POCKETPAD

SPRINT 2 – PLANNING DOCUMENT

PROJECT TEAM 8

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SPRINT OVERVIEW

During this sprint, we are planning to continue to develop PocketPad and the applications capabilities. Currently, there is a Bluetooth server and a basic client application and server application. This provides the backbone for what we are going to be working on this sprint through refining the existing functionality to ensure its compatibility between operating systems and improving general efficiency of the applications and server. With this sprint we hope to add features such as those for controller mockups on the server application and different controller files in the iOS application. By the end of this sprint, our goal will to a lot of our client and server application features completed and efficiently implemented within their respective applications, which will allow us to combine all of the basic functionality implemented during sprint one into a greatly improve version of PocketPad.

SPRINT DETAILS

Weekly Meetings:

- Mondays 4:15pm-5:00pm – Weekly meeting with TA
- Wednesday 5:00-6:00pm – Midweek meeting to discuss progress and roadblocks
- Fridays 4:30-5:00pm (as needed) – Meeting to discuss roadblocks if persisting

Scrum Master:

- Benjamin Dravis

RISKS AND CHALLENGES

The challenge with this sprint will be getting everything properly connected from client to server side. After sprint 1, we realized that our current implementation for the Bluetooth server was not as efficient as it could be, and it was not compatible with both the windows operating system and MacOS. With that, we are rewriting a lot of the server implementation in order to make it more efficient and operational on all operating systems. With that, we will need to work towards getting everything reconnected and properly functional from client to server, especially as we are going to be adding a lot of new features to both iOS and server applications this sprint. We need to make sure we get this integrated together in a timely manner and have good communication amongst the team when doing it. That was a point that we struggled with in our previous sprint, so the main risk to this sprint will be how efficient and how we are going about doing that during this sprint.

TOTAL MEMBER HOURS

- Benjamin Dravis – 30 hours
- Krish Shah – 31.5 hours
- James Burrows – 30 hours
- Bautista Tedin – 29 hours
- Jack Fang – 30 hours
- Joshua Irizarry – 30.5 hours

CURRENT SPRINT DETAILS

User Story #1, 26 hours

As a user of the application, I would like to have the ability to properly host and shut down the server regardless of what operating system I am using and be able to verify that a valid player is joining the server with a pair code.

#	Description	Estimated Time	Owner
1	When a user selects a device to connect to, they must first enter the pair code to authorize themselves as a valid player.	4 hours	Krish
2	When a user presses the shutdown button on the GUI application, the Bluetooth and Network server should be shut down and all devices should immediately be disconnected.	5 hours	Krish
3	Rewrite the server code so that the Bluetooth server and Network server can both coexist and there are no conflicts in the management of controllers in the connection or the PC app.	10 hours	Krish
4	Add the capability for the server side to manually disconnect controllers.	2 hours	James
5	Ensure that every interruption of client-server disconnection results in the controller being visibly disconnected on both the client and server.	2 hours	James
6	Conduct manual or systemized testing for the following: 1. Ensure that simultaneous packets from the network and Bluetooth servers do not conflict for any valid user behavior. 2. Test shutdown procedure of server with Bluetooth, network, or both active. 3. Test manual disconnect of controller by server for network and Bluetooth. 4. Test clean disconnect on connection interruption for network and Bluetooth	3 hours	James

User Story #1, 26 hours

Acceptance Criteria:

1. Given a properly implemented Bluetooth server, when the user attempts to connect, then the phone will require a code to authorize themselves to connect to the server, and if the code is incorrect, the device hosting the server will deny the connection.
2. Given a properly implemented shutdown button on the GUI application, when the user clicks the button, then the Bluetooth and network servers should be shut down, and all devices should be disconnected from the server, which should reflect upon the server UI.
3. Given a properly implemented server, when either or both servers are activated, then the Bluetooth and Network server should be able to exist simultaneously and/or separately such that there should be no issues with controllers and their inputs.
4. Given a properly implemented server, when the user tries to start or shut down either type of server, then the implementation should be compatible with both MacOS and windows.
5. Given a properly implemented server and a connected device, when the connection is interrupted, for instance by the device shutting down, or Bluetooth being disabled, then all incoming and outgoing packets should be handled, and the device should be visibly disconnected on the server and client.

User Story #2, 19 hours

As a user of the application, I would like to be able to see a mock-up of my controller on the GUI so that I can see that it is properly recognizing my controller and the customizations that I potentially put into it beyond the act of simply connecting my phone.

#	Description	Estimated Time	Owner
1	When a user disconnects from the server, the controller mockup area will restructure itself to reformat the grid of the players still connected to the application.	1.5 hours	Ben
2	Implement a function that will create a controller mockup for a given user based upon the type and layout of controller that they are currently emulating on their iOS application.	12 hours	Ben
3	Implement callbacks such that when a user switches the type of controller they are emulating on iOS application, their mockup changes to copy the new emulated controller.	0.5 hours	Ben
4	Create a testing suite or manually test: 1. The creation of different controller types when users connect to the application or switch the type of controller being emulated 2. The rearranging of elements upon user disconnection from the server	3 hours	Ben
5	Design and create a header for the controller mockups to signify which player a given mockup corresponds too.	1 hour	Ben
6	Create a testing suite to ensure that when a controller mockup is made it has a corresponding header giving clear indication of the player that the controller belongs to.	1 hour	Ben

Acceptance Criteria:

1. Given a properly implemented server, when the user disconnects from the server, then the controller mockup grid will rearrange itself around the player that was removed to ensure a clean grid and look to the application.
2. Given a properly implemented server, when the server receives information about the type of controller that the user is emulating, this data is passed to the server to allow for the creation of different controller mockups copying the design of the controller.
3. Given a properly implemented server application, when controller mockup data is received by the application, a mockup of the controller is generated by the server application to be displayed in its corresponding location within the grid of controller mockups.
4. Given a properly implemented controller mockup, when a controller mockup is created, then there will also be a header created and attached to a given mockup in order to designate which player the created mockup corresponds to.

User Story #3, 10.5 hours

As a user of the application, I would like the mock-up of the controller to highlight the button, joystick, feature, or whatever input that the user is putting into their emulated controller displayed on the GUI so that I can see that my controller is properly sending inputs to the device that it is connected to before playing a game.

#	Description	Estimated Time	Owner
1	Update input sending format	2 hours	Jack
2	Read in and parse controller input on server	3 hours	Jack
3	Create a callback to the server that will take controller inputs sent from the client and pass them to a function within the server application for use,	0.5 hours	Ben
4	Using the controller mockup implemented during user story one, customize the mockup such that when an input is read by the server, the corresponding button/widget on the mockup indicates that the client interacted with it.	3.5 hours	Ben
5	Implement a testing suite to ensure that player inputs are properly displayed on the correct user's controller mockup.	1.5 hours	Ben

Acceptance Criteria:

1. Given that the server is properly implemented, when the server receives a player input from the client, then the software application should be passed the input and the corresponding player id in order to properly update the server application.
2. Given that the controller mockups are properly implemented, when an input is passed by the server to the application for button inputs, then the corresponding button pressed will have a visual indicator of the user interacting with it.
3. Given that the controller mockups are properly implemented, when an input is passed by the server to the application for bumper inputs, then the corresponding bumper pressed will have a visual indicator of the user interacting with it.
4. Given that the controller mockups are properly implemented, when an input is passed by the server to the application for trigger inputs, then the corresponding trigger pressed will have a visual indicator of the user interacting with it.
5. Given that the controller mockups are properly implemented, when an input is passed by the server to the application for joystick inputs, then the corresponding joystick manipulated will have a visual indicator of the user interacting with it.

User Story #4, 5.5 hours

As a user of the application, I would like to be able to customize the GUI's color scheme so that I can make the application personal and to my preferences.

#	Description	Estimated Time	Owner
1	Design and create a color picker that will allow the users of the server application to select/change the color of the background, widgets, and font within the application	2.5 hours	Ben
2	Implement a function that will properly update the widgets, background, and font according to user specifications when the color settings are changed to a valid color (no colors that would duplicate colors or hide elements) by the user.	1.5 hours	Ben
3	Create a testing suite to ensure that when the user changes the color of the different features of the application, the application will properly update those features with their new color values.	1.5 hours	Ben

Acceptance Criteria:

1. Given a properly implemented server application, when the user selects/changes the color value for the font, then all the font within the application properly updates to the newly selected color.
2. Given a properly implemented server application, when the user selects/changes the color value for the background, then the background the application properly updates to the newly selected color.
3. Given a properly implemented server application, when the user selects/changes the color value for the widgets, then all the necessary widgets within the application properly update to the newly selected color.
4. Given a properly implemented color picker, when the user tries to select an invalid color, then they will be notified and asked to select a new color for the setting that they are trying to change.

User Story #5, 6 hours

As a user of the application, I would like to be able to customize the name of my controller or device when I connect so that I can clearly identify which controller is connected to me and is accepting my inputs.

#	Description	Estimated Time	Owner
1	Modify the server code to expect a string on client connection and modify the client code to send a string on connection. This string will represent the player-id.	1.5 hours	James
2	Add the capability for a player to modify their player-id at any given point while connected to the server and ensure that data is sent to the server. Add code on the server side to handle this change.	1.5 hours	James
3	Add UI elements relating to duplicate ids.	1 hour	Bautista
4	Create a testing suite or manually test that player-ids update and are populated as intended, and that duplicate player-ids are handled appropriately.	2 hours	James

Acceptance Criteria:

1. Given a device running the client app, when the user sets a custom name for their device, then it should appear properly on the server when they connect.
2. Given a device connected to the server, when a user changes their controller's name, then the change should be swiftly reflected on the server.
3. Given a device running the client app, when the user connects to the server without choosing a custom name for their device, a sensible default value should populate the field.
4. Given a device running the client app, when a user attempts to connect to the server with a duplicate player id, then they should be rejected and prompted to try again with a different id.
5. Given a device connected to the server, when the user attempts to change their id to a duplicate, then it should not be changed, and they should be informed that that id is not available.

User Story #6, 18 hours

As a user of the application, I would like the controller on my iOS application to send inputs to the game through an implemented virtual controller so that I am able to play the games that I would like.

#	Description	Estimated Time	Owner
1	Test out different solutions for cross platform virtual game controllers to decide which one works best for our use case.	4 hours	James
2	Utilize this library to create a virtual gamepad that we can pass the inputs from the client into. Make any necessary modifications to the chosen library to support more niche features such as motion controls. This should work on all platforms.	10 hours	James
3	Create a testing suite or manually test that inputs passed to virtual gamepad behave as intended for all controller, button, and joystick types on targeted game software (dolphin first). This may need to be replicated on other platforms if MacOS and Windows implementations differ significantly.	4 hours	James

Acceptance Criteria:

1. Given a device connected to the server and a game running, when the user clicks a button on the virtual controller, then that input should be translated to a virtual input that a game running on dolphin can use.
2. Given multiple devices connected to the server and a game running, when multiple users provide input, then the virtual controller system will handle each separately and the game software will receive the correct input for each player.
3. Given a device connected to the server and a game running, when the user disconnects, then reconnects, then the virtual controller should be able to continue providing input to the game without having to restart anything.

User Story #7, 20 hours

As a user of the application, I would like to be able to construct custom controllers using a custom and modular layout of buttons, bumpers, joysticks and more so that I can create and experiment with my own unique style of controllers when playing games.

#	Description	Estimated Time	Owner
1	Update the config struct to include a better positioning system that utilizes a scaling value and a set offset, as well as optional overrides for portrait and landscape.	2 hours	Josh
2	Create an enum for the type of input the button is mapped to.	1 hour	Josh
3	Add UI to create, manage, and delete custom layout files.	2 hours	Josh
4	Design an editor where the user can add buttons and modify the size, position, offset, rotation, and input of each button. In addition, make sure that the buttons cannot be duplicated.	6 hours	Josh
5	Add a menu to customize the specific values for each type of inputs, such as joystick dead zone.	3 hours	Josh
6	Update encoding and decoding functionalities to represent new config structs	2 hours	Jack
7	Create an automated UI testing suite for managing layouts, configuring buttons, and proper error handling.	4 hours	Josh

Acceptance Criteria:

1. Given a properly implemented application, when the user opens up the layout manager, then the user should be able to add and delete custom layouts.
2. Given a properly implemented layout manager, when user selects the layouts that they created from the list, then this layout should update the displayed buttons in the main controller view with their respective properties.
3. Given a properly implemented layout manager, if the layout fails to be created, saved, or deleted, then an error message should be shown to the user.
4. Given properly implemented button customization, if the user tries to drag a button off the screen, then this should not be allowed, and the button should also be fully on screen after a user resizes it to be bigger.
5. Given a properly implemented customizer, when there are 2 buttons on the screen, then the user should not be able to drag and drop them on top of each other where they overlap.

User Story #8, 8.5 hours

As a user of the application, I would like to be able to customize the color profile, style, and icon of the buttons on my custom layouts.

#	Description	Estimated Time	Owner
1	Update the config struct to include more options for the style of each button.	1 hour	Josh
2	Create a menu where the user can customize the color of the selected button in the layout editor.	3 hours	Josh
3	Design an option for the user to customize the icon on the button, where they can choose from either text in a text field or a symbol from a menu that shows a list of pre-selected SF symbols.	2 hours	Josh
4	Update the visuals of the buttons in the main controller view, including light mode and dark mode schemes.	2 hours	Josh
5	Add a glow around the edges of the screen in the main controller view based on the controller color selected in settings.	0.5 hours	Josh

Acceptance Criteria:

1. Given properly implemented customizations, when the user selects a color for a button in an unpressed state, then the button should appear that color on the main controller screen while not being held.
2. Given properly implemented customizations, when the user selects a color for a button in a pressed state, then the button should appear in that color on the main controller screen only while it is being held.
3. Given properly implemented customizations, when the user selects a button shape, then the shape of the button on the main controller screen should reflect that chosen shape.
4. Given properly implemented customizations, when the user selects an SF symbol as the icon label, then the symbol should show on top of the button and fit inside the shape of the button.

User Story #9, 11 hours

As a user of the application, I would like a way to fine-tune dead zones on my emulated analog inputs so that I can eliminate unintended movement or input drift when I am trying to use the controller.

#	Description	Estimated Time	Owner
1	Accept and store new dead zone changes from user	2 hours	Jack
2	Add visual feedback for changing dead zone with slider	3 hours	Jack
3	Implement algorithms to process effect of dead zone on inputs	2 hours	Jack
4	Create an automated testing suite to test use of dead zones	4 hours	Jack

Acceptance Criteria:

1. Given a controller with a joystick, when the user changes the dead zone with a slider, a circle representing the dead zone dynamically changes on the iOS application.
2. Given a controller with a joystick, when the user saves the layout with a dead zone, the new dead zone of that joystick for this controller layout is saved on the iOS application.
3. Given a controller with a joystick, when the user moves the stick slightly within the dead zone, the joystick input is not authorized to be sent to the server.

User Story #10, 12 hours

As a user of the application, I would like the ability to emulate turbo button functionality so that I can automate repeated button presses in certain games.

#	Description	Estimated Time	Owner
1	Design turbo button struct	2.5 hours	Jack
2	Add to the settings menu an option to change turbo repeat rate for the current controller	2 hours	Jack
3	Implement algorithms to process effect of turbo mode on button sending	2 hours	Jack
4	Expand turbo button functionality to D-Pad	1.5 hours	Jack
5	Create an automated testing suite to test turbo button functionality	4 hours	Jack

Acceptance Criteria:

1. Given a controller, when the user opens the setting menu for the current controller, the user can change the turbo repeat rate.
2. Given a controller, when the user holds the turbo button and then presses a button that is not assigned button functionality, then that button is assigned turbo functionality.
3. Given a controller, when the user holds the turbo button and then presses a button that is assigned button functionality, then that button is unassigned turbo functionality.
4. Given a controller, when the user holds a button that is assigned turbo functionality, then the client treats the button hold as repeated clicking the button at a fixed rate.
5. Given a controller, when the user releases a button that is assigned turbo functionality, then the client stops treating the button as being repeatedly clicked on.

User Story #11, 4 hours

As a user of the application, I would like to have an accessible controller file within the application to emulate a GameCube controller so that I don't have to spend the time creating my own custom version of an already pre-existing controller for easy access to it.

#	Description	Estimated Time	Owner
1	Create a slanted pill button style similar to the X and Y buttons on a physical GameCube controller.	1 hour	Josh
2	Design the hardcoded layout that matches the design of a GameCube controller.	2 hours	Josh
3	Create a testing suite to ensure the controller is displayed and works properly.	1 hour	Josh

Acceptance Criteria:

1. Given a properly implemented GameCube layout, when the user clicks on the controller selector within the iOS application's settings menu, then the user should see and be able to select a GameCube controller.
2. Given a properly implemented GameCube layout, when the user selects the layout, the buttons on the main controller view should reflect the style of a real GameCube controller with the type of buttons/widgets and the color scheme.
3. Given a properly implemented GameCube layout, when the user selects the layout, the X and Y buttons should be properly oriented and bent to fit around the large A button like a real GameCube controller.

User Story #12, 9 hours

As a user of the application, I would like my emulated controller to employ button haptics so that every time a user interacts with a button on the emulated controller a little bit of haptic feedback is given to the user.

#	Description	Estimated Time	Owner
1	Research SwiftUI Haptic APIs	2 hours	Bautista
2	Implement Basic Haptics to buttons	3 hours	Bautista
3	Add Haptic Toggle in Settings	1 hours	Bautista
5	Testing the Haptic Feedback	3 hours	Bautista

Acceptance Criteria:

1. Given a properly implemented emulated controller, when the user interacts with a button on the emulated controller, then some haptic feedback should be given to the user upon the button press.
2. Given a properly implemented iOS application, when the user wants or gets tired of having button haptics on their emulated controller, then they can go into the settings menu to toggle button haptics on or off depending on their preference.
3. Given properly implemented haptics, when the user receives haptics to their device that they are using the application with, then the haptics received should be received at an acceptable level such that it does not impair their ability to hold and interact with the emulated controller.

User Story #13, 2 hours

As a user of the application, I would like to be able to emulate a settings button on controllers so that I can access the settings on certain games that I am playing in order customize my in-game settings whilst playing games.

#	Description	Estimated Time	Owner
1	When the user clicks the settings button on the iOS application through their emulated controller, the client will send an input to be read and used by the server	1 hour	Bautista
2	Implement a testing suite or manually test functionality to ensure that the input is properly passed to and read by the server.	1 hour	Bautista

Acceptance Criteria:

1. Given a properly implemented controller, when the user loads up a controller configuration that has a setting button in it, the interactable button is properly display in the corresponding/designated location for that button.
2. Given a properly implemented client, when the user presses the settings button on their emulated controller, then the client will write that corresponding input to the server.
3. Given a properly implemented server, when the user sends an input through the existing connection, this input should be properly read and handled by the server.

User Story #14, 17 hours

As a user of the application, I would like my emulated controller to include an option for motion controller so that I can run games such as Mario Kart which can be played with or require using motion control features rather than buttons or joysticks. (i.e. rotating the phone to steer).

#	Description	Estimated Time	Owner
1	Look into the best way to implement motion controls, and implement that functionality for capturing and processing tilt/gyroscopic data for the device using the iOS application	8 hours	Bautista
2	Implement functionality to send the captured motion data to server and read that data for use on the server.	5 hours	Bautista
3	Design and create a toggle within the implemented settings menu in order to allow the user to toggle on and off motion controls.	1 hours	Bautista
4	Create a testing suite or manually test the collection of motion data within the iOS application and ensure that it is properly sent to and read by the server.	3 hours	Bautista

Acceptance Criteria:

1. Given a properly implemented settings menu, when the user accesses the settings menu, then they should have the ability to toggle on or off motion controls for their emulated controller depending on their preference at a given time
2. Given a properly implemented motion control option in the iOS application, when the user toggles it on, then the iOS application should start to write the corresponding tilt/gyroscopic data to the server emulating motion controls.
3. Given a properly implemented client-server connection, when the user sends tilt/gyroscopic data to the server, the server should properly read and handle the gyroscopic data.

User Story #15, 3.5 hours

As a developer of the application, I would like to have access to a CI/CD pipeline so that I continuously test our code as we are developing our application (1 hour)

#	Description	Estimated Time	Owner
1	Set up a CI/CD pipeline in order to allow us to automatically test the functionality of both the client and server code	1.5 hours	Krish
3	Manually test whether the newly created pipeline works as intended with our existing test cases and future test cases	0.5 hours	Krish
4	Compile the python server to an executable or application for each operating system to run.	1.5 hours	Krish

Acceptance Criteria:

1. Given a properly implemented application, when developers are adding new functionality to the application, then there should be automated testing, when possible, to ensure that the written functionality will work as intended within the general application
2. Given a properly implemented testing suites, when the CI/CD pipeline is created, then existing tests for the client and server should be added for continued testing of those features of the application.
3. Given a properly implemented CI/CD pipeline, when the user merges a pull request to main or requests it, then the pipeline should compile the server and create an executable available for all operating systems.

User Story #16, 9 hours

As a user of the application, I would like a selection option to be able to connect to my chosen device via network so that I can play my chosen games with more people than I would be able to with connections such as Bluetooth.

#	Description	Estimated Time	Owner
1	Create a server hosted on a local network that the mobile device and computer can both connect to.	3 hours	Krish
2	Create a similar schema for the transfer of data like that from the Bluetooth server.	3 hours	Krish
3	Create a testing suite for the local network and/or a manual testing document outlining everything needed to make sure the server is stable.	3 hours	Krish

Acceptance Criteria:

1. Given a properly implemented network server, when the server is started, then the mobile device should be able to detect the network and be able to connect to it.
2. Given a properly implemented network server, when the mobile client is connected to the server, then the mobile device can send data across the connection at high speeds, and it should be compatible with the current input system.
3. Given a properly implemented network server, when the mobile client connects to the server, then it should maintain a stable connection, and if there are any issues with it, then it should display an error message with troubleshooting options.

PRODUCT BACKLOG

- As a user of the application, I would like to have a tutorial for the application so that I can have a guide for general understanding of how to use the application and its numerous different functionalities properly.
- ~~As a user of the application, I would like to be able to have an emulated a movement joystick like that of the left stick of common Xbox and PlayStation controllers so that I can control the movement of my characters in the different games that I am playing.~~
- ~~As a user of the application, I would like to be able to have an emulated perspective joystick like that of the right stick of common Xbox and PlayStation controllers so that I can control the perspective of my characters in the different games that I am playing.~~
- ~~As a user of the application, I would like to be able to have an emulated directional pad so that I can use the directional movement functionality of the D-Pad needed for the menus in some newer games and game functionality in most older games.~~
- ~~As a user of the application, I would like to be able to have emulated bumpers so that I can use the functionality that games I like to play have tied to the left and right bumpers on most common controllers such as blocking or displaying emoticons.~~
- ~~As a user of the application, I would like to be able to emulate the diamond of buttons so that I can interact with the different menus and activities such as going through dialog, attacks, option selection, and more that are commonly bound to those buttons and are necessary to play the games.~~
- ~~As a user of the application, I would like to be able to have emulated triggers so that I can use the functionality that games such as shooter or adventure games commonly have bound to those buttons for interaction with certain game mechanics necessary to play certain games.~~
- ~~As a user of the application, I would like to be able to emulate a settings button on controllers so that I can access the settings on certain games that I am playing in order customize my in-game settings whilst playing games.~~
- ~~As a user of the application, I would like my emulated controller to include an option for motion controller so that I can run games such as Mario Kart which can be played with or require using motion control features rather than buttons or joysticks. (i.e. rotating the phone to steer).~~
- As a user of the application, I would like my emulated controller to have vibrational haptics so that I can access and options for the immersive tools that exist in the games that I am playing as well as play certain games or minigames such as those in Mario Party that rely on vibrational haptics to function properly.
- As a user of the application, I would like my emulated controller to have sound haptics so that I can access and options for the immersive tools that exist for setting the environment or style of the game that I am playing as well as play certain games or minigames that make use of the sound haptics to function properly.
- ~~As a user of the application, I would like to be able to construct custom controllers using a custom and modular layout of buttons, bumpers, joysticks and more so that I can create and experiment with my own unique style of controllers when playing games.~~
- ~~As a user of the application, I would like to have an accessible controller file within the application to emulate an Xbox controller so that I don't have to spend the time creating my own custom version of an already pre-existing controller for easy access to it.~~

- ~~As a user of the application, I would like to have an accessible controller file within the application to emulate a PlayStation controller so that I don't have to spend the time creating my own custom version of an already pre-existing controller for easy access to it.~~
- ~~As a user of the application, I would like to have an accessible controller file within the application to emulate a GameCube controller so that I don't have to spend the time creating my own custom version of an already pre-existing controller for easy access to it.~~
- ~~As a user of the application, I would like to have an accessible controller file within the application to emulate a Nintendo switch controller so that I don't have to spend the time creating my own custom version of an already pre-existing controller for easy access to it.~~
- ~~As a user of the application, I would like to be able to access a library of the commonly used controller files that are on the market as well as the custom controllers that I make myself so that I don't have to manually remake them each time I want to switch between the types of controllers I want to use and simply be able to save and load them as I want.~~
- ~~As a user of the application, I would like to be able to be able to make some modification to the types of controls so that I can use my preferred style of controller such as split versus conjoined D-Pad with my chosen controller.~~
- As a user of the application, I would like to be able to customize the color layout of any given so that I can apply my own style and color preferences to at a given time to the controller that I am using.
- ~~As a user of the application, I would like to be able to customize the name of my controller or device when I connect so that I can clearly identify which controller is connected to me and is accepting my inputs.~~
- ~~As a user of the application, I would like to have a settings menu in the application so that the different options for customization and functionality are easily accessible at any given time as well as not taking up space to ruin the layout and functionality of the emulated controller.~~
- ~~As a user of the application, I would like a selection option to be able to connect to my chosen device via network so that I can play my chosen games with more people than I would be able to with connections such as Bluetooth.~~
- ~~As a user of the application, I would like a selection option to be able to connect to my chosen device via Bluetooth so that I can play my chosen games with higher connection speed, allowing the controller inputs to run faster than it would with other connections such as network connections.~~
- ~~As a user of the application, I would like to be able to see the eligible devices to connect to in the area in a nice menu so that I can select which specific device that I would like to connect to.~~
- ~~As a user of the application, I would like to be able to disconnect from what would be then the connected device so that I can stop gaming at any time or potentially switch between different devices if there is another game that I would like to play somewhere else.~~
- ~~As a user of the application, I would like to be able to be able to pull up a GUI on the connected device so that I know that I can see the processes and what is happening on the server side of the connection as well.~~
- ~~As a user of the application, I would like there to be a portion of the GUI that acts as a connection list so that I can see which devices, if any, are connected to the given server at any moment.~~
- ~~As a user of the application, I would like to be able to see a mock-up of my controller on the GUI so that I can see that it is properly recognizing my controller and the customizations that I potentially put into it beyond the act of simply connecting my phone.~~
- ~~As a user of the application, I would like the mock-up of the controller to highlight the button, joystick, feature, or whatever input that the user is putting into their emulated controller displayed on~~

~~the GUI so that I can see that my controller is properly sending inputs to the device that it is connected to before playing a game.~~

- ~~As a user of the application, I would like a clear way to differentiate between different controllers and inputs on the GUI so that if I am using the application to play with a group of my friends, we won't get confused by which person's controller corresponds to which when playing our games.~~
- ~~As a user of the application, I would like to be able to customize the GUI's color scheme so that I can make the application personal and to my preferences.~~
- ~~As a user of the application, I would like to be able to access a settings menu in the computer GUI so that I can toggle wanted or unwanted features from the GUI display to meet my wants/needs at a given time provided by the application regardless of the type of phone/device that I have.~~
- As a user of the application, I would like to be able to import and export controller configurations so that I can share my custom layouts with friends or use their presets.
- As a user of the application, I would like to adjust the sensitivity of my emulated analog inputs so that I can fine-tune the speed and responsiveness of movement based on those preferences.
- ~~As a user of the application, I would like a way to fine-tune dead zones on my emulated analog inputs so that I can eliminate unintended movement or input drift when I am trying to use the controller.~~
- As a user of the application, I would like the application to ask me to automatically switch between different layouts I manually set depending on what game I am playing so that I won't have to go through the process of switching it each time I am wanting to play a different game especially if I intend on playing multiple games in a single session.
- ~~As a user of the application, I would like the ability to emulate turbo button functionality so that I can automate repeated button presses in certain games.~~
- ~~As a user of the application, I would like to enable macros for specific button combinations so that I can execute complex in-game actions with a single press.~~
- ~~As a user of the application, I would like a visual indicator for connection strength displayed alongside the connection list in the QT GUI when using Bluetooth or network mode so that I can troubleshoot input lag or disconnections more easily.~~
- As a user of the application, I would like a help menu that will provides quick access to more in-depth troubleshooting guides and FAQs so that I can quickly resolve any issues or questions I may have when using the application.
- ~~As a user of the application, I would like an option to use my phone as a remote mouse/keyboard hybrid in addition to a controller so that I can navigate game menus or settings that require text input.~~
- (If time allows) As a user of the application, I would like to have the option to see an overlay over my games so that I can see my inputs on the screen while playing.
- (If time allows) As a user of the application, I would like an option to set up multi-touch gestures to trigger specific in-game actions, allowing for more advanced inputs beyond standard buttons.
- (If time allows) As a user of the application, I would like to be able to sync my controller settings across multiple devices using a cloud backup so that I can access my custom layouts anywhere.
- (If time allows) As a user of the application, I would like the application to be android compatible as well as iOS compatible so that I or users like me would be able to use the services and features.