Project Plan
Spartan Experience App
The Capstone Experience

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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
- Web Scraping
- JSON
- TweetPy
- iCal File

Back End
- PostgreSQL
  - Buildings
  - Parking Lots
  - Schedules
  - Classes
  - Cafeteria Menus

Front End
- REST API
- API Gateway
- Amazon AWS
- Python

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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?