

MICHIGAN STATE

U N I V E R S I T Y

Project Plan

Spartan Experience App

The Capstone Experience

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*From Students...
...to Professionals*

Functional Specifications

- Mobile app to enhance student and visitor experience at MSU
- Provides info in a user-friendly format
 - Dining hall menus and hours
 - Building and parking lot hours, locations, maps
 - Events on campus
 - Twitter feed of official MSU accounts
 - Context- sensitive info
 - Specific to user's location and the time of day



Design Specifications

- Design both iOS and Android platforms
 - Adheres to their specific design guidelines
- User-friendly, easily navigable, visually appealing, consistent across all devices
- Includes relevant information for students and visitors (building locations, dining hall menus)
- Includes personalized information based on the user's location and the time of the day



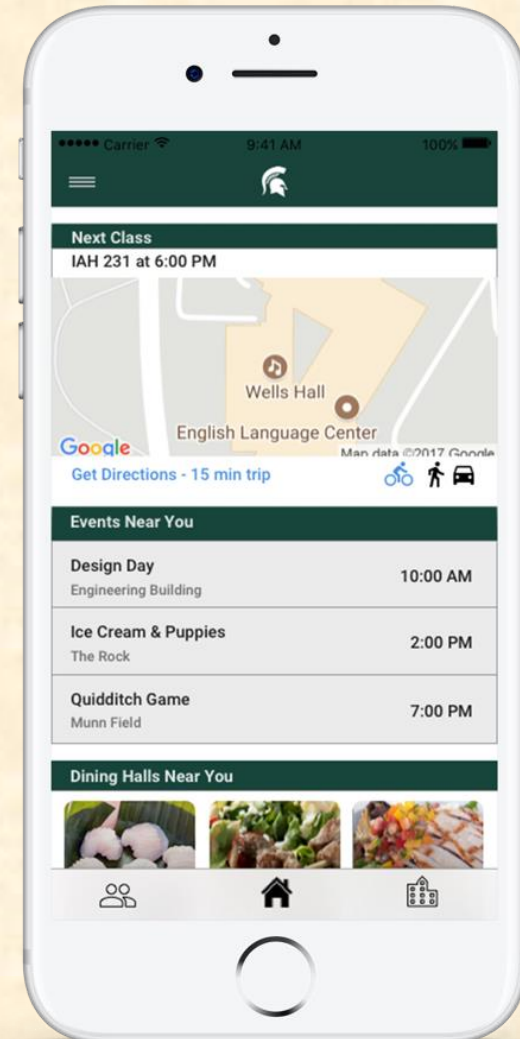
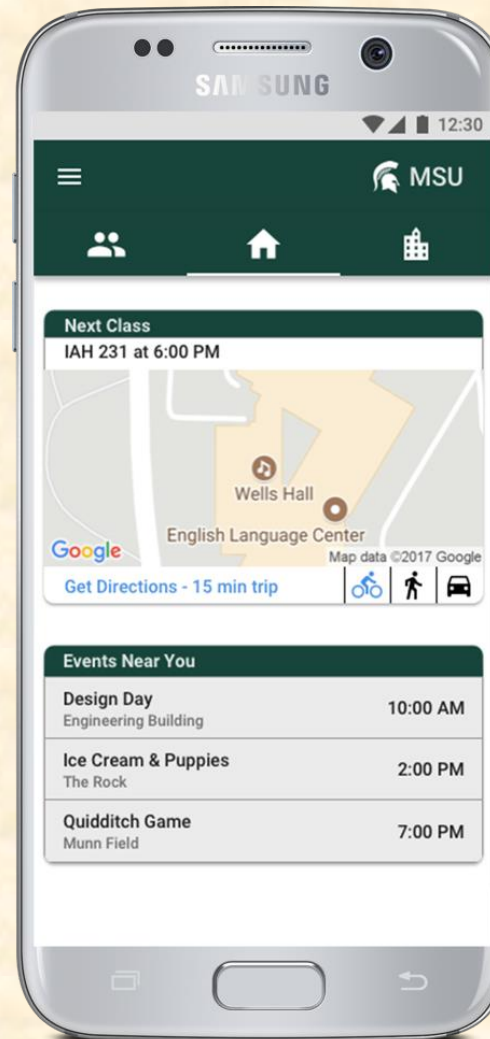
Screen Mockups: Home Screen

iOS vs. Android:

- Bottom toolbar vs. top tab layout

Features:

- Time until next class
- Directions to next class
- Events near you
- Dining halls near you



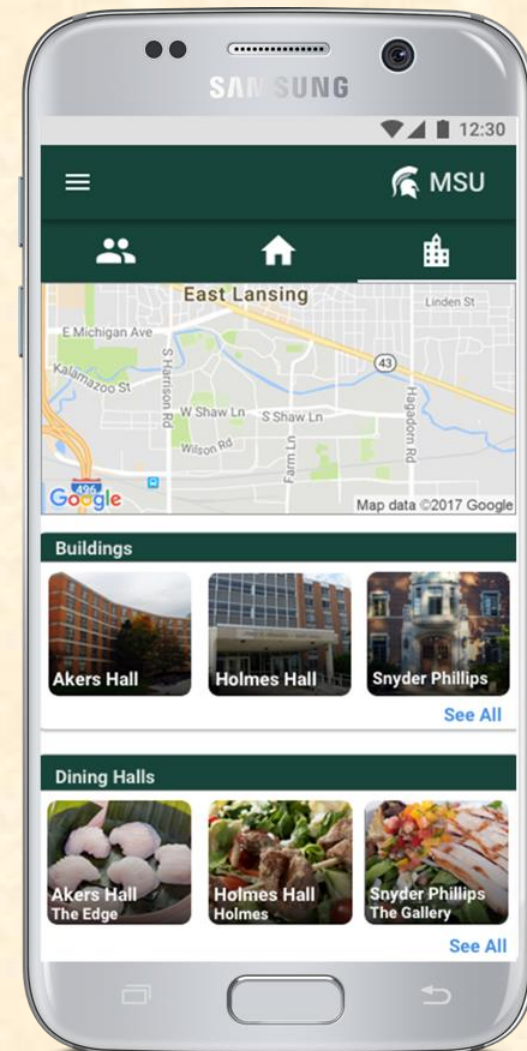
Screen Mockups: Social & Campus Tabs

Social Tab:

- MSU Twitter Feed

Campus Tab:

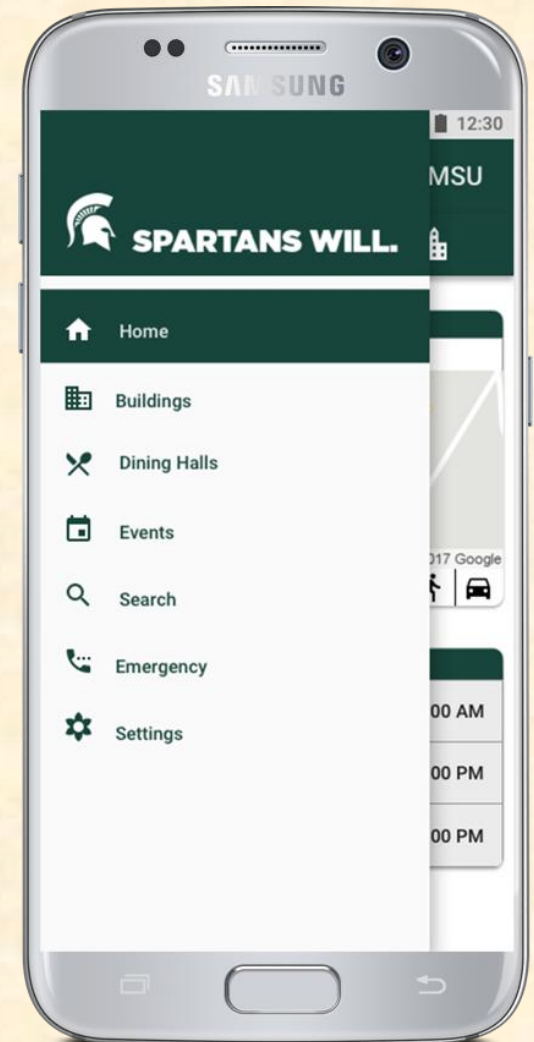
- Buildings
- Parking lots
- Dining halls
- Sparty's



Screen Mockup: Navigation Drawer

Specific Views

- Home
- Buildings
- Dining halls
- Events
- Search the app capability
- Emergency contacts
- Settings for personalization



Technical Specifications

- Integrating Multiple Data Sources
 - Events RSS feed
 - Twitter API
 - Eat at State website
 - Google Maps Places API
- REST API with AWS Lambda (Python 3.6)
- Web scraping public MSU websites
 - Python web scraping script
 - Cron-based scheduling of scraper
- Context-based information
 - Relational database for flexible querying (PostgreSQL)
 - Incorporates location, events, and personal schedule



System Architecture

External Data Feeds

Maps/Places API



Building Info

Web Scraping



Menus

JSON



Events

Tweepy



MSU News

iCal File



Back End

PostgreSQL



- Buildings
- Parking Lots
- Schedules
- Classes
- Cafeteria Menus



Amazon AWS



API Gateway

Front End



System Components

- Hardware Platforms
 - Apple iPhone
 - Android Phone
- Software Platforms / Technologies
 - iOS App Developer (Xcode 9) with Swift 4
 - Android Studio 3.0 with Java
 - Python 3.6
 - AWS Lambda
 - AWS API Gateway
 - PostgreSQL Database



Testing

- Staged test releases
- Features shared with MSU IT Team for feedback
- Private beta test once feature complete
 - Other capstone students, friends, faculty
- Google Play Beta testing and Apple Testflight



Risks

1. Different levels of access between separate university services
 - Solution: Take an inventory of which services are feasible to use and prioritize them
2. No well-defined list for context-sensitive information categories
 - Solution: Present a list of possible categories to our client and prioritize them
3. RHS just updated the dining hall website, so the RSS Feeds may not still exist
 - Solution: Implement web-scraping techniques
4. No team experience working with beacon push notifications
 - Solution: Find example applications and implement a simple prototype utilizing the technology



Questions?

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