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

Project Plan Presentation
Safe Journey AI 2.0

The Capstone Experience

Team Volkswagen

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Spring 2025

Project Sponsor Overview

- Volkswagen – Auburn Hills, Michigan

- Automobile Manufacturer

- Dedicated to Customer Safety

Project Functional Specifications

- Hazardous Driving Conditions

- Ease of Mind While Driving

- Real-Time Safety

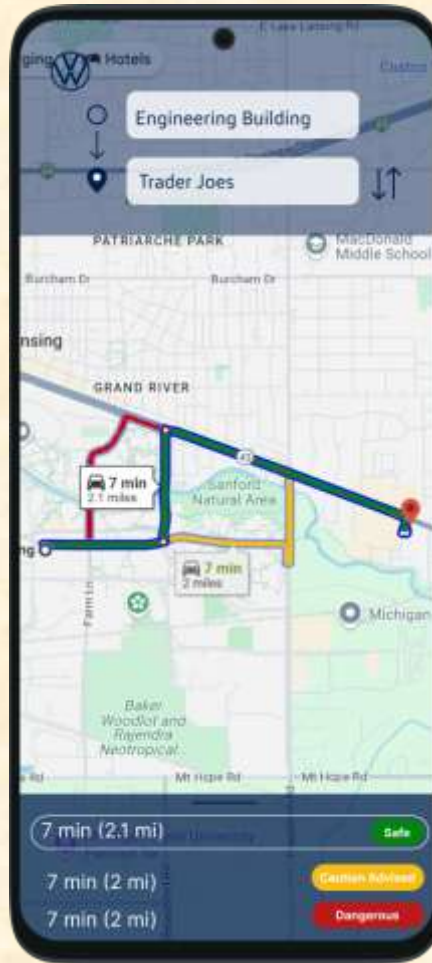- Safe Walk/Last Mile

Project Design Specifications

- Real Time Navigation
  - Automatic Rerouting
  - Avoidance Waypoints

- Real Time Safety Ratings
  - Real Time Crime and Weather Alerts
  - User Inputted Safety Hazards

- Safe Walk/Last Mile
  - Safely Guide Users from Their Car to Their Final Destination
  - Emergency Contact

- Android Auto
  - User Friendly Car Console Application Integration
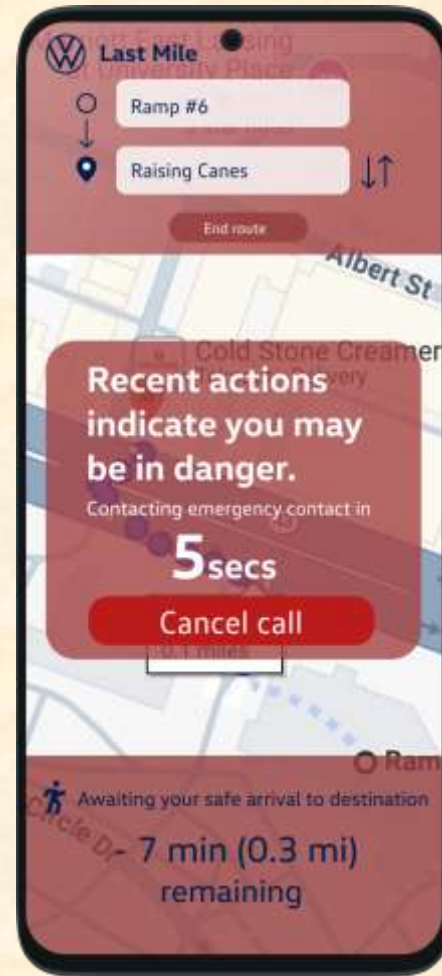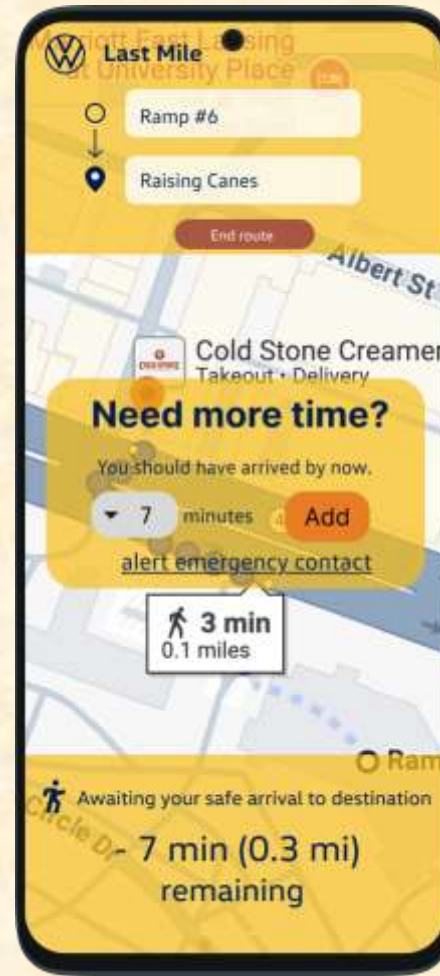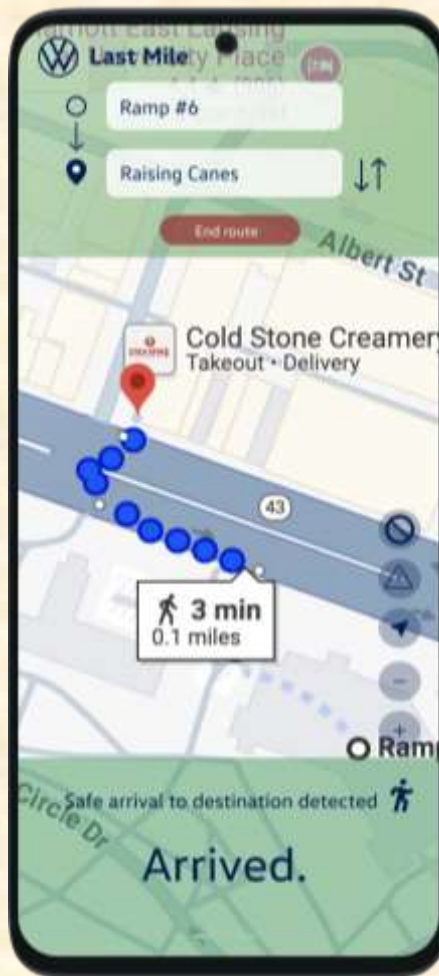
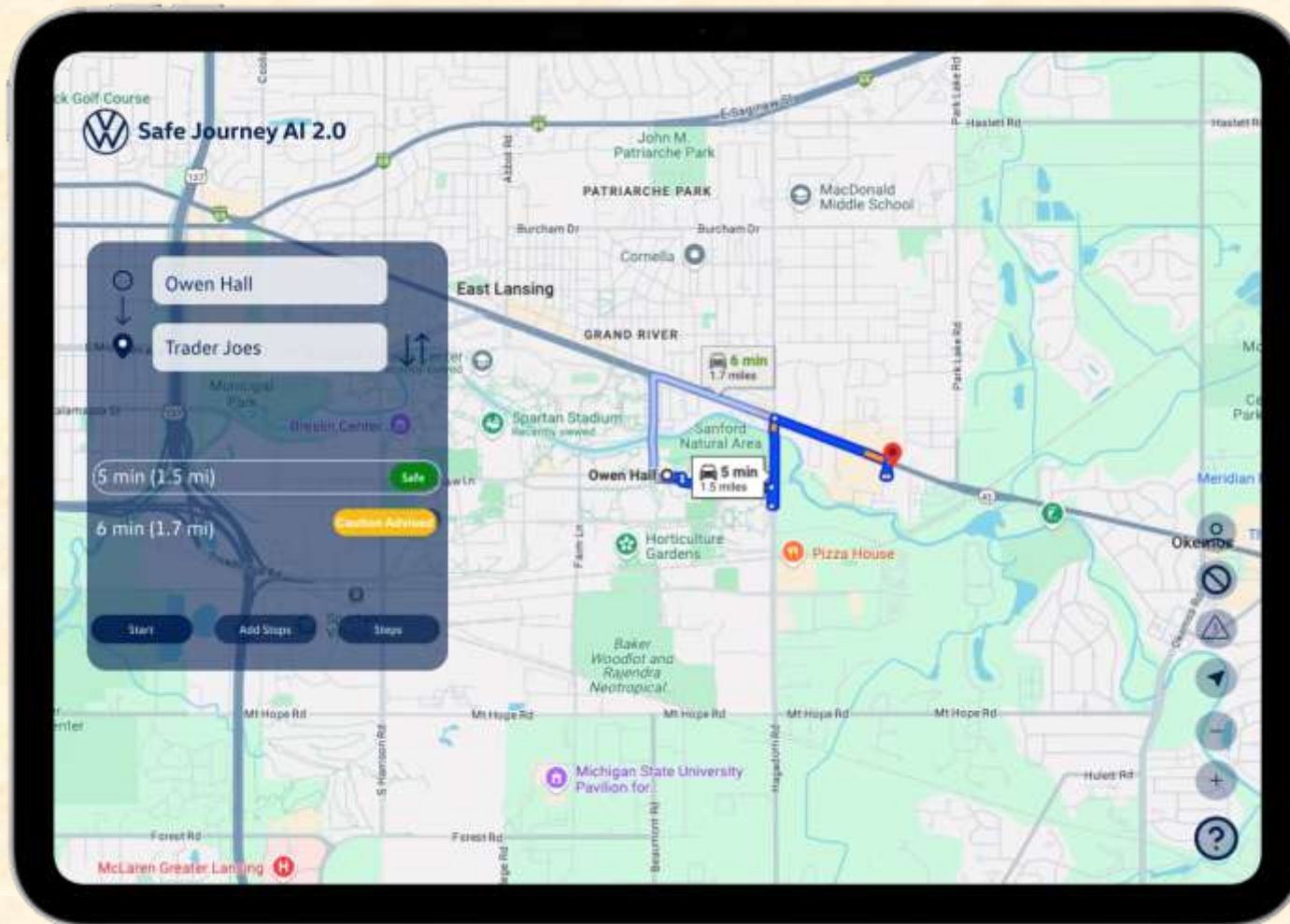# Screen Mockup: Welcome Screen

Screen Mockup: Real Time Navigation

Screen Mockup: Real Time Safety Ratings

Screen Mockup: Safe Walk/Last Mile

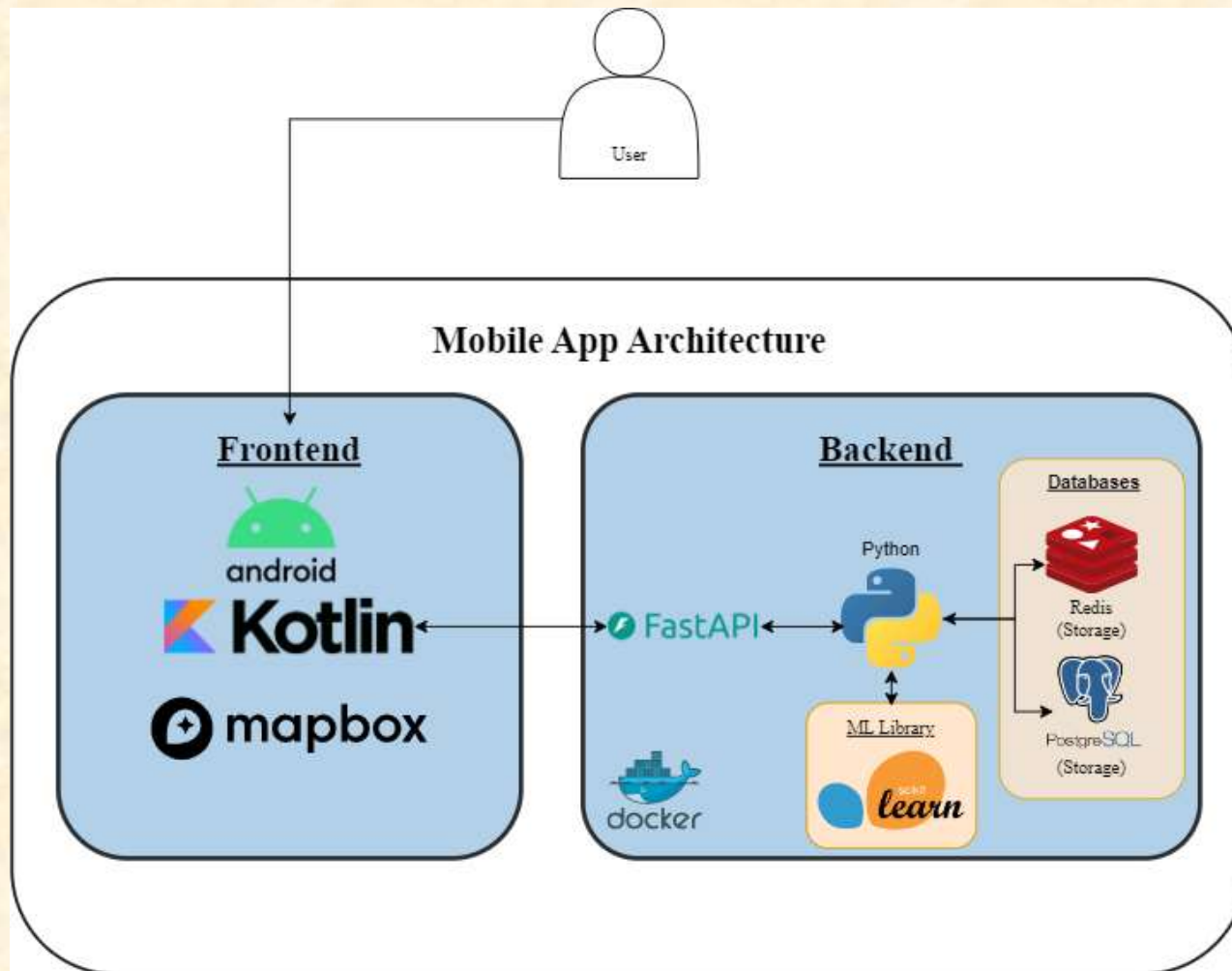# Screen Mockup: Android Auto Integration

Project Technical Specifications

- Creating an Android Application

- Integrating Mapbox's Android SDK

- Creating a Backend Microservice

- Developing Machine Learning Model for Safety Ratings

- Leveraging AI to Scrape Crime Info

- Storing User Reported Events

Project System Architecture

Project System Components

- Hardware Platforms
  - Android Mobile
  - Android Auto Interface
- Software Platforms / Technologies
  - Kotlin
  - Mapbox SDK
  - Python (From Version 1.0)
  - FastAPI (From Version 1.0)
  - Scikit Learn (From Version 1.0)
  - Docker (From Version 1.0)
  - Redis & PostgreSQL

Project Risks

- Real Time Crime Data
  - Data isn't Widely Available
  - Process Emergency Alerts, Determine Possibility & Scale
- Avoidance Waypoints
  - User Placed Waypoints, System Created Routes Avoid Them
  - Use Mapbox Directions API
- Rerouting Based on New Hazards & Events
  - Reroute User if Something Hazardous Occurs on Route
  - Hazards & Events have "Area-Of-Effect"
- Android Auto Integration
  - App Needs to be Displayed on Vehicle's Center Console
  - Use Android Auto & Design Additional Buttons & Features

Questions?