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Attendance APP Project Proposal

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# Abstract

## Product perspective

* A mobile version of the existing Desktop app in use by Prof. John Cole to further help streamline attendance taking by removing the need of user input by Prof. Cole in the desktop. Instead having the input come from students “signing in” through whatever means on the mobile app to allow Prof. Cole and other professors to spend that time in preparing for class. The input received from students can potentially be taken in a number of ways (QR code, scanning comet card, etc.). Input from phone will dynamically update the existing files on the desktop by having the desktop app receive said input through Bluetooth.

## Features

* Bluetooth functionality
* Card reader functionality

## User roles and Rights

* Attendance monitor (Professor)
  + Launches desktop app and mobile app.
  + Can monitor and/or change values of students/users.
  + Can modify or delete existing excel files.
  + Can create new excel files.
* Attendee (student)
  + Can sign in.
  + Primarily through Comet Card using a card reader attached to an android phone with the attendance app up.
  + If unable to sign in through phone, then they must do so through Professor and Desktop App.

## Operating Environment

* Desktop
  + Windows
* Phone
  + Android OS

# Introduction

## Purpose

* To streamline attendance so that Professor(s) can spend time before class starts to prepare/set up material for lecture rather than spending that time manually taking attendance.

## Document Terms/Definitions

* App – Shorthand for application
* Bluetooth – Wireless communication standard that is used to pass data between two or more devices within a short-range

## Intended Audience

* UTD Professors
* UTD Faculty
* UTD Students
  + Minimal interaction with mobile device

## Project Scope

* In this current iteration of the application, the scope of it is to develop an accompanying mobile app to the existing attendance desktop app in employ by Prof. John Cole. As well as to update the existing desktop app with additional functionality to help facilitate the functionality of the Mobile app. Such functionality would include blue-tooth communication between the two app, deletion of temporary data on the mobile app by request from the desktop app, and so on.

# Milestones

* Project Approval – 1/25/2023
* Preliminary SRS completion – 2/11/2023
* Preliminary UML designs completed – 2/11/2023
* Project Proposal Rough draft completed – 2/26/23

# Key Roles

## Team Leader

* Brandon Atwal
  + Ensures project development, in all capacities, stays on track with given time frames.
  + Leads weekly meetings.
  + Assigns work to individual team members.

## Scribe

* Jacob Danel
  + Primarily taking notes for meetings with faculty sponsor or team meetings
  + Essentially the note taker

## Faculty Advisor/Sponsor

* Prof. John Cole

# Communication Plan

## Description

* Communication will primarily take places in two places, Microsoft Teams and Discord.
* Microsoft Teams will be the primary communication platform where meetings amongst the team and/or with our sponsor will be held. Partially because Teams allows for a much easier means to record meetings for later reference. Also, Teams built into Microsoft office functionality makes it easier to work on Project Documents simultaneously.
* Discord will be used as a secondary means of communication amongst the project team members as most of the team is already familiar with this communication app and it is the easiest and faster option for reaching anyone one of the team members.

## Team Meetings Schedule

* As it currently stands there is to be a weekly meeting between the Project team members every Saturday, from 2pm CST to (at the latest) 4pm CST.
* The exact day, time frame, and length of the meeting is subject to change based on various factors (discussing plan for following week, clearing up concerns or questions related to problems, etc.)
* As a baseline however Saturday from 2-4pm is the expected team meeting time.

## Sponsor/Advisor Meetings Schedule

* Meetings with John Cole (Advisor/Sponsor) relies on when John Cole is able to attend. Primarily has been on Fridays from 2-4 pm.
* Currently has had a signup sheet posted with 10 minute slots for teams to have one on one meetings to discuss project progress, ask questions related to the project, etc.
* When/how meetings will be conducted with our sponsor is determined week by week. All of this is communicated through the general group channel in Teams for this particular project.

# Tracking Plan

## Description

* There will be primarily two means for tracking the amount of work done
  + Progress reports
  + GitHub
* Progress reports
  + Updated by individual team members as needed for a given week
  + Format is: time task took – task description – roughly when the task was completed/actively worked on
  + Minimum of 10 hours related to the project to be logged per week
* GitHub
  + A changelog or page showing pull/pushes with given changes to code base

# Risk Analysis

## Description

* Risks include any unexpected events that will delay or make finishing the project more difficult.
* The easy solution for the majority of risks is to allot more dev time to a problem, but that is not a blanket fix for all potential risks.

## Potential Risks

* Team member is sick, or worse hospitalized, so work load shift in such a way that other team members need to pick up slack.
* A particular aspect of the code is difficult to solve/implement, so will potentially push back expected schedule.
* Unexpected hardware issues, card reader not connecting/input not being sent to phone, phone’s built in Bluetooth not working, etc.
* Requirements for attendance app changing,
* Mismanagement of time spent, not allotting enough time to implement/test/complete code.
* Unable to work due to external reasons, i.e. severe weather knocking out power, etc.
* Code found online might not be useable legally, might not be open source and such.
* Inadequate time to test with card reader
* Desktop app issues, possibly connectivity issues, lack of understanding functionality on desktop app’s end, etc.
* Bluetooth connectivity issues, desktop app and mobile app may not be able to connect to one another, etc.

## Tackling Risks

* It will have to be on a case-by-case basis
* For instances where only one or two individuals are unable to complete a task then it will be up to the other team members to pick up the slack as needed or find a means to get their work.
  + Ex. One member is unable to push a code change to GitHub, they could opt to bring that updated code to another team member on a USB drive so that this second member could then push the code change.

## Risks that Occurred

* Below will be a list of various risks/problems that we have/had encountered and how the team dealt with such risks
* Risks: Will be updated as project progresses

# Ethics Discussion

## Code-use

* What code found online is acceptable to use versus what is not acceptable.
* Code provided by Advisor is acceptable for use.
  + Example would be the Bluetooth code provided in some slides he posted in the project teams channel
* Code from other sources depends
  + Stack Overflow will likely be a case by case basis, the posted code licenses is usually fairly unclear, even though code posted on their falls under the creative commons license. It is uncertain if the original poster created that code themselves or had taken it from a code base that they worked on in which there is a private license in affect.
  + Generally safer to avoid using random code found online
  + Can try to provide proof of where you got it, like from Stack Overflow, where creative commons is in effect. Still can lead to headaches however.

## Work division

* Division of work will be determined by individual team members laying claim to a particular part of the work that needs to be done then receive final approval from the Team Leader
* Best to have Team Leader have final say so as to avoid having someone take on the bulk of the work or only take on easy tasks and instead better divide the work amongst the team (in terms of amount and difficulty).

# Sources

## References

* <https://apro-software.com/writing-specifications-for-a-mobile-app-development-project/>
  + Template use for SRS document
* <https://www.tutorialspoint.com/android/android_bluetooth.htm>
  + Tutorial on how to set up Bluetooth functionality for android apps

# System Features

## Description and Priority

* Attendance timer
  + Closes mobile app after a set period of time so that input can no longer be received pass a certain point of time
  + Could have default value to choose from (5/10/15 minutes) or allow Attendance monitor to set specific timers (more likely)

## Event responses

* Timer
  + Triggers mobile app closing after a set period of time

## Use Cases

* Student-driven use cases
  + Student uses comet card with card reader to mark attendance
* Professor driven use cases
  + Professor connects app to his/her desktop to enable students to take attendance
  + Professor navigates to specific section’s excel sheet in app
  + Professor signs in student who does not have comet card
    - Exactly how TBD
    - Verbal/visual confirmation after class and prof. Manually marks they attended class
  + Professor manually marks student absent depending on external factors
    - One student attempting to sign in as another student using the latter’s comet card, etc.
* Mobile app driven use cases
  + Mobile app closes, automatic deletion of excel copy on mobile app occurs
  + Mobile app attempts to re-establish blue-tooth connection on connection drop
  + Mobile app updates attendance sheet after comet card is scanned
* Desktop app driven use cases
  + Desktop app requests deletion of temporary data being used by mobile app
  + Desktop app requests remote closure of mobile application
    - Either allow it to go through every time or prompt user of desktop app for a password before following through

# External Interfaces

## User interface(s)

* Homepage

## Hardware Interface(s)

* Card Reader
* Bluetooth
* Android Phone

## Software Interface(s)

* Android Studio – IDE essentially
* Excel files – used a back-end database, default excel files
  + How this is accessed will depend on how the desktop app handles Excel files. This will be elaborated once we have access to the desktop app source code.

# Contact Information

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# Signatures

