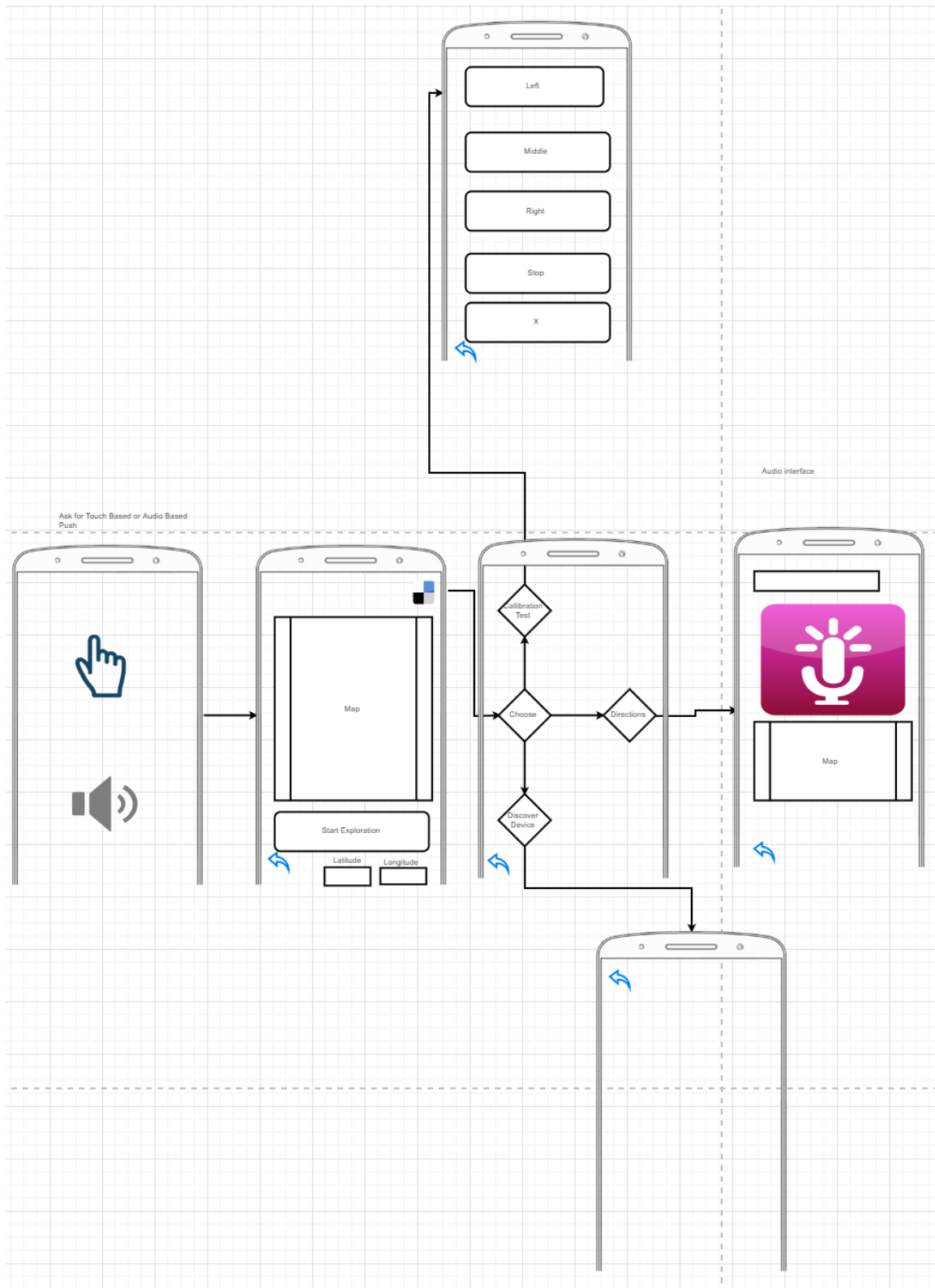**Vestagogo**

Our Aggie Challenge team worked on redesign the interface of the Taktigo Vest application in a way that make everyday use easier and mo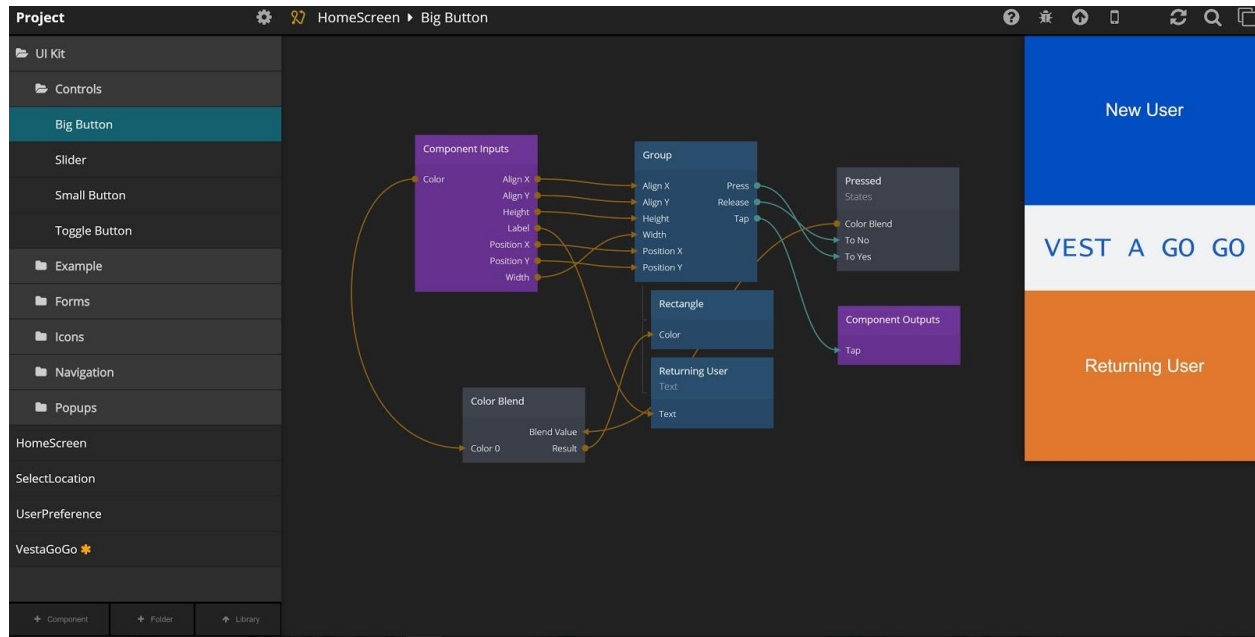re fluid for blind or visually challenged individuals. Our initial goal this semester was to redesign the TaktiGo app and make the user interface friendlier for our target users.

We had some setbacks in using android studios, troubleshooting the convoluted existing code, and obtaining a proper API key. In addition, Noodl is a program that only allowed us to design a prototype, which hindered our ability to add the audio features of the app. Given that we decided to use Noodl during the middle of the semester, the time we spent learning to use it left only a few weeks to design an app.
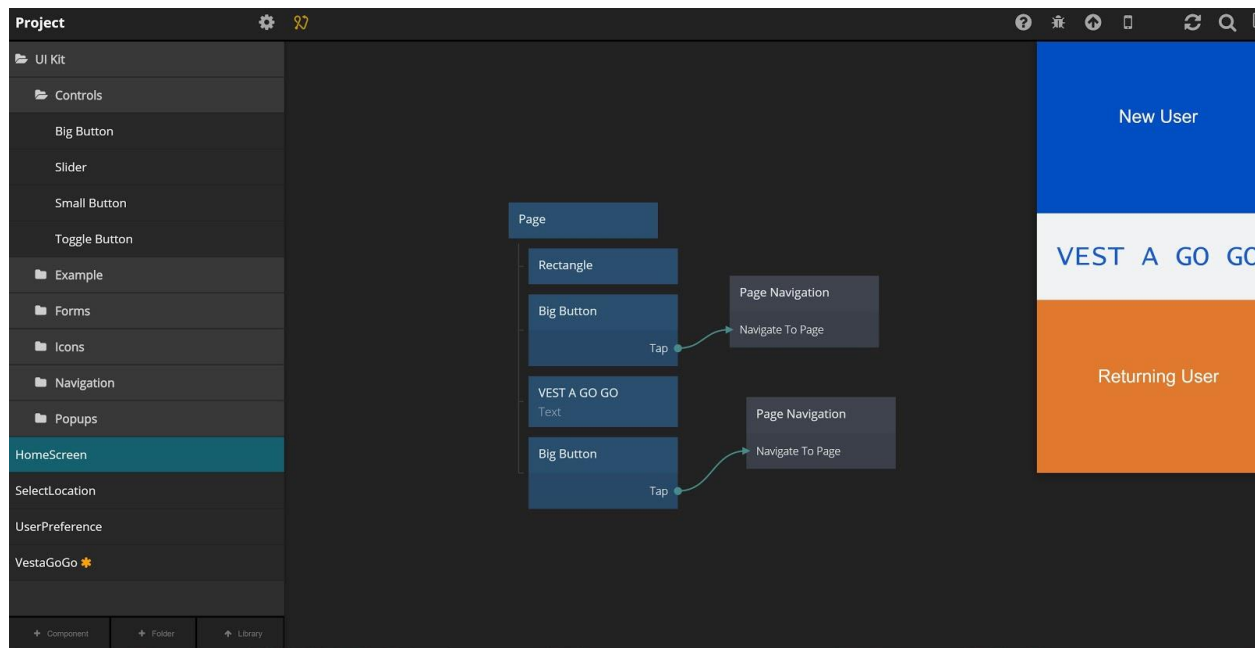
We made a prototype of using Noodl to design and model our concepts for an easy to navigate interface. Our prototype utilizes contrasting colors for the buttons to make each button and its use easy to identify. New users can select a series of preferences when they set up the app for the first time, such as audio preference and voice input settings. This allows the app to be personalize and accessible to people with different levels of visual ability. Then the user clicks "Back to Home" and accesses the app as a returning user with their personalized settings implemented.
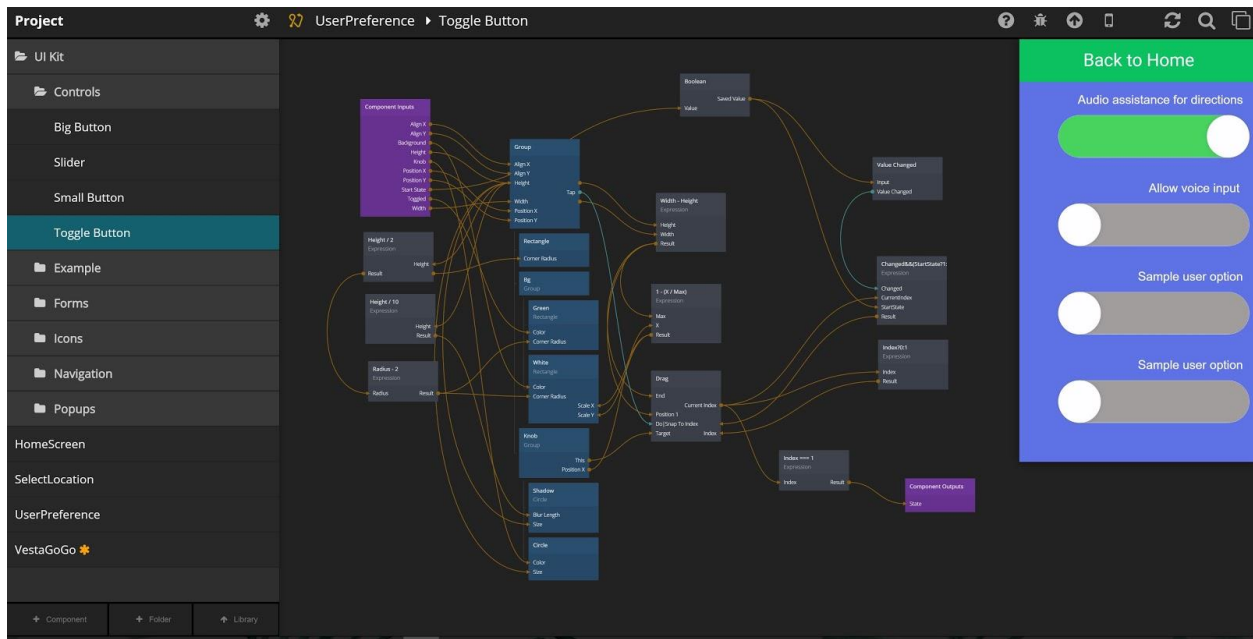
Left

Middle

Right

Stop

X

Audio interface

Ask for Touch Based or Audio Based
Push

Map

Start Exploration

Latitude    Longitude

Calibration
Test

Choose    Directions

Discover
Device

Map

Initial interface design

Overview of interface functions



Introduction screen where users choose between New or Returning User
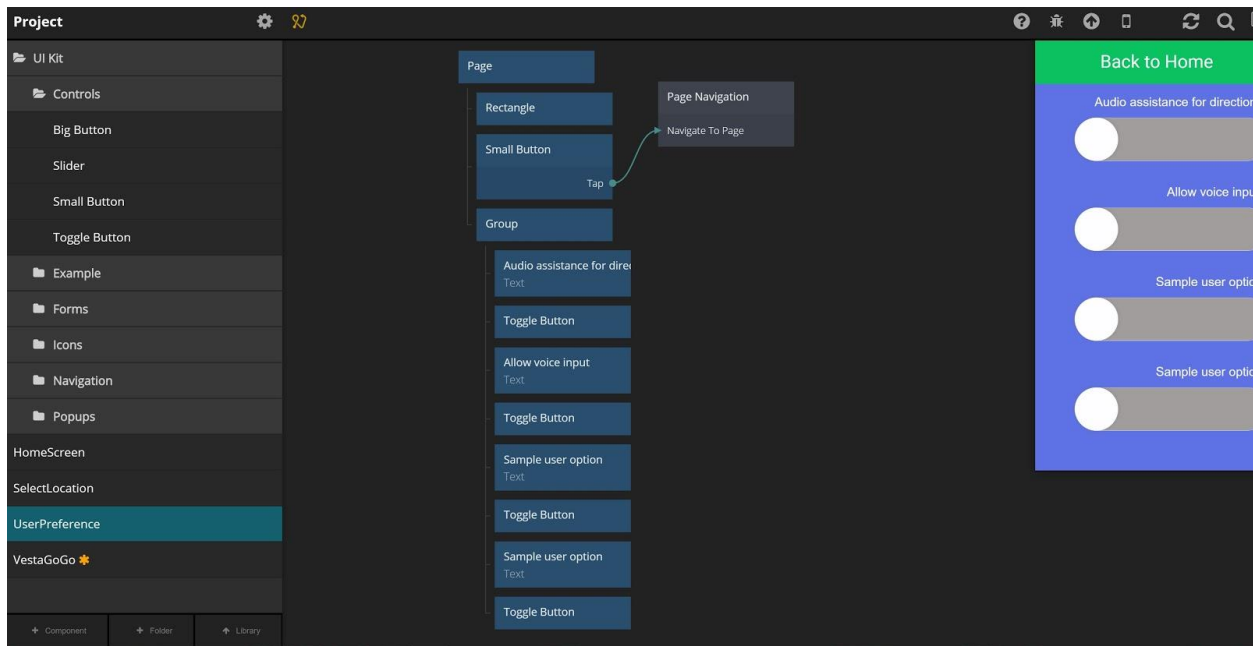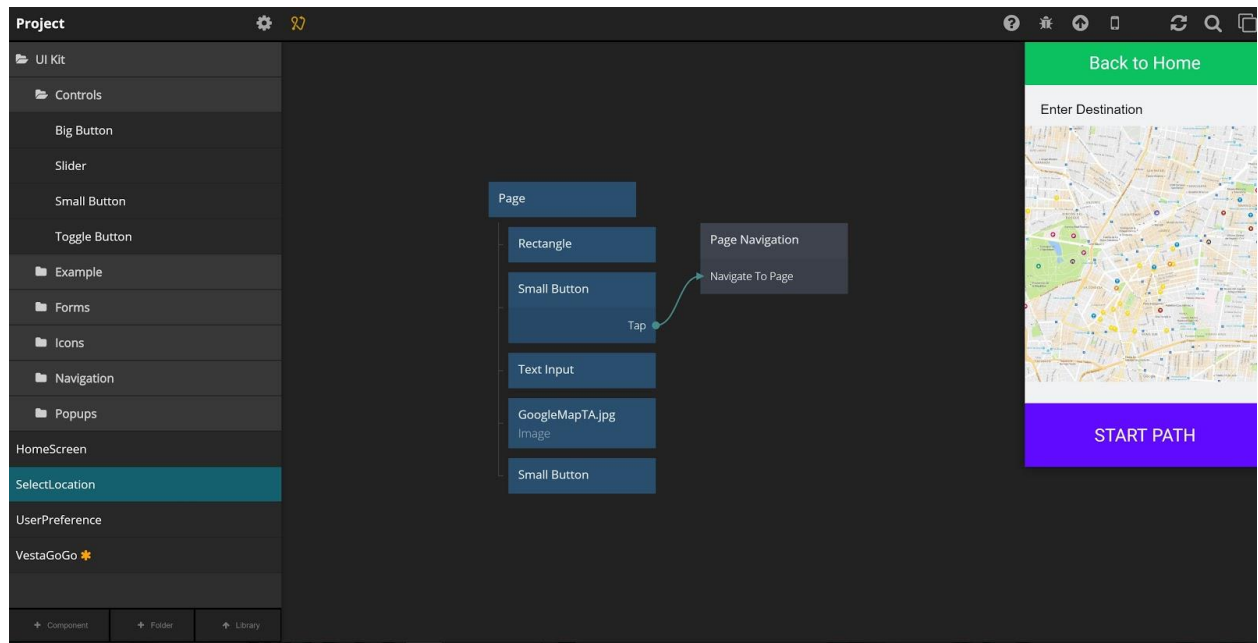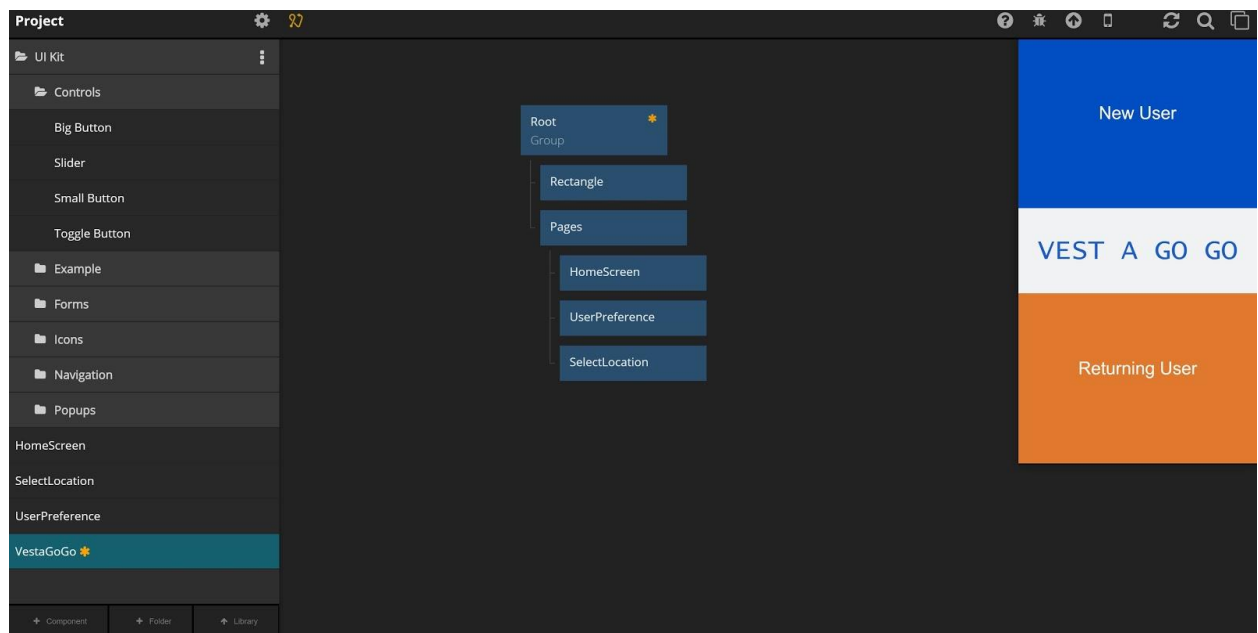
Overview of interface functions



New User can choose personalized settings

Navigation interface



Root page organizer

We recorded a video to submit to TAMU's Virtual Project Showcase this semester as well to represent Aggie Challenge. The video demonstrates the abilities and features of the vest and includes interviews from each of the team members talking about an aspect of the project, such as the code, the vest, the user interface, features of the app, and the origin of the project. It was written and directed by Sola and edited by Audrey.

Sole's Main role was as the co-product manager. This role in this project didn't just focus on redesigning the apps user interface, but also altering the program to incorporate a simplified user testing method. I focused on using 2 main programs to design my prototypes: Android Studio and Sigma.

With Sigma, we developed a prototype that was tested by students in the Paths program with visual disabilities that they could interact with. During this phase, we were simply gaining casual opinions on how they presently navigate campus and if they had any issues with the current methods available. It was common for students to use walking canes and the strategically placed windchimes to navigate campus because using mobile apps such as Google maps are normally unintuitive and require assistance to translate road directions into walking maps. So, the first Fina Design was designed as seen below.
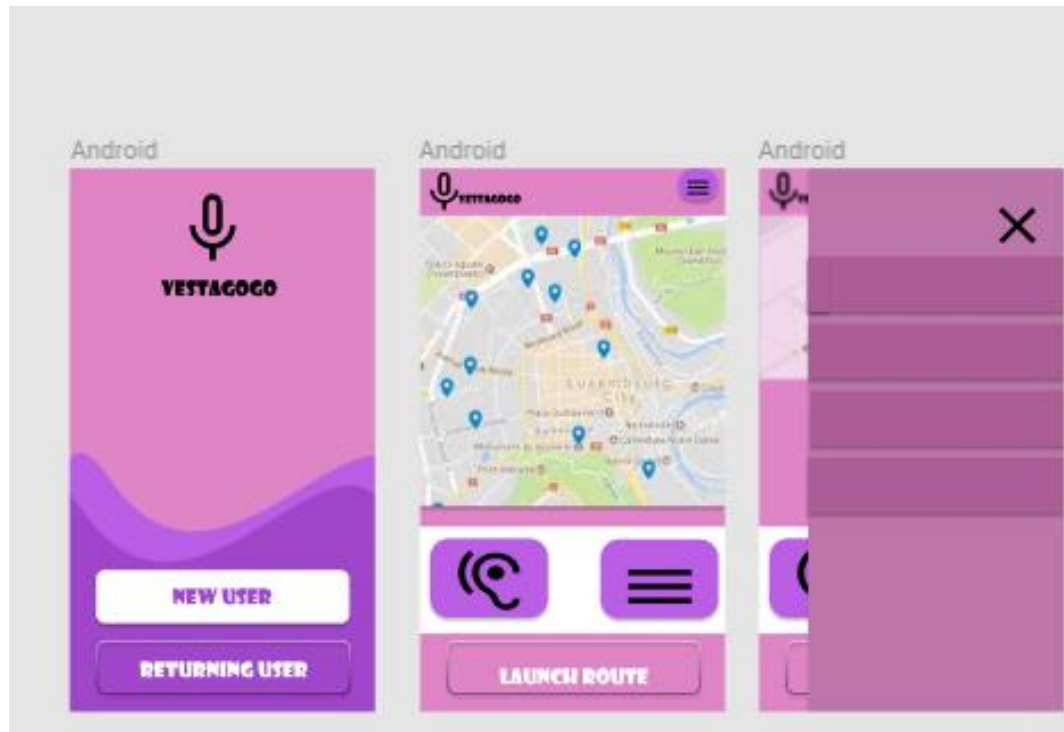
The idea behind this design was a user could create routes that they though were self-effective for them personally. So, by having someone tap the listening icon, they could state a route that they planned on taking such as "Student Computing Center to Memorial Student Center" and then record their GPAs coordinates as they are taking their preferred route. Then they would navigate as normal. That way, if they were traveling to a new location, such as "HEB to the Memorial student Center", the app would do its best to get the user onto the closest route that the user has already prerecorded. And obviously, the addition of the vest would simplify directions. While this would be simple to implement into a C# program, we needed to do a lot of research on APIs for speech recognition, GPS logging, and route recalculation. Due to time constraints and the goal of making a testable prototype, this idea needed to be put down. This semester at least.

Our following Sigma Design was much simpler and easy to implement into Android studio without altering the main functionality of the app. We focused on making touch regions on the phone to control buttons instead of using small buttons like the app currently has.
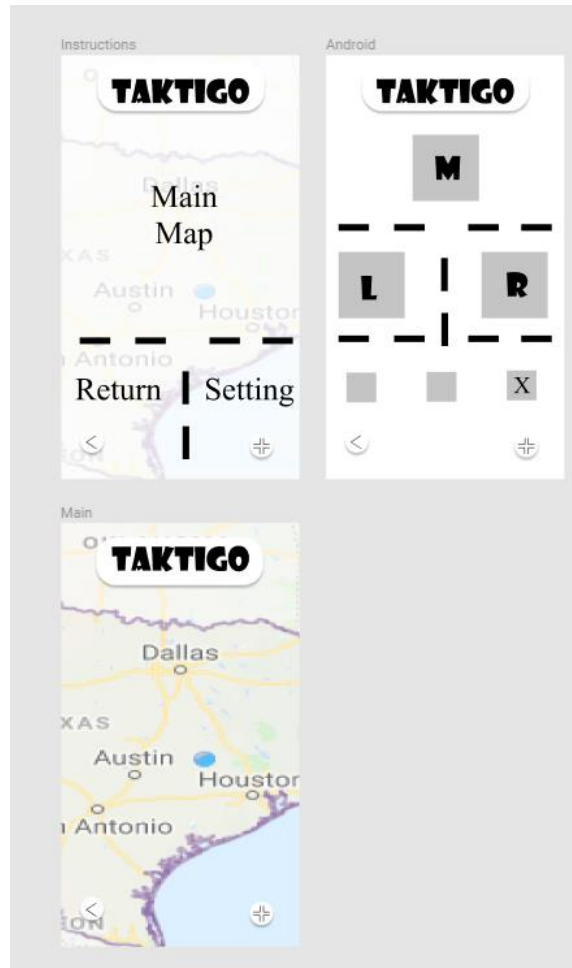


The idea behind this design was to create transparent buttons in Android studio that allowed people to operate the app based on muscle memory with regions and a low required amount of precision. Touching the map once will freeze the app and provide only directions while touching it twice will cause navigation to begin. The user will be noted what street they are on and when as well.

After agreeing on testing this prototype, I developed the Java and JavaScript equivalences for the program. All that was left was to implement it into Noodl and learn the MQRT system. However, due to time, we were unable to complete this last part. However, this design can still have the icons developed and invisible button system added to the main program.

Future for this project would include user studies to test the features and functions of the new app design. Feedback about the design would allow us to consider which features are working, and which may be missing. We would also add audio aspects for our completely blind users. We designed the app to be able to be used with simple audio cues. For example, "Click the top portion of your screen if you are a new user or click the bottom portion of your screen if you are a returning user." After receiving enough user input to determine the optimal UI to assist those that are visually impaired, our next step would be to implement the UI with the google map API and the vest to create an app that can guide the visually impaired.