Project Plan Presentation
Personalized Augmented Reality Experience

The Capstone Experience

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Project Sponsor Overview

- MSUFCU is a federal credit union based out of East Lansing
- Committed to superior banking and betterment of local communities
- As of 2024, MSUFCU serves 361,000 members and has $7.71 billion in assets
Project Functional Specifications

• Project aims to create an innovative approach to the in-person banking experience
• Increases efficiency and personalizes in-branch visits
• Allows users to control their visit and the level of interaction needed
• Embraces modern technology while promoting old-school banking
Project Design Specifications

• Prompt user engagement in the AR experience via mobile push notification (geolocation)
• Facial recognition to complete the sign-in process
• Personalized visit recommendations based on previous visits to location
• External display guiding customer through specific branch services
• Optional experience open to user’s who opt in
Screen Mockup: Opt-In Service

Welcome!
This page offers a personalized, on-site augmented reality experience through the use of geolocation and facial recognition! If you would like to get started with this experience, press the button below!

Press here to opt in!

Thanks for Opting in!
What’s next? Head on over to the nearest MSUFCU location for a seamless, personalized banking experience!

Find a location near you...

How does this work?
Screen Mockup: Location Based Notifications
Screen Mockup: Personalized Experience
Screen Mockup: Tailored Recommendations
Project Technical Specifications

- Full stack application built with a WebSocket server
- Mobile application developed using SwiftUI (MapKit and Starscream packages)
- Web application developed with HTML, Tailwind CSS, and JavaScript
- Flask-SocketIO and Starscream extensions provide WebSocket handling for real-time communication
- Back-end server hosted by AWS and containerized by Docker
Project System Architecture

- User
  - On-site Display
    - Web Application
      - HTML5
      - Tailwind CSS
      - Flask
      - MySQL
    - EC2
  - WebSockets
    - Swift Packages
      - SwiftUI
      - Starscream
      - MapKit
    - Mobile Application
      - iOS
Project System Components

• Hardware Platforms
  ▪ On-site External Screen
  ▪ Computer or Smart TV
  ▪ Mobile Device (iOS)

• Software Platforms / Technologies
  **IOS Mobile Application:**
  ▪ SwiftUI, MapKit, Starscream
  **Web Application:**
  ▪ Tailwind CSS, MySQL, HTML5, Flask, Amazon Web Services EC2
Project Risks

• Real-time phone-to-screen connection
  ▪ Users will be greeted by an external screen, synchronously guiding them through branch activities. There are uncertainties about establishing an efficient and effective connection between the two devices
  ▪ Members have explored using WebSockets via Flask-SocketIO to establish a secure and realtime connection
• User's location in relation to MSUFCU using geofencing
  ▪ The user's location is needed to send an AR Experience notification when they are at a MSUFCU branch, along with requiring accurate geofencing for MSUFCU's branch location.
  ▪ The user's location can be found using SwiftUI and the branch location can be found using Google Maps API, this can be tested on-site after implementation
• Privacy with two-factor authentication
  ▪ Authentication for accessing private banking information must align with the proposal's augmented reality specifications and incorporate facial recognition technology
  ▪ Require the user to bring their own phone and authenticate using iPhone's facial recognition
• Personalized features for each user
  ▪ In an augmented reality experience, the software should offer customized features based on the user's perceived intent for visiting the branch or their past branch interactions
  ▪ The branch activity options will be presented through being stored in a MySQL database hosted on AWS EC2, providing suggestions reflective of their consistent engagement
Questions?