Project Plan
Volkswagen EV Route Planner
The Capstone Experience
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Functional Specifications

• Underlying reason on why customers are resistant to converting to EV is inadequate knowledge of EVs and the benefits gained by switching from gasoline powered cars

• By use of this application
  ▪ Minimal to no daily route change
  ▪ Long range trips possible
  ▪ Comparison information between EV and gas-powered vehicles
Design Specifications

• Use cases
  ▪ Salesman
  ▪ Customer

• Samsung Galaxy Tab S7+ and kiosk

• There are two main views
  ▪ Initial splash view
  ▪ Route planning view

• Adherence to Volkswagen style guide

• Material Design
Screen Mockup: Initial Map Screen
Screen Mockup: Initial Screen With Menu
Screen Mockup: Routing Example
Screen Mockup: Route With Information
Technical Specifications

- Android 10.0+
- XML
- Kotlin
- SDKs
  - Google Maps 17.0.0
  - Google Places 2.4.0
- Material Design Components
System Architecture

Development Environment

Maps SDK
Places SDK

Application

User

Google API's

Cloud Services

Other API's
System Components

• **Hardware Platforms**
  - Galaxy S7+ Tab

• **Software Platforms / Technologies**
  - Android Studio
  - Google APIs
    - Places
    - Directions
    - Maps Elevation
    - Googles Map
  - Open Weather API
  - Department of Energy EV Charger API
Risks

• **Calculating Fuel Efficiency**
  ▪ **Description:** Calculating MPG based on varying conditions
  ▪ **Mitigation:** Use specifications from the client and research more APIs

• **Implementing Charging Station Locations**
  ▪ **Description:** Adding charging stations to the optimal route
  ▪ **Mitigation:** Utilize Google Directions API and Energy EV Charger API

• **Ease of Use of the Application**
  ▪ **Description:** The application must be easily accessible
  ▪ **Mitigation:** Work with the client iteratively
Questions?