

## Attendance Tracker System Improvements Proposal

The goal of this project is to improve and refine the work of the previous team who worked on this project. The ultimate goal is to provide a system that would allow professors to have an attendance tracking system that eliminates the need to pass an attendance sheet. While also allowing the system to be easily integrated into the client's current workflow and also being convenient to the student.

This will be achieved using a mobile android app that will be installed on the client's device that will distribute a QR code to students within the class list. The students will then scan the QR code provided in class on the client's device to be counted for attendance. The attendance records will also be easily exportable as a spreadsheet or CSV file which can then be sent to another device and opened using Excel or another spreadsheet program.

### Objectives

The current state of the project does provide some of the originally requested functionality but does not have complete functionality. So many of the objectives outlined are to improve and refine the original team's work. As well as to implement the previous team noted as having been requested but left unimplemented. These objectives are the following.

#### Generation and Distribution of QR codes

The current system allows for the generation of QR codes. This is done by manually entering the student's name and email or by importing a class list from an unknown file format. To improve upon this and to provide more functionality we plan on improving the consistency of the interface to do this to make it more in line with other interfaces in the app. As well as clarifying the file format that can be used to import a class list as well as implementing the option for the professor to send the QR code to students using their provided email address. With this option being available on an individual student basis as well as a mass email to all students within the currently selected class.

#### QR Code Scanning

This was proposed by the original team and is needed for many of the other proposed features of the app. This will allow the student to scan the QR code provided by the app on the professor's device that will act as a kiosk. This will then allow for record-keeping of when the student attends class. Satisfying one of the previous requirements that were not met by the original team.

#### Attendance history

Using the records generated through the student scanning their QR code an attendance history can then be generated and presented to the professor. Beyond simply displaying this it will also be exportable from the app into a format that can then be used on another device. Such as a spreadsheet file or a CSV file.

#### OAuth Login and Authentication

The current implementation of the project stores all data on the local device and has no way of preventing others from possibly tampering with records within the app. To improve this the plan is to implement an online database that will allow a professor to log in on the app from any

device and have access to the records and be able to perform attendance. With authentication for this making use of OAuth.

### Actors and Users

With this system, there are two main actors. Those are the student and the professor. The professor will interact with the app and be the only one with the app installed on their device. They will be able to perform various tasks such as adding and removing students and sending out QR codes. The students' interactions with the system will be limited to being able to receive the QR code from the app using their email and scanning the QR code using the professor's device to prove their attendance.

### SDLC Model and Constraints

Our team will be making use of Agile Development with some planning. The project will also be written in Java as an android app as a continuation of the work the previous team did.

### Team Information and Skillsets

Team Member	Position
AJ Sanfilippo	Front End Development
Carl Klopfenstein	Lead, Development
Jacob Gottschalk	Development, Documentation
Jonathan Miller	Backend Development

All team members will also be responsible for documentation to allow all those involved to understand how the system. As well to allow others in the future to more easily improve the system. Testing will also be a shared responsibility.

### Team Policies

#### Meetings and Communication

Meetings will be held weekly after the lecture on Wednesdays. With more meetings being planned if needed during the week. Team members will also be communicating using a Discord group chat and email as necessary. If nothing is heard from a team member for 2 weeks an email will be sent from the team lead to resolve the issue.

#### Voting

For decisions that affect the work of all those involved if it has not already been determined through other means will be put up to a vote. All team members will have one vote with the lead having 2 to act as a tie-breaker. This will also be used to propose and handle any new team policies as needed.

### Reference Materials

Current reference materials include the source code from the previous team. As well as their final documentation to better understand how we can refine current features in the app and integrate new ones. We will also be using the documentation for the libraries the previous team used such as the ZXing "Zebra Crossing" library[<https://zxing.github.io/zxing/>] which they used to generate QR codes.