Project Plan Presentation
Digital Banking Car App

The Capstone Experience
Team MSUFCU
Makayla Allen
Danny Buglak
Senan Haque
Gavin Mraz
Lucas Nogueira Pires

Department of Computer Science and Engineering
Michigan State University
Fall 2023
Project Sponsor Overview

• American credit Union
• Founded at Michigan State University in 1937
• Headquarters in East Lansing, MI
• Over $7.28 billion in assets
• Over 330,000 members
Project Functional Specifications

• Michigan’s new cell phone law leads to a need for MSUFCU customers to have a safe and convenient digital banking experience in vehicles
• 1 touch controls on infotainment system
• Voice-activated banking controls for essential tasks
  ▪ Member2Member transfer, checking balances, checking transaction history, loyalties, etc.
Project Design Specifications

• Secure PIN sign-in
• Simple and safe to use
• View account balances
• Check latest transactions
• Contact customer support
• View near by loyalty offers and get directions
• Transfer funds to accounts or to other members
Screen Mockup: Phone Application
Screen Mockup: Infotainment Home

SPARTAN SAVER
$1713.25

TOTALLY GREEN CHECKING
$825.23
Screen Mockup: Recent Transactions

- **UBER.COM**: $13.54
- **CLASSPASS**: $35.99
- **MONTHLY**
- **COTTAGE INN**: $23.15
Screen Mockup: Loyalties

- Walmart: 3.0 MI Away
- Starbucks: 3.1 MI Away
- Meijer: 4.6 MI Away
- Dunkin': 5.2 MI Away
Project Technical Specifications

- PHP is hosted on the MSU CSE Arctic Server
- SQL is hosted on PHPMyAdmin
- Android app developed in Java and Kotlin on Android Studio
- iOS app developed in Swift and SwiftUI on Xcode
- Automotive and phone emulator on Android Studio
- APIs for google maps
- SDKs for speech recognizer from Android developer website
Project System Architecture
Project System Components

• Hardware Platforms
  ▪ Android mobile cell phone
  ▪ Vehicle infotainment system
  ▪ Cloud based MSU CSE Arctic server

• Software Platforms / Technologies
  ▪ Android Studio and xcode
  ▪ Android Phone and Automotive emulator
  ▪ PHPStorm and SQL
  ▪ SDKs from Android’s developer website
Project Risks

• User Safety
  ▪ Application user interface and experience must be simple and safe to use within a vehicle.
  ▪ Research and test different implementations to ensure our app is not overly complex.

• Apple CarPlay Emulator
  ▪ Unable to emulate Apple CarPlay without entitlements from Apple.
  ▪ MSUFCU is aware of this, allowing us to spear head the Android development. MSUFCU is attempting to request entitlements for their Apple developer account.

• Voice Commands
  ▪ No experience implementing code that uses voice commands
  ▪ Research and test implementations for how to implement voice control as well as use MSUFCU’s boost.ai to assist in development

• Database Logistics
  ▪ Database for backend customer information is set up but is not yet connected to the application
  ▪ Implement the database system in the application

• MSUFCU APIs
  ▪ Restricted access to currently used APIs within MSUFCU mobile application
  ▪ Communicating with MSUFCU and their IT team to gain access
Questions?