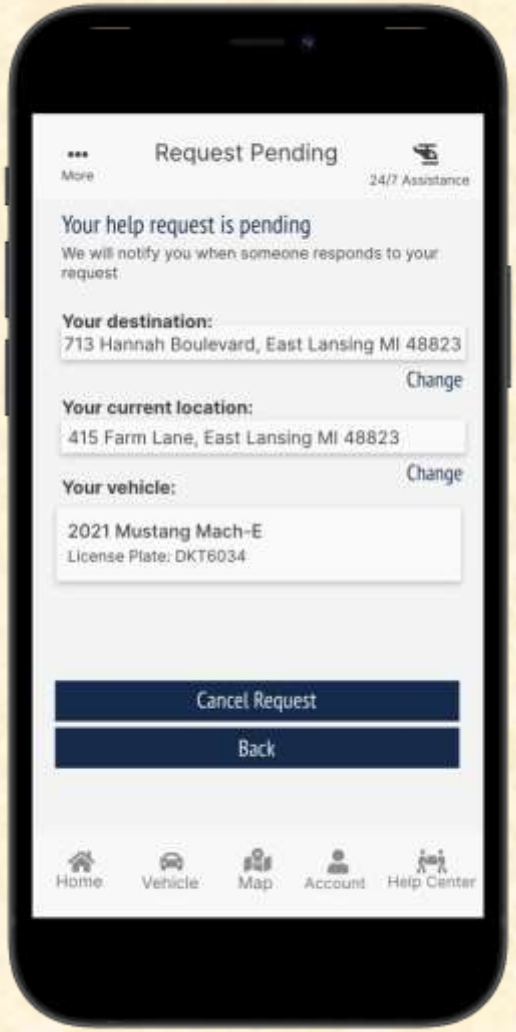
# Screen Mockup: Home Screen



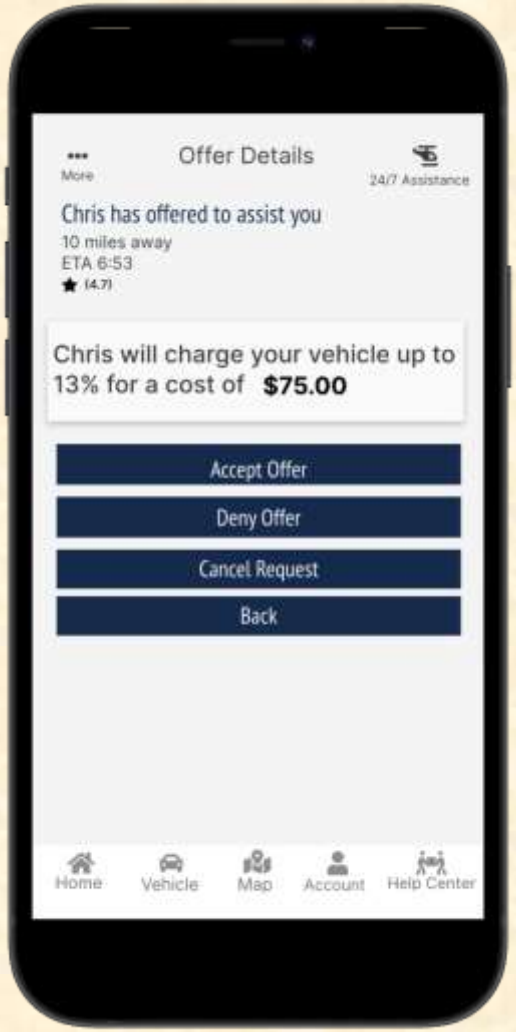
# Screen Mockup: Submit a Request



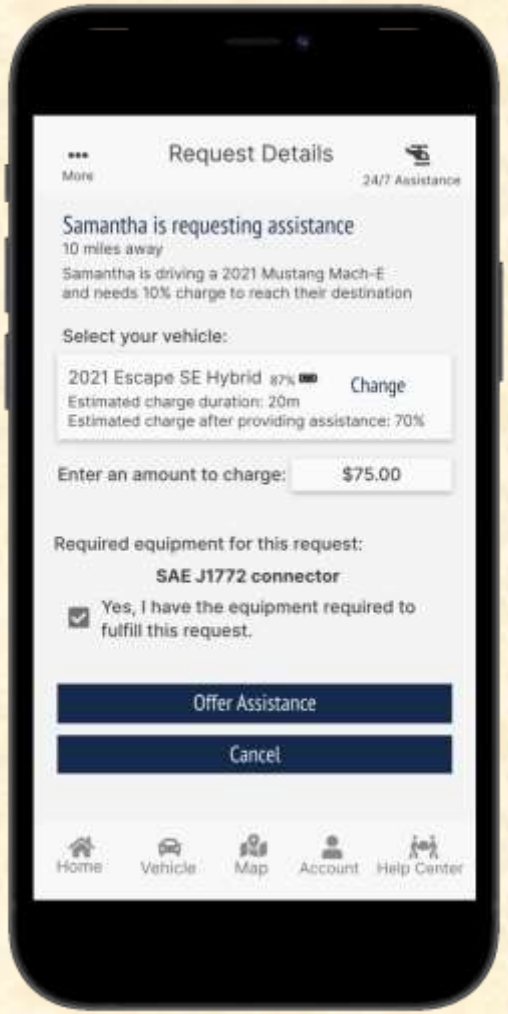



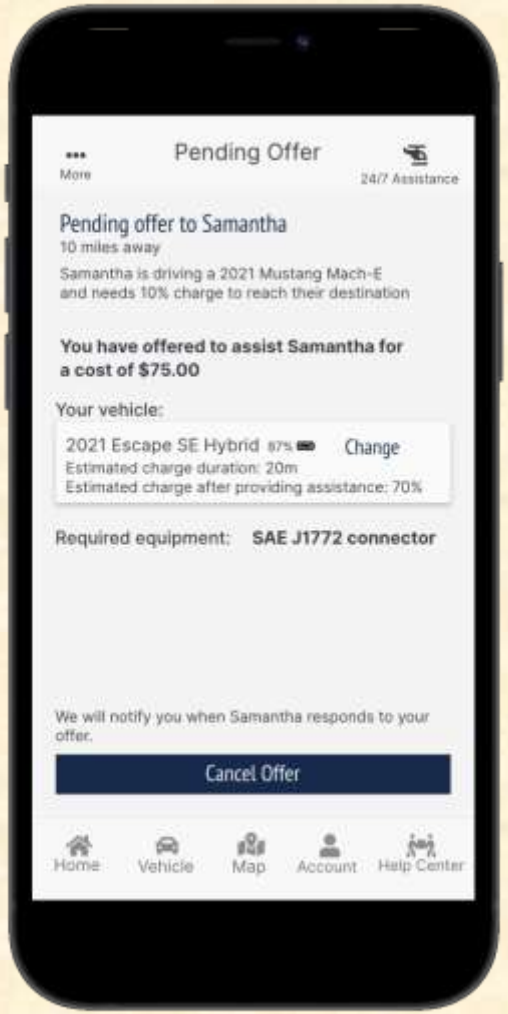



# Screen Mockup: Offer Details

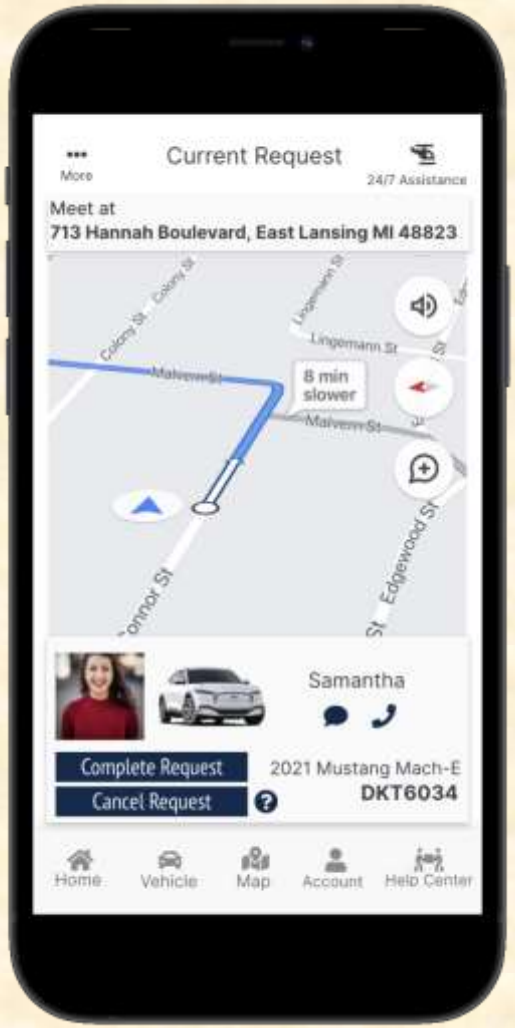


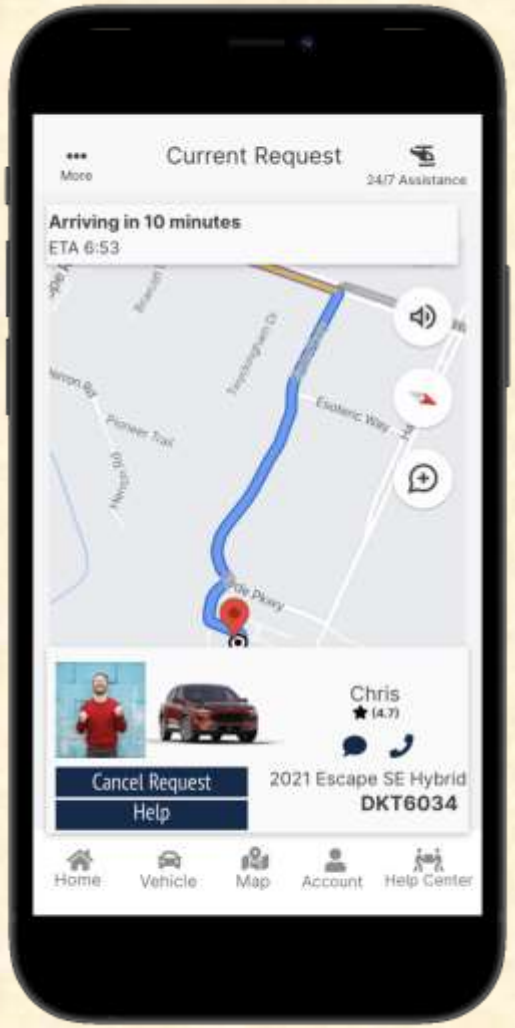
# Screen Mockup: Offer Assistance



# Screen Mockup: Current Request

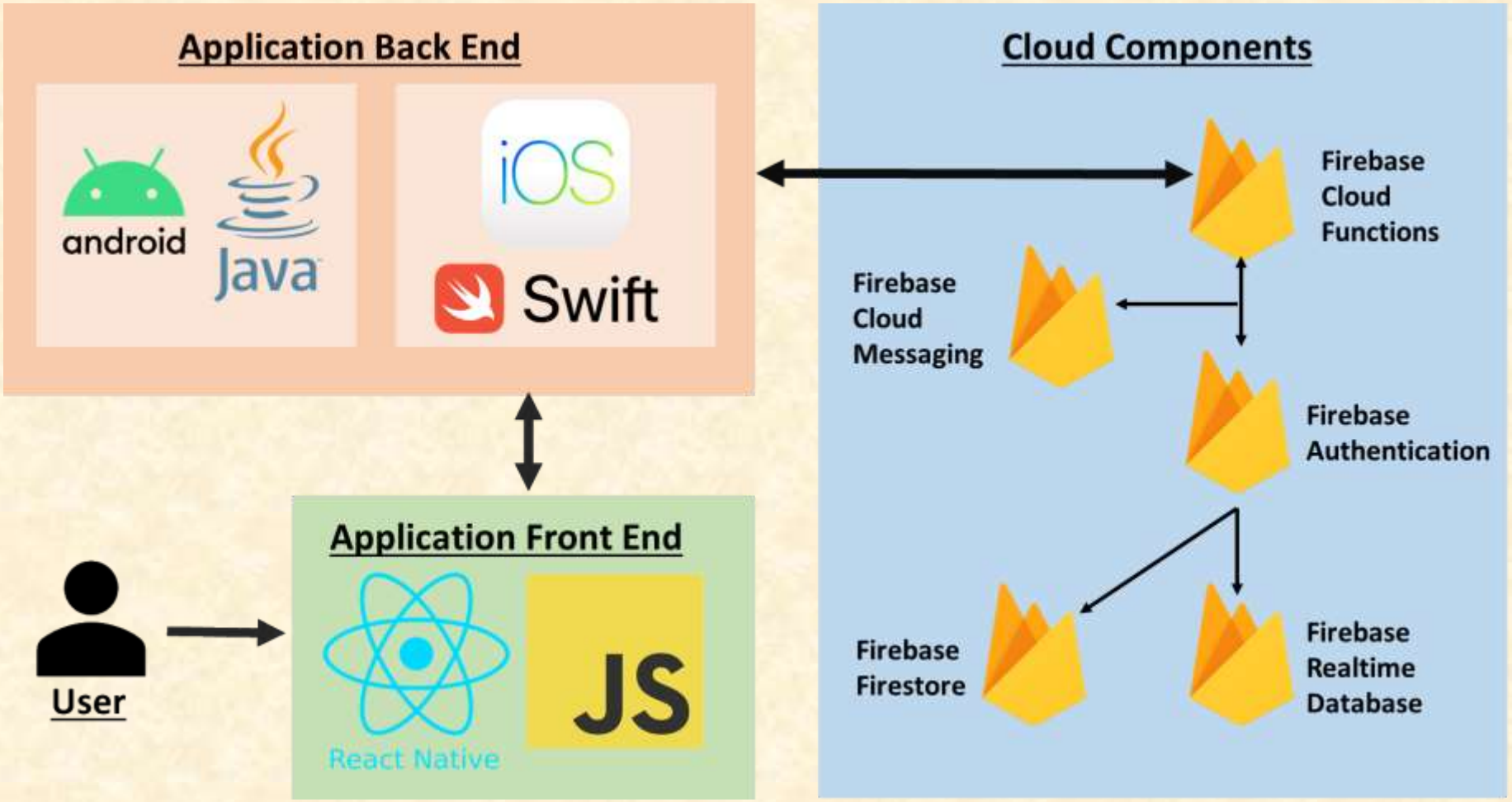


# Technical Specifications

- React Native / JavaScript front end
- The Android back end will be written in Java
- The iOS back end will be written in Swift
- Google Firebase services will be used to implement authentication, chat, and push notifications
- The database will be implemented using Google Realtime Database and Google Firestore

# System Architecture



# System Components

- Hardware Platforms
  - Android and iOS mobile devices
- Software Platforms / Technologies
  - React Native front end
  - Swift/Java back end
  - Firebase Services
  - Firestore Database
  - Android, iOS, and Firebase SDKs

# Risks

- Implementing Live Push Notifications
  - Risk: Timely push notifications being sent to users based on user settings and location
  - Mitigation: Google Firebase Cloud messaging has the tools needed to implement this feature
- Implementing User Location Screen
  - Risk: Map screen displaying the location of the charge donor and the charge recipient in real time
  - Mitigation: react-native-maps-directions module powered by the Google Maps API
- Maintaining Consistency Across Devices
  - Risk: Our application will be used on a variety of devices for both iOS and Android. We need to ensure that app visuals and performance remain consistent regardless of hardware being used.
  - Mitigation: We are using React Native to build a platform-agnostic front end and are testing our application on a variety of devices and emulators

# Questions?