MICHIGAN STATE
UNIVERSITY

Project Plan
Workspace Sentiment Analysis

The Capstone Experience

Team Herman Miller

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From Students…
…to Professionals

Functional Specifications

- Herman Miller's problem:
  - Utilization sensors that are currently installed are not able to analyze employee sentiment pertaining to certain workspaces around the office

- Our team's solution:
  - Mobile application for employee sentiment input
  - Natural language processing tool to analyze employee sentiment
  - Web analytics platform to display data

Design Specifications

- iOS and Android mobile application
  - Kiosks placed around the office will allow for immediate employee feedback
  - Rewards available for answering questions if employees download app on their personal devices
- Bluetooth proximity beacons
- Questions will be sent out to employees via push notification when proximity threshold is met
- Questions answered will be sent to database and will be analyzed with Amazon Comprehend
- Data collected will be displayed on our core analytics platform with Google Analytics API

Kiosk App
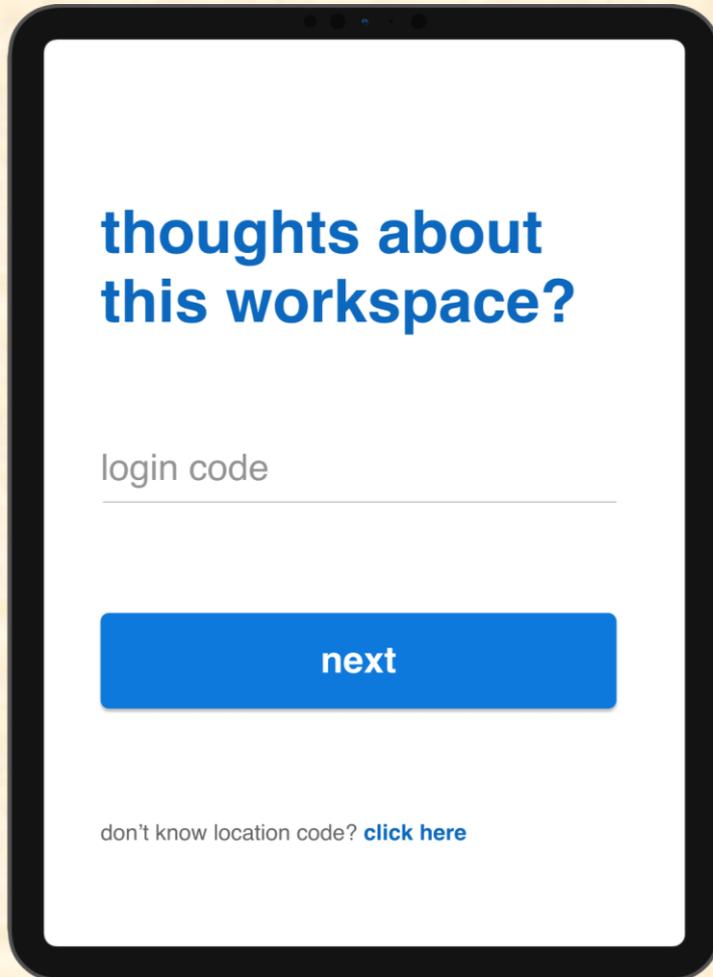
Figure 1
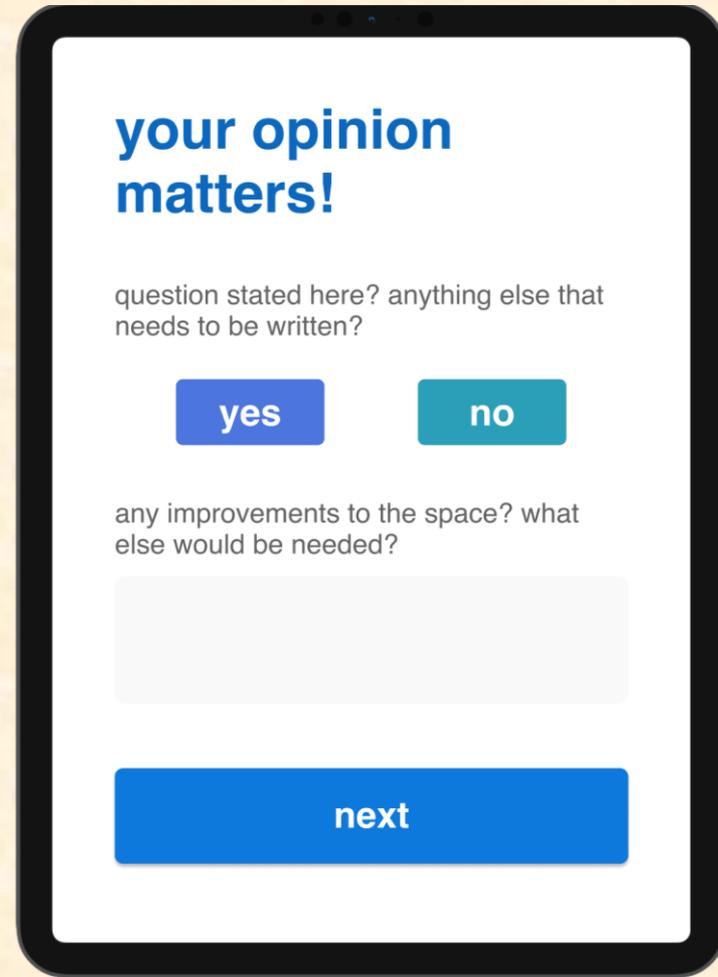
Figure 2

Mobile App - User
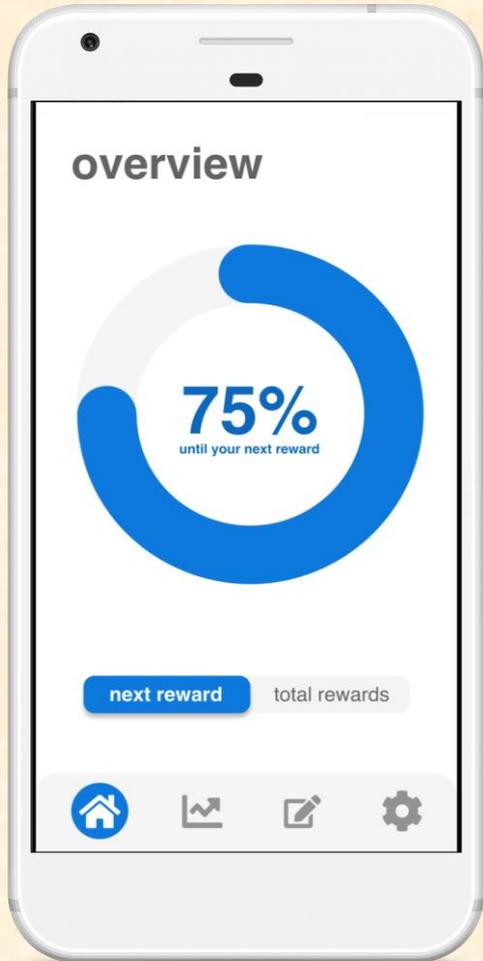
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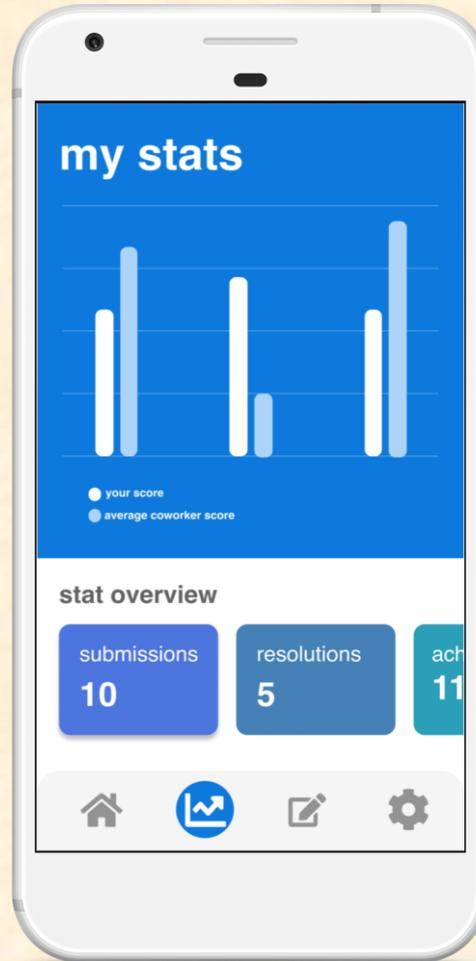
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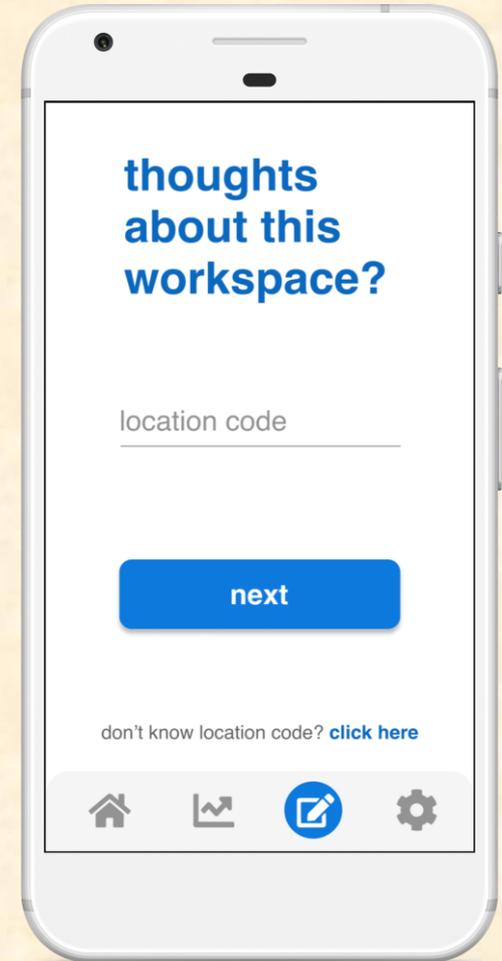
Figure 3

Mobile App - Guest
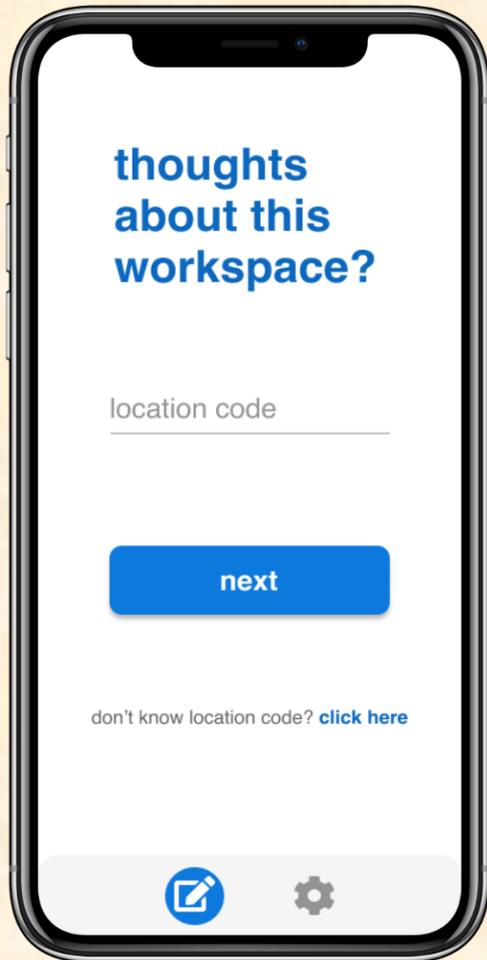
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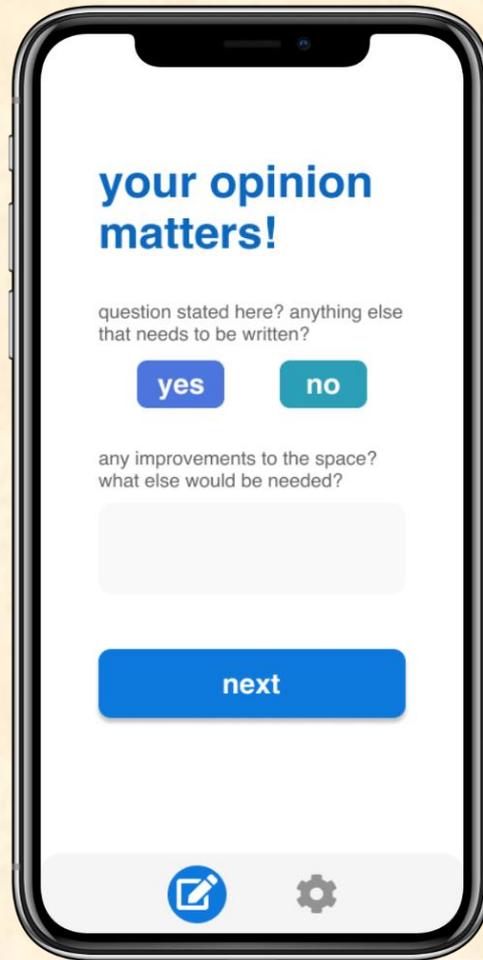
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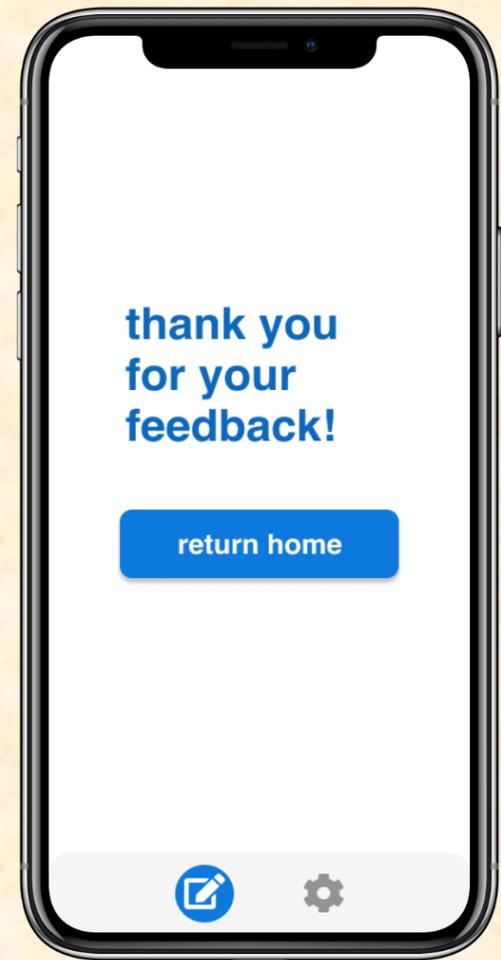
Figure 3

Web Analytics Platform
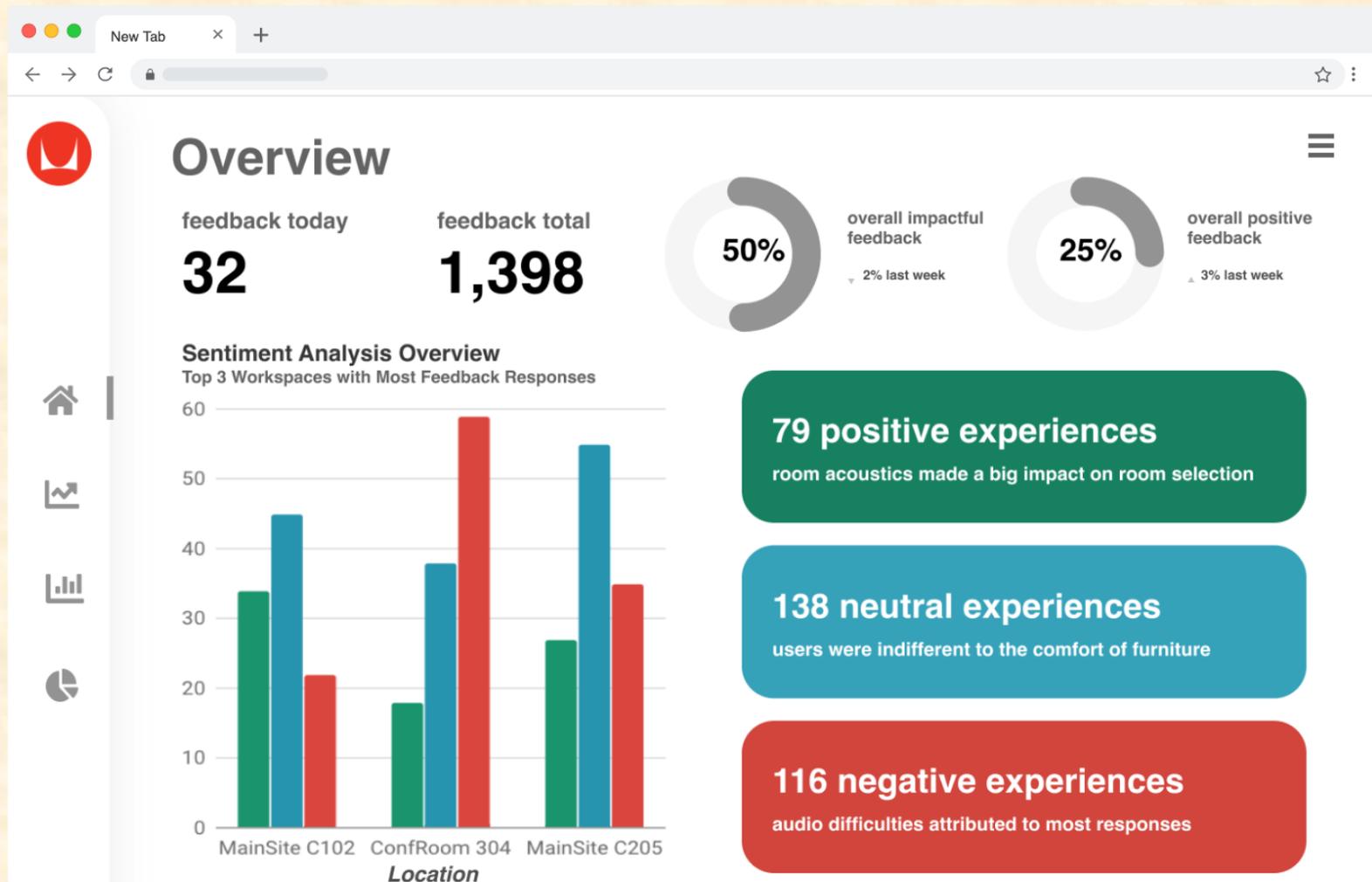
Technical Specifications

- **Three Primary Components:**
  - iOS/Android Mobile Application
  - Backend AWS server to collect and analyze data
    - Amazon RDS with PostgreSQL
    - Amazon Comprehend
  - Analytics platform that displays data from the backend database
    - React
    - Google Analytics API

System Architecture
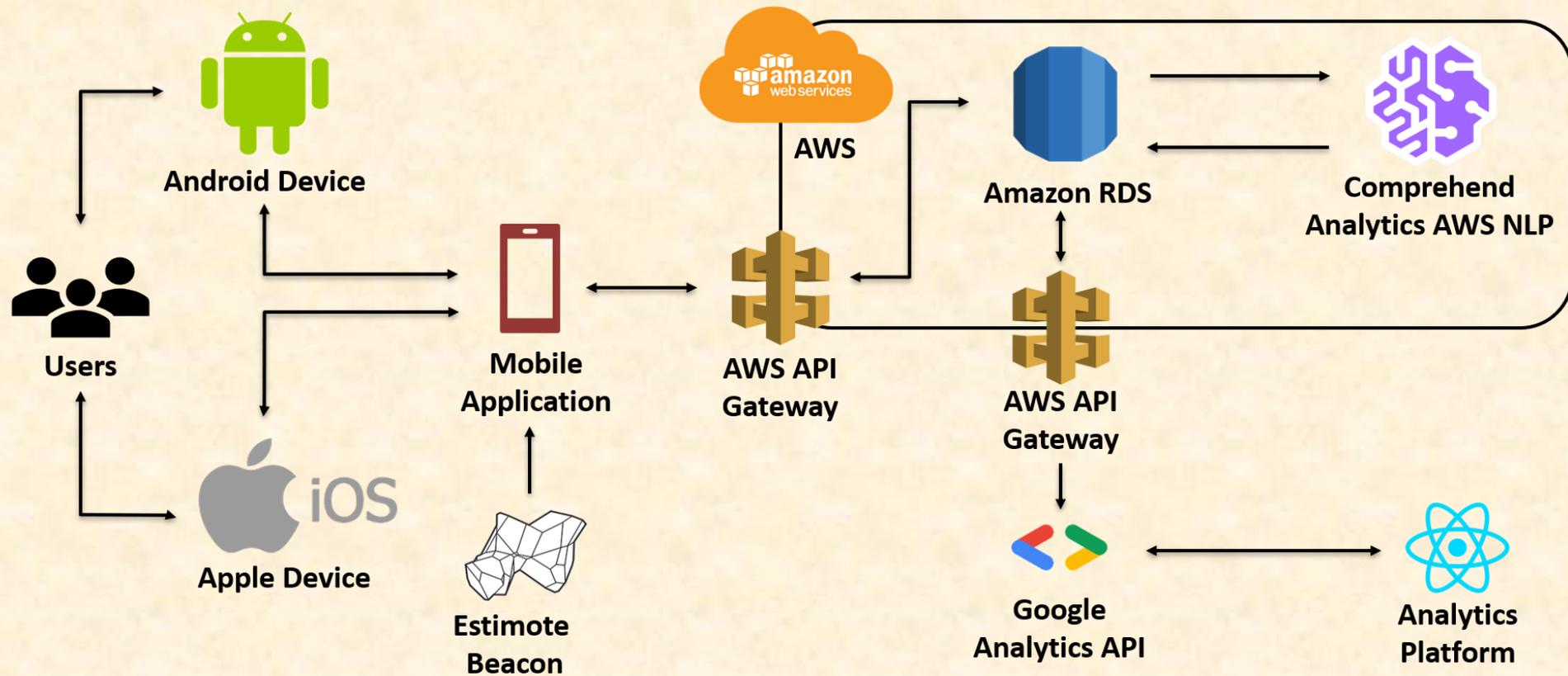
System Components

- Hardware Platforms
  - Android & iOS Mobile Devices
  - Estimote Beacons
- Software Platforms / Technologies
  - Amazon Web Services (AWS)
    - AWS Relational Database Service (RDS PostgreSQL)
    - AWS Comprehend Analytics
      - Natural Language Processing Tool
    - AWS Device Farm
  - Google Analytics API

Risks

- Real-Time Implementation with Beacons
  - Difficulty: high, Importance: high
  - Beacons must be configured to properly deliver notifications to the correct end users
  - Mitigation: Prototyping and field-testing beacons
- AWS Data Management
  - Difficulty: medium, Importance: high
  - Data aggregation and management are key factors in our project, but none of us have experience working with AWS.
  - Mitigation: Work with Herman Miller AWS Manager for guidance
- Sentiment Analysis Data Manipulation
  - Difficulty: medium, Importance: medium
  - Our application must be able to gather sentiment data, but we have very limited experience working with Amazon Comprehend.
  - Mitigation: Review documentation and work with Herman Miller's AWS manager and technical contact

Questions?