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

Project Plan Presentation
Build-an-App for Humanities Researchers

The Capstone Experience

Team Michigan State University Linguistics

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From Students…
    …to Professionals

Project Sponsor Overview

- Michigan State Linguistics Department – MI Diaries
  - Group of researchers working on MI Diaries App
  - Focused on linguistic analysis of audio data
  - Team started during the COVID-19 Pandemic
  - Received a research grant for the MI Diaries App-Builder project

Project Functional Specifications

- Two components – MI Diaries App & App-Builder

- MI Diaries is a user facing app that is used to record audio diaries and track progress remotely

- App-Builder is a web application that allows other researchers to customize the mobile app and release their own versions easily

Project Design Specifications

- Mobile App
  - Has stats tracking page and recording page
  - Includes user login and sign-up
  - Simple design intended for children and elderly
- App-Builder
  - Guided editor that allows for customization of the base MI Diaries app
  - Code free design for non-technical users
  - Features a live preview of the app while customizing
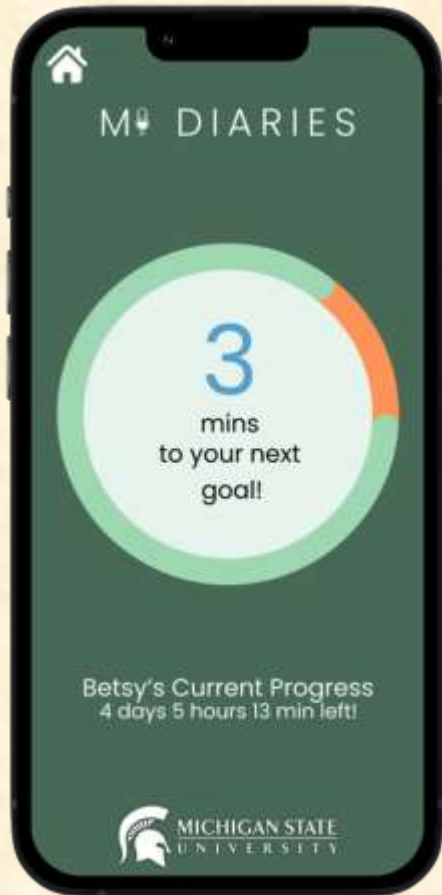
Screen Mockup: MI Diaries App

Dashboard Screen

Recording Screen
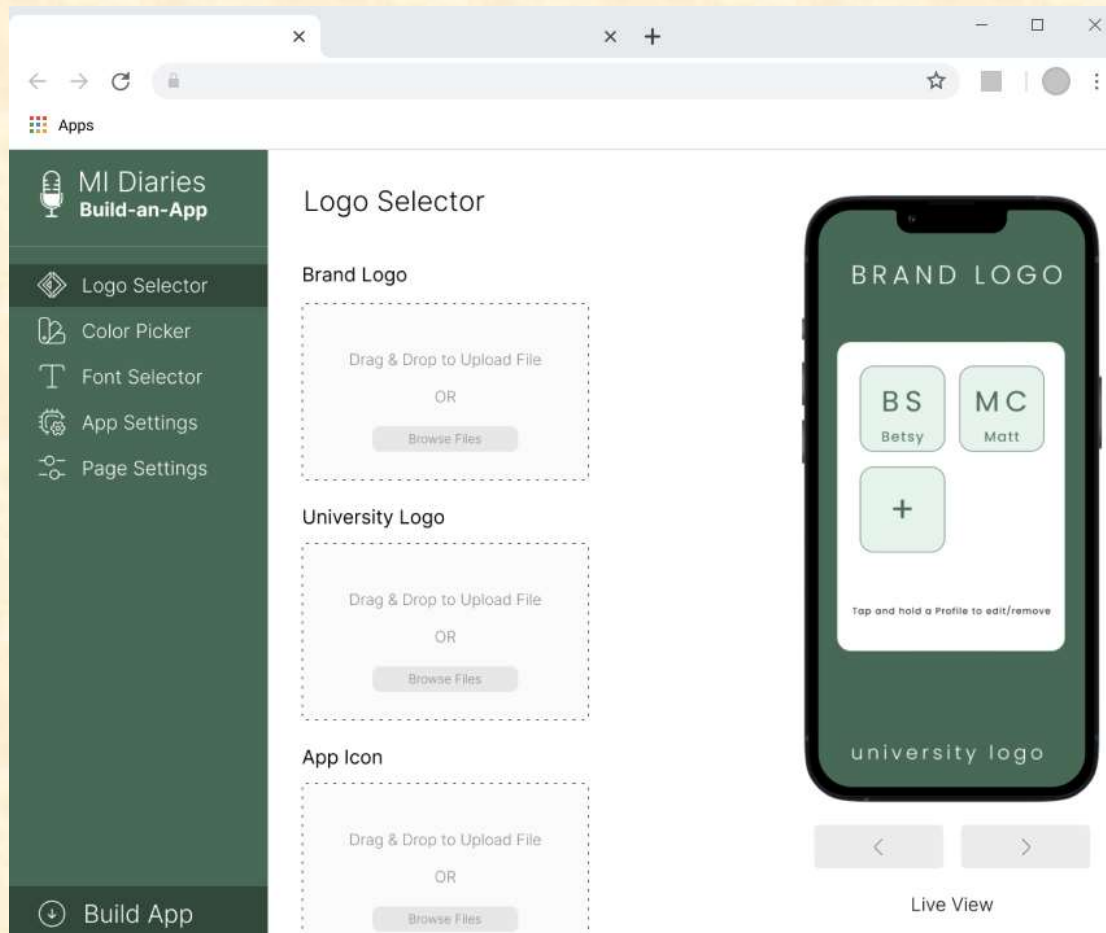
Screen Mockup: MI Diaries App
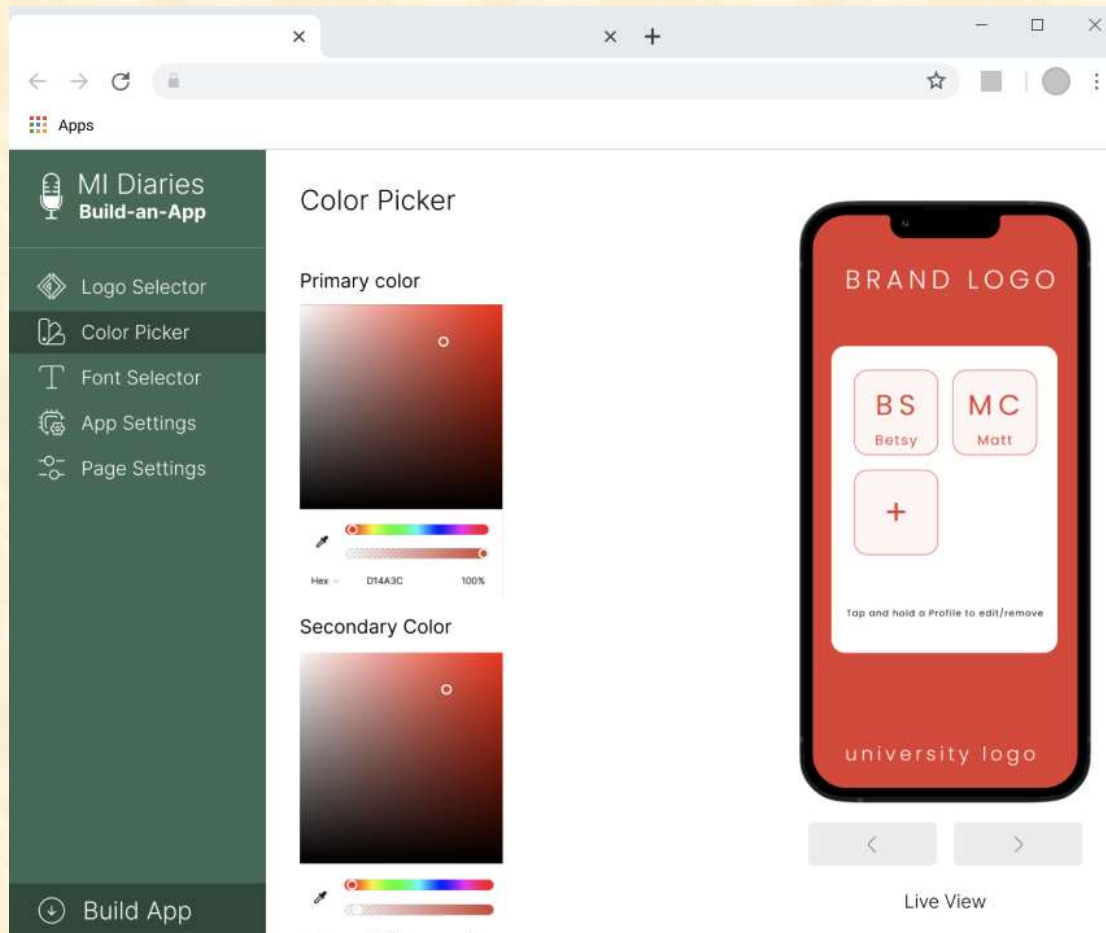

Progress Screen

Stats Screen

Screen Mockup: App-Builder

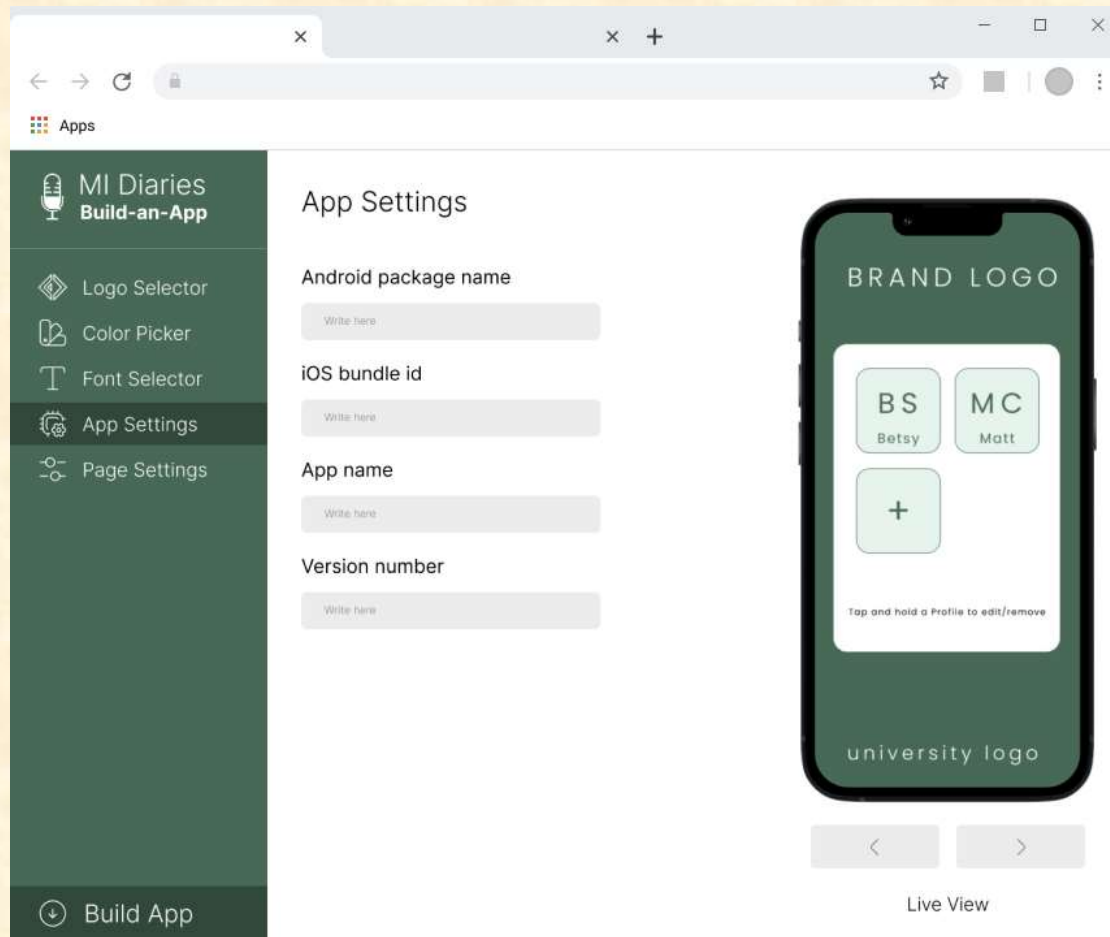Logo Selecting Screen

Screen Mockup: App-Builder

Color Picker Screen

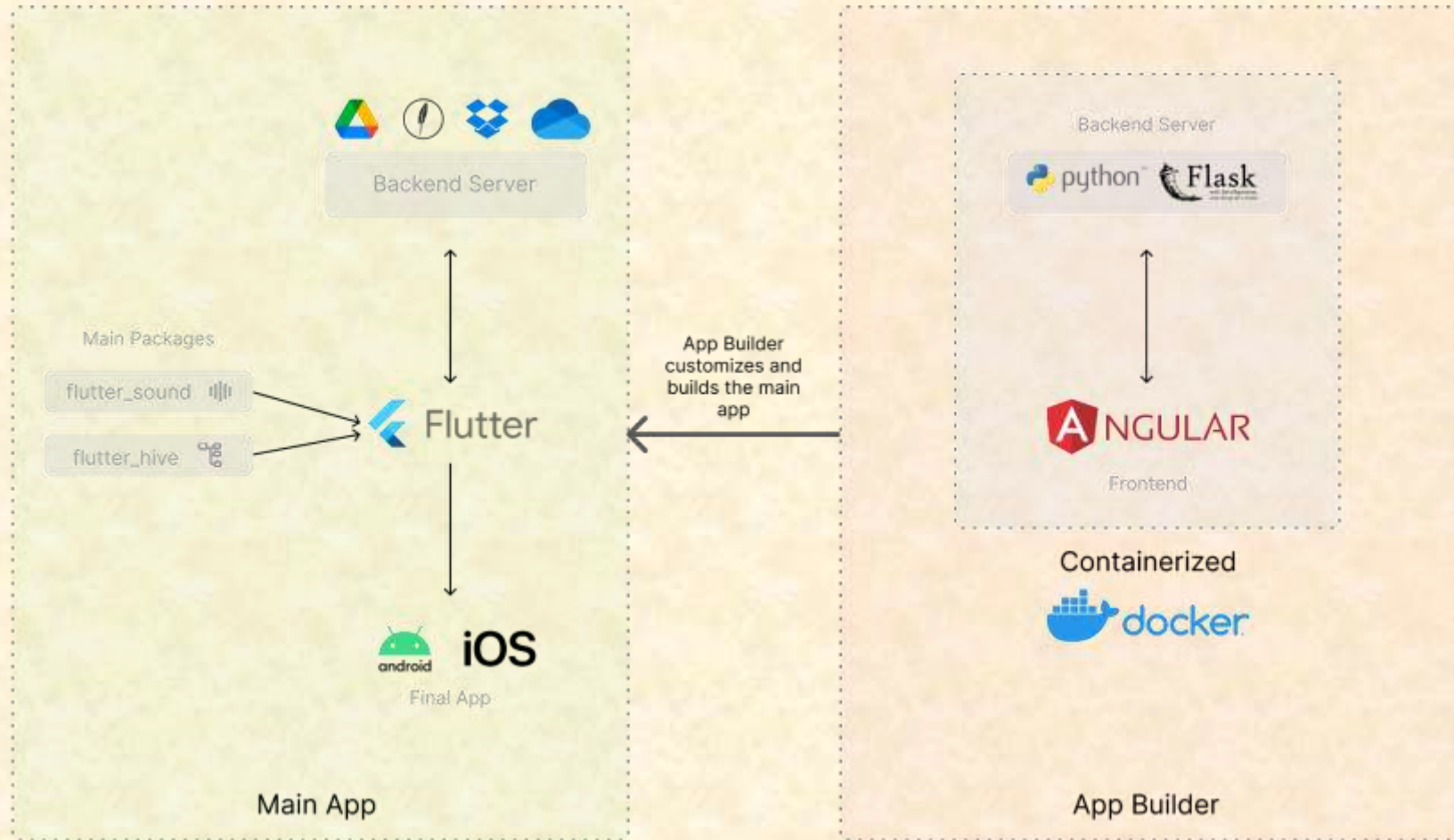# Screen Mockup: App-Builder

App Settings Screen

Project Technical Specifications

- Flutter
  - Cross platform mobile application development framework
  - Using Flutter to develop MI Diaries mobile app
- Angular
  - Component based web development framework
  - Based on Typescript
  - Using to build App-Builder UI
- Flask
  - Lightweight Python web application framework
  - Using to customize app based on user input
- Docker
  - Containerization software
  - Using to "Dockerize" App-Builder frontend and backend into one container

Project System Architecture

Project System Components

- Hardware Platforms
  - Developed on Windows and MacOS
  - Flutter app tested on iPhone 12 Pro and Google Pixel 3
    - App was also tested using various emulators
  - No server systems required, provided by sponsor
- Software Platforms / Technologies
  - Flutter app is build using Xcode and Android Studio
  - Flutter app connects to FeatherJS sever at MSU, can connect to other servers or cloud folders
  - Angular App-Builder UI and Flask backend are containerized using Docker

Project Risks

- Fix background audio recording feature
  - Original app would stop capturing audio once minimized
  - Mitigation: Test with updated versions of Flutter sound
- Enable iPad multi-task functionality
  - The original design of MI Diaries did not account for iPads being able to multitask
  - Mitigation: Test with various multi-task screens iPads can use
- Ensure non-technical users can use the App-Builder
  - Users without programming experience should be able to seamlessly create variations of MI Diaries using the App-Builder
  - Mitigation: Do basic user testing with the developed software
- Create dynamic Flutter preview in Angular App-Builder
  - Important that the preview accurately represents what the app will look like
  - Mitigation: Design Angular components using Angular Material and CSS styles that exactly match the Flutter app

Questions?

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