

Company Background

SC Tech is a software startup that is based in Boulder and has been in business for ~6 years. We have both commercial and Department of War customers. We currently are at the start of a 2-year contract with the US Air Force and have a project related to that work.

Briefly, our software uses digital forms and sensors (RFID, barcodes, GPS, whatever the context requires) to make it easy for organizations to capture data and use that data to have better visibility into operations and to drive efficiencies.

With the real-time views we provide, our customers:

- Manage resources more effectively
- Minimize surprises
- Mitigate risks
- Keep small problems small

Powerful. Easy to adopt. Straightforward to use.

Our system has both a mobile app and a web app.

Work to be Done

This project involves implementing functionality that is required by the Aircraft Maintenance Squadron at Kirtland Air Force Base in Albuquerque.

A unit within the Squadron wants to use our mobile and web apps to replace / automate the following manual processes:

1. Meeting attendance

- There are periodic all-hands meetings that all ~150 personnel in the Squadron must attend.
- Currently, the attendance monitors check IDs and use paper rosters to check off the names of the attendees.
- The Squadron wants our mobile app to allow the attendance monitors to scan barcodes on the personnel IDs and compare the ID numbers from the scans against a personnel roster (a CSV file that they upload to our system).
- Our mobile app would show in a clear visual manner (i) personnel on the roster who did not attend, and (ii) any IDs that were scanned but that are not on the personnel roster. Our system also would show these reports on the web app and maintain audit logs for all meetings for a period of time that is to be defined (and can be changed) by the customer.

2. Front office activity monitoring

- The same unit within the Aircraft Maintenance Squadron runs a personnel office that has a controlled access front desk. The person stationed at the front desk frequently must go elsewhere to perform their duties, leaving the front desk / front office

unsupervised. When someone arrives in that front office space to meet with someone in the office about a personnel issue, the personnel in the back-office frequently are not aware anyone is there because they are in areas that cannot see / hear anyone in the front office area.

- The unit would like to have a barcode reader at the front desk. Personnel coming to the office would use the barcode reader to scan the barcode on their ID. This scan would send an email and alert through our app to back-office personnel alerting them to the presence of someone in the front office.

3. Personnel Check In

- The unit Commander also would like all personnel assigned to that office to use the reader to scan the barcode on their ID upon arrival for work each day. These scans would be used for various reports / management purposes.

This functionality is partially stand-alone, though some work to integrate this functionality with our existing system will be required (both the mobile app and the web app front-end/back-end). This work will be done in concert with our development team.

The Mines team will interact with our team and also directly with the customer (Air Force personnel) to ensure that our work meets their needs and works as they envisioned. It also is likely that additional use cases will be uncovered through dialogue with the Air Force personnel.

Deliverables

- Mobile and web app functionality that addresses the needs of the customer for the 3 use cases set out above.
- To the extent uncovered through discussions with the customer, specifications of additional functionality that the customer wants.

Desired Skill Set

Our system is hosted on Microsoft Azure.

We use Kotlin Multiplatform technology for our mobile app because we have customers that use iOS (the Air Force) and some that use Android (commercial/civilian customers). Both versions require all our system's functionality.

Our web app tech stack also includes:

- MacOS
- Android Studio
- XML Views
- Kotlin
- Multi-module architecture
- Xcode
- Swift
- UIKit

- Azure DevOps
- Git version control
- Shared data layer and network logic written in Kotlin. Some shared presentational logic also written in Kotlin, otherwise written in Swift or Kotlin and using native UI.
- Use Apple App Store and Google Play Store and the processes around those for submitting a build for release and testing.

Our front-end tech stack includes:

- Vue 3 (with TypeScript)
- Tailwind CSS
- PrimeVue
- Axios
- npm

Our back-end tech stack includes:

- .NET 8
- ASP.NET Core Web API
- Entity Framework Core 8
- SQL Server (SSMS)
- Swagger

The team also needs to be able to interact with the customers – making it easy for the users to understand how the system works, to test it, and solicit feedback for system enhancements.

Preferred Team Size

Prefer 4 students.

Internship

There is the potential for students to be offered internships at the end of the course.

Location

The work can be performed remotely (including on campus). We all work remotely, though are mainly located in the Denver area.

Intellectual Property

We will require students to sign Non-Disclosure Agreements (the same as the ones all employees sign).

All project work and related deliverables will be assigned to and owned by SC Tech.