

**Project Title:** Panther Shuttle App

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**Faculty Advisor:** Professor Khaled Ali Slhoub ([kslhoub@fit.edu](mailto:kslhoub@fit.edu))

**Client:** Vincent Borrelli ([vborrelli2022@my.fit.edu](mailto:vborrelli2022@my.fit.edu)), Student Shuttle User

**Date(s) of Meeting(s):** February 11th (4:00pm), February 25th (4:00pm), March 11th (4:00pm), April 4th (4:00pm), & April 18th (4:00pm).

**Goal and Motivation:** We aim to develop the foundations of an app for Florida Tech students to track the schools' Panther Shuttle. Due to the information regarding the shuttle's hours being fairly hidden, as well as the ever-growing parking issue on campus, we will address both issues by making the shuttle a more reliable mode of transportation for students by making the beginnings of a single, accessible location where all the necessary information is available.

**Approach (key features of the system):**

Users can see the Panther Shuttle's schedule for the current semester. This includes the location and time the shuttle will be at each stop, and includes days the shuttle will not be running. Essentially, the same information that can already be found, but with easier access for users.

Users can opt into specific stops to be notified when the shuttle is 30, 15, and 5 minutes away, respectively. This will help students have better planning around their daily schedules and ensure that they are able to catch the shuttle on time for both the students' and drivers' sake.

Users can see the shuttle live on a map to see its location and where it is at. This allows students to see how many stops there are before it arrives at their desired stop and get live feed to know when the shuttle is arriving for precise pinpointing.

**Novel features:** This is the first iteration of a software for the school's shuttle. Besides the shuttle information on the school's website, it has not been done before, and with new features like a GPS for tracking the shuttle and notifications of its arrival, we consider it to be unique from other apps related to campus life.

**Algorithms and tools:** The tools we will continue to use will be: Android Studio, to continue development of the app and port it to Android devices, while having an easy-to-use interface to help us work on the mobile app development. Google Calendar, for planning our meeting dates and deadlines. Discord, for general communication and organizing announcements and files. GitHub, the main repository to store our files and collaborate with coding. Lastly Google Drive, where all of our Documents and Presentations are stored for easy access.

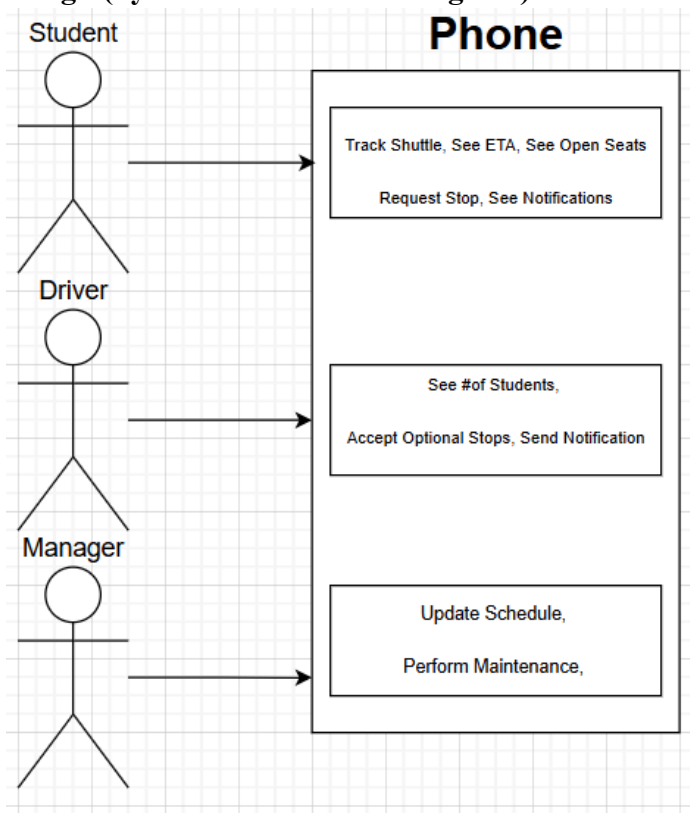
### Technical Challenges:

Integrating some communicating parts is a challenge, as for the first semester we focused on only the “Student” side of the app, with the second semester now diving into finishing that up and working on the “Driver” side of the app. So we will need to ensure that they communicate properly to make some promised features work as intended.

We have yet to finalize the implementation of the GPS system. So that will still require some learning as to implementing it into its “final stages” so that we can have the feature working as intended.

The app itself also takes a while to develop and work kinks out. We still set a good bar in the first semester but needed to dial back the scope in the second semester to accommodate with our workspeed, as our app will **LIKELY** not be 100% done and ready to be used by the end of the semester, but rather in a good state to hand off as a foundation.

### Design (System Architecture Diagram):



### Evaluation (How will we measure success?):

We plan to do several methods of measurement including:

- Sending X amount of notifications to see how many the app can handle before crashing.
- Testing X amount of tasks X amount of times to see both speed/reliability.
- User Surveys from different types of users for valuable feedback.

### Progress Summary:

Feature	Completion (%)	To-Do
Tracking Shuttle	25%	Finalize the tracking and map section for the user, test with the driver side once the driver side is implemented.
Viewable Schedule	80%	The schedule section is practically finished, just need to ensure the schedule data is updated and make the manager side able to update this section easily.
Notifications	70%	Notifications work just need to fix a few bugs and implement the Driver side so that they can be fully implemented and tested.
Settings	20%	Tab needs more settings that are toggleable to be useful, sort of a minor addition but the tab itself works.
Home Page	0%	The last tab that needs to be completed, will have a compilation of information for the user to see when logging in.
Driver Side	0%	Will be focused on implementing for this semester and connecting it with the Student side.
Manager Side	0%	Will try and implement this side if we have time this semester, wanted a working version of the app before we made an entire new side

#### **Milestone 4 (Feb 23): itemized tasks:**

Work on Home Tab.

Work on Settings Tab.

Improve Mapping System.

Begin Driver Side Implementation.

#### **Milestone 5 (Mar 30): itemized tasks:**

Work on Driver Side Tracking.

Implement Driver Side to see # of Students at stop.

Connect Driver Side & Student Side for Notifications.

Connect Driver Side & Student Side for Tracking.

Conduct evaluation and analyze results

Create poster for Senior Design Showcase

**Milestone 6 (Apr 20): itemized tasks:**

Finalize Student Side of App.

Finalize DriverSide of App.

Implement Manager Side.

Finalize Manager Side abilities.

Test/demo of the entire system

Conduct evaluation and analyze results

Create user/developer manual

Create demo video

**Task Matrix for Milestone 4:**

Task	Joey	Tony	John	Chase
Work on Home Tab.	Main Coder (40%)	Co-Coder (30%)	Feedback/Bug Fixing (15%)	Feedback/Bug Fixing (15%)
Work on Settings Tab.	Feedback/Bug Fixing (15%)	Feedback/Bug Fixing (15%)	Main Coder (40%)	Co-Coder (30%)
Begin Driver Side of the App.	Co-Coder (30%)	Main Coder (40%)	Feedback/Bug Fixing (15%)	Feedback/Bug Fixing (15%)
Improve Mapping System.	Feedback/Bug Fixing (15%)	Feedback/Bug Fixing (15%)	Co-Coder (30%)	Main Coder (40%)

**Milestone #4 Plan Discussion (Task Details):**

- Work on Home Tab.
  - Joey and Tony will work hand in hand to make sure the home tab is improved. Currently, it just has a placeholder; however, they want to make it just as updated as the other parts of the app worked on during this last milestone. This will hopefully get it as close as possible to a finalized version while also following the Design Document. Johnny and Chase will help with feedback to make sure that the home screen is just as user-friendly as the rest.
- Work on Settings Tab.
  - Chase and Johnny will work together to ensure our settings tab also gets updated, as it will be the last tab on the User's side that will be out of the placeholder stage. They will ensure that it has some basic settings and follows the design document. We expect that more settings and such will be added there as the project progresses. Tony and Joey will provide feedback on what they feel is needed for a first integration.

- Begin Driver Side of the App.
  - Tony, alongside Joey, will get started on the Driver side of the app. This is crucial as some of the features on the User side can not be fully tested without this. With this, we will make sure that it can at least be used to some capacity, similar to our basic GUI with placeholders for the driver's side. If we get far enough, we can make good progress on other features. Johnny and Chase will be able to help test those and the base version of the driver's side to ensure we can continue improving it.
- Improve Mapping System.
  - Plan to have Chase and Johnny work side by side to improve the mapping as the research done for the Google API will help them make the features and get closer to the finalized version of the Mapping System we intend for the app. Tony and Joey will be on standby to test the changes and see if they work as intended. Of course, they can only go so far, depending on how our driver-side of the app performs.

### **Approval from Faculty Advisor**

"I have discussed with the team and approved this project plan. I will evaluate the progress and assign a grade for each of the three milestones."

Signature: \_\_\_\_\_ Date: January 21st, 2025