Majuli River Island

Google Cardboard VR Experience

Group 6

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Developer Documentation

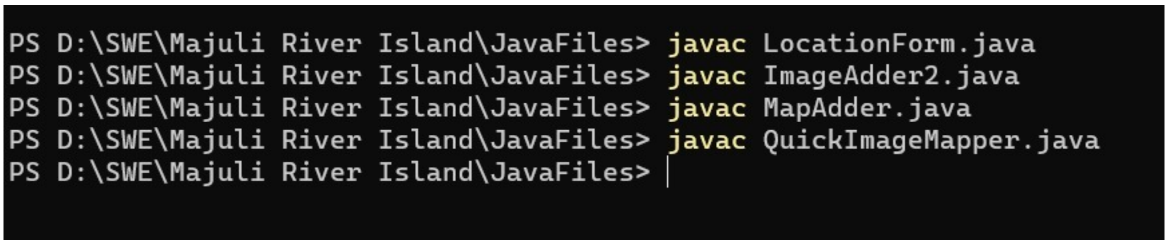
Adding New locations via GUI

The new locations are added by using java which creates the required files needed for the Unity code to show new locations.

Directory where java codes are stored is JavaFiles

Compile java forms

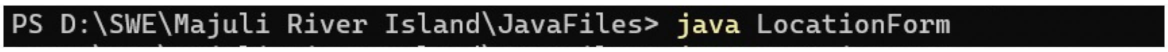
- Run the following commands in terminal to compile the Java file, which are forms for adding new locations.



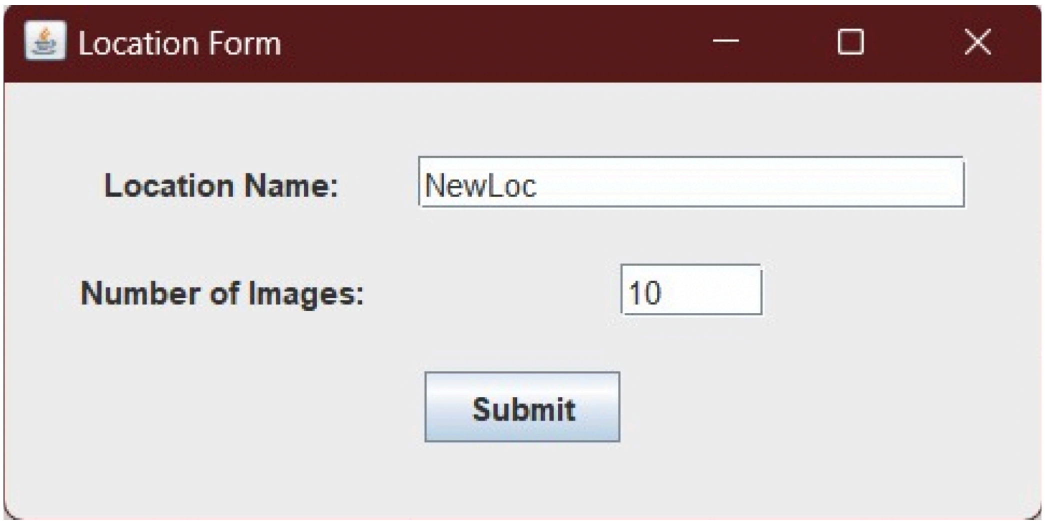
```
PS D:\SWE\Majuli River Island\JavaFiles> javac LocationForm.java
PS D:\SWE\Majuli River Island\JavaFiles> javac ImageAdder2.java
PS D:\SWE\Majuli River Island\JavaFiles> javac MapAdder.java
PS D:\SWE\Majuli River Island\JavaFiles> javac QuickImageMapper.java
PS D:\SWE\Majuli River Island\JavaFiles>
```

Run java forms

- Add New location to the form using LocationForm. Also specify number of images.



```
PS D:\SWE\Majuli River Island\JavaFiles> java LocationForm
```

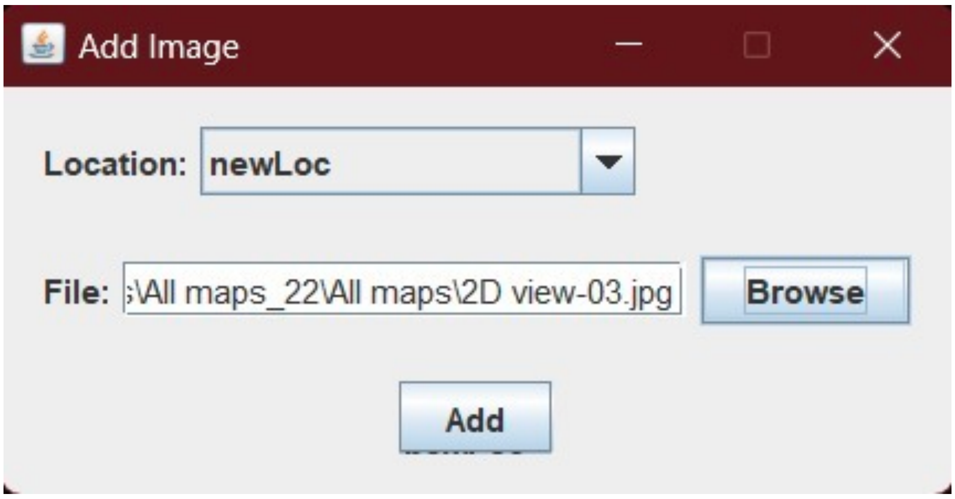


Location Form

Location Name:	NewLoc
Number of Images:	10

- Paste the photos in the Asset/Resources/Texture/{new location name} directory or add photos one by one using imageadder2.java file

```
PS D:\SWE\Majuli River Island\JavaFiles> java ImageAdder2
```

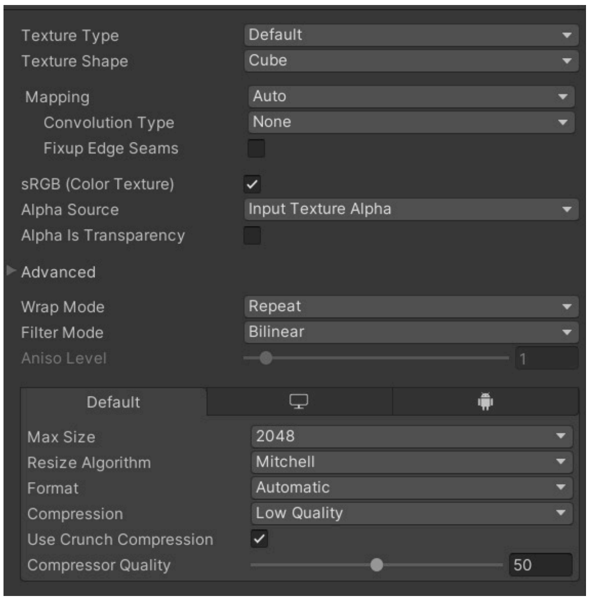


Add Image

Location: newLoc

File: ;\All maps_22\All maps\2D view-03.jpg

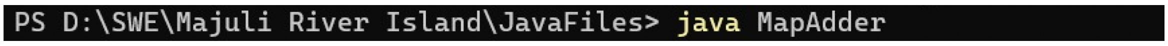
- After adding images of new location apply the following settings to every image.
- Texture Shape - Cube
- Compression - Low Quality
- Use Crunch compression
- Compression Quality - 50



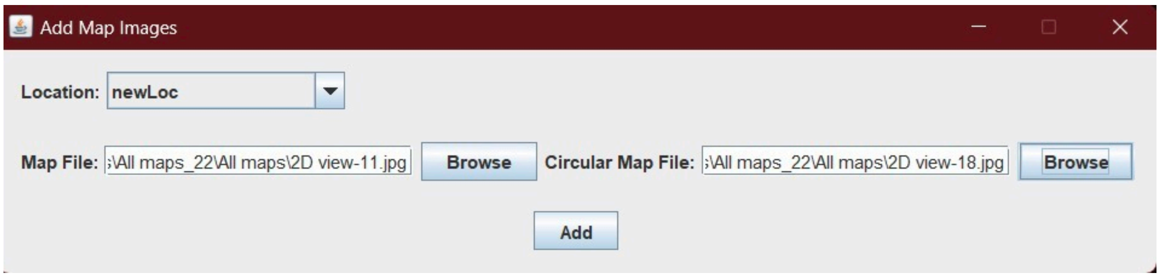
```
Texture Type              Default
Texture Shape             Cube
Mapping                   Auto
  Convolution Type        None
  Fixup Edge Seams        ☐
sRGB (Color Texture)      ✓
Alpha Source              Input Texture Alpha
Alpha Is Transparency     ☐
Advanced
Wrap Mode                 Repeat
Filter Mode               Bilinear
Aniso Level               1

Default
Max Size                  2048
Resize Algorithm          Mitchell
Format                    Automatic
Compression               Low Quality
Use Crunch Compression    ✓
Compressor Quality        50
```

- Use MapAdder.java to add map and circular map

Note: without adding map one can't jump to the new location



```
PS D:\SWE\Majuli River Island\JavaFiles> java MapAdder
```

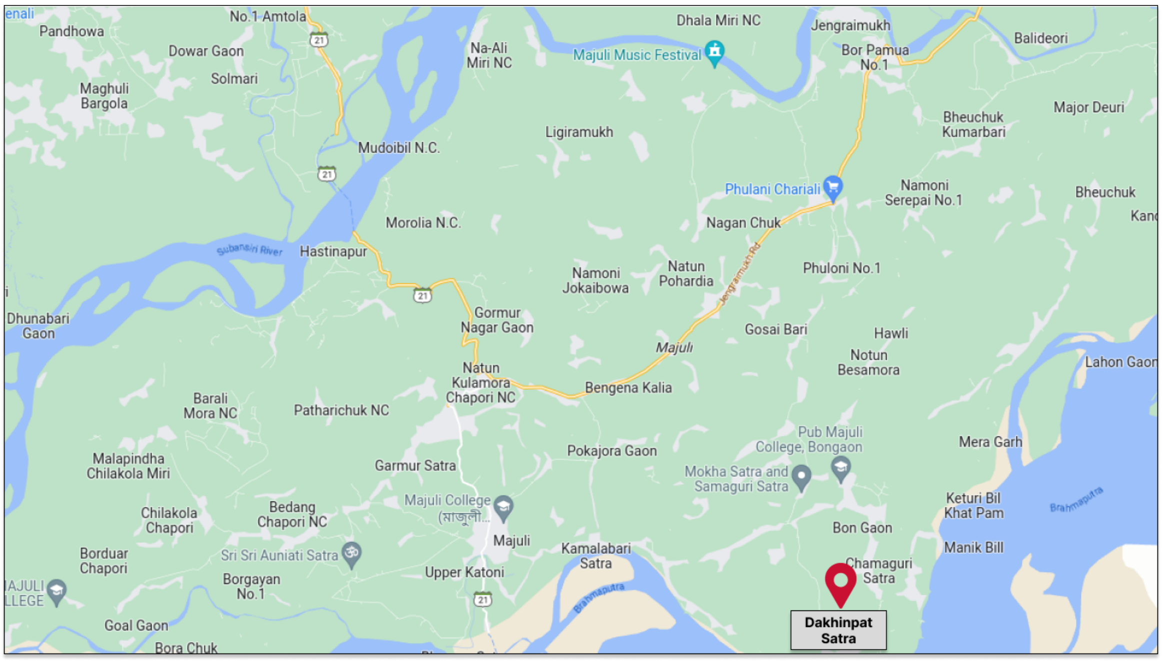


Add Map Images

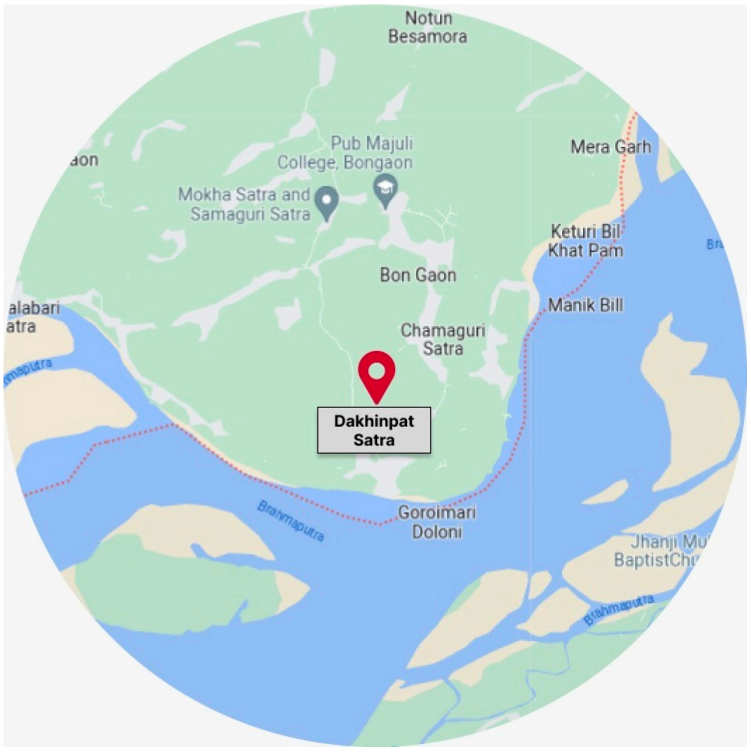
Location: newLoc

Map File: ;\All maps_22\All maps\2D view-11.jpg
Circular Map File: ;\All maps_22\All maps\2D view-18.jpg

- Example of Map



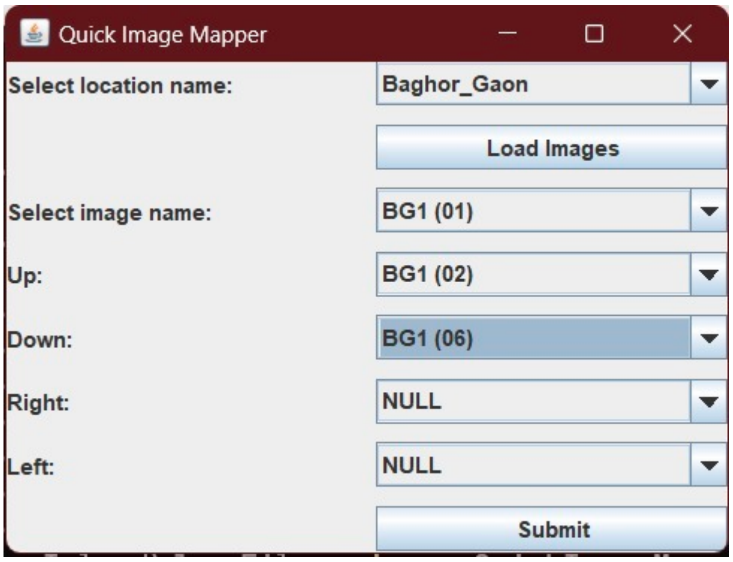
- Example of Circular map (mini map).



Note: here the background (except the circular part) is transparent. The map and circular map are to be created by user who is adding new location

- Use quick image mapper to map between images of a particular location.

```
PS D:\SWE\Majuli River Island\JavaFiles> java QuickImageMapper
```



Quick Image Mapper

Select location name: Baghor_Gaon

Select image name: BG1 (01)

Up: BG1 (02)

Down: BG1 (06)

Right: NULL

Left: NULL

- Here, NULL in left and right signifies that there is no image to the left and right of image
- Note: all image mapping should be done in one go.
- This will help create the text file which is used by unity.

Deployment

- Finally before deploying use ASTC compression.
- Build to .apk

User Documentation

- Use the apk to download the app on Android
- Connect the Joystick to the phone using bluetooth
- Put the Phone in Google Cardboard

Controls of Joystick

- Note:- Make sure you are using game control which can done on

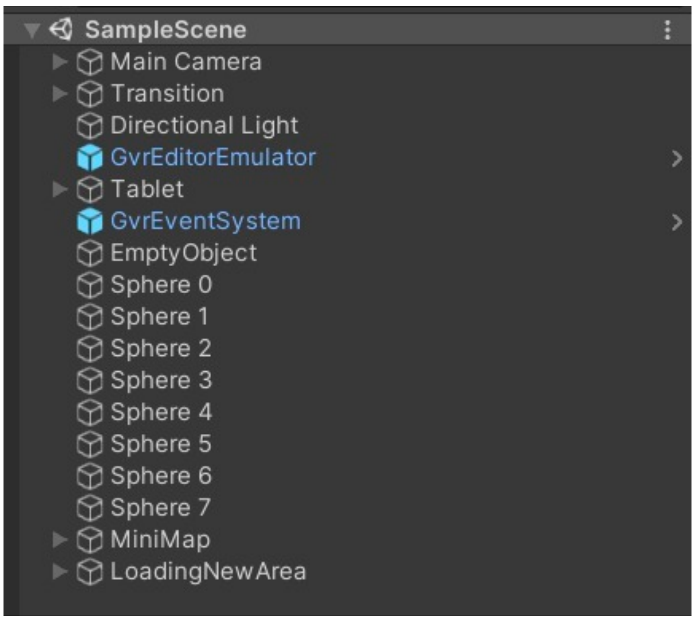
joystick using clicking @ and B

- Use A on button to change image
- Use B to open and close map
- Use D to change map pointer
- Use A on map to select particular location and jump to that location.

Code Documentation

File structure in Unity Project

- Here Empty Object is an empty object to which the script is applied
- Sphere 0 to sphere 7 are button object which are disabled and enabled and transformed appropriately by script.cs file.
- MiniMap is a canvas which hold circular map
- Tablet is also an canvas which contain map
- Transition is canvas which contains panel which is used to animate transition between different locations
- LoadingNewArea is a canvas, which is shown during wait time of loading of new location.



```
SampleScene
  Main Camera
  Transition
  Directional Light
  GvrEditorEmulator
  Tablet
  GvrEventSystem
  EmptyObject
  Sphere 0
  Sphere 1
  Sphere 2
  Sphere 3
  Sphere 4
  Sphere 5
  Sphere 6
  Sphere 7
  MiniMap
  LoadingNewArea
```

Code Documentation

Functions overview

Here we explain all the functions implemented in the script

1. **Start():**

Input - NULL

Description: The function loads all map images from the "Map" and "CircularMaps" folders using the Unity game engine's Resources.LoadAll function and stores them in two variables named "map" and "miniMap", respectively. Finally, the function calls another function named "initialize" to perform additional setup or initialization tasks.

2. **Initialize():**

Input - NULL

Descirption: The "initialize" function sets up variables for map navigation, sets the current area to 0, and initializes the main map and circular mini-map images. It also hides the "mapTablet" GameObject.

3. fileFolderMapping():

Input - NULL

Description: The "fileFolderMapping" function loads a text file called "locationNames" from the Resources folder and extracts a list of area names and file paths. It then processes the area names to remove any non-numeric characters at the end of the string. Finally, it stores the processed area names and file paths in two arrays named "areaNumberToFolderName" and "areaNumberToTextFilePath".

4. areaChange():

Input- currArea

Description: The "areaChange" function takes an argument "newArea" and updates the current area to it. It loads a text file for the new area, parses it to determine the number of images and the graph structure, and loads all the textures for the area. Finally, it renders the material of the first image in the new area and hides the loading screen.

5. fillGraph():

Input - A List of Lines

Description: The fillGraph function creates a 2D array graph of type Neighbour and an array numberNeighbours of integers based on the contents of a text file. The graph array represents a graph where each row corresponds to an image and each column represents a neighbouring image. The numberNeighbours array stores the number of neighbours for each image. The function reads the text file, extracts the necessary information, and populates these arrays accordingly.

6. renderNewMaterial():

input - currArea, currImageNum

Description: This function updates the material of the skybox with the texture specified by the imageNumber parameter. It also adds new buttons as specified by the graph and updates the button positions. Additionally, if the area is a temple area, it plays a sound. If it is not a temple area or if it is a temple area but not the specific images specified in the if statements, it stops the temple sound.

'

7. update():

Input: mouse/keyboard inputs

Description: This is the functions that is called on any input from user. It includes functions for changing location within an area by clicking on objects, activating or deactivating a map, selecting a map pointer, and changing the map pointer's position. The code checks for various user input, including mouse clicks and keyboard presses, to trigger these actions. It also includes code for finding and manipulating objects within the game world.

8. myPointerClick():

Input: mouse click

Description: This function changes the current image being displayed based on the button clicked by the user. It calls the function to render the new material for the new image.

9. onEnable():

Input- NULL

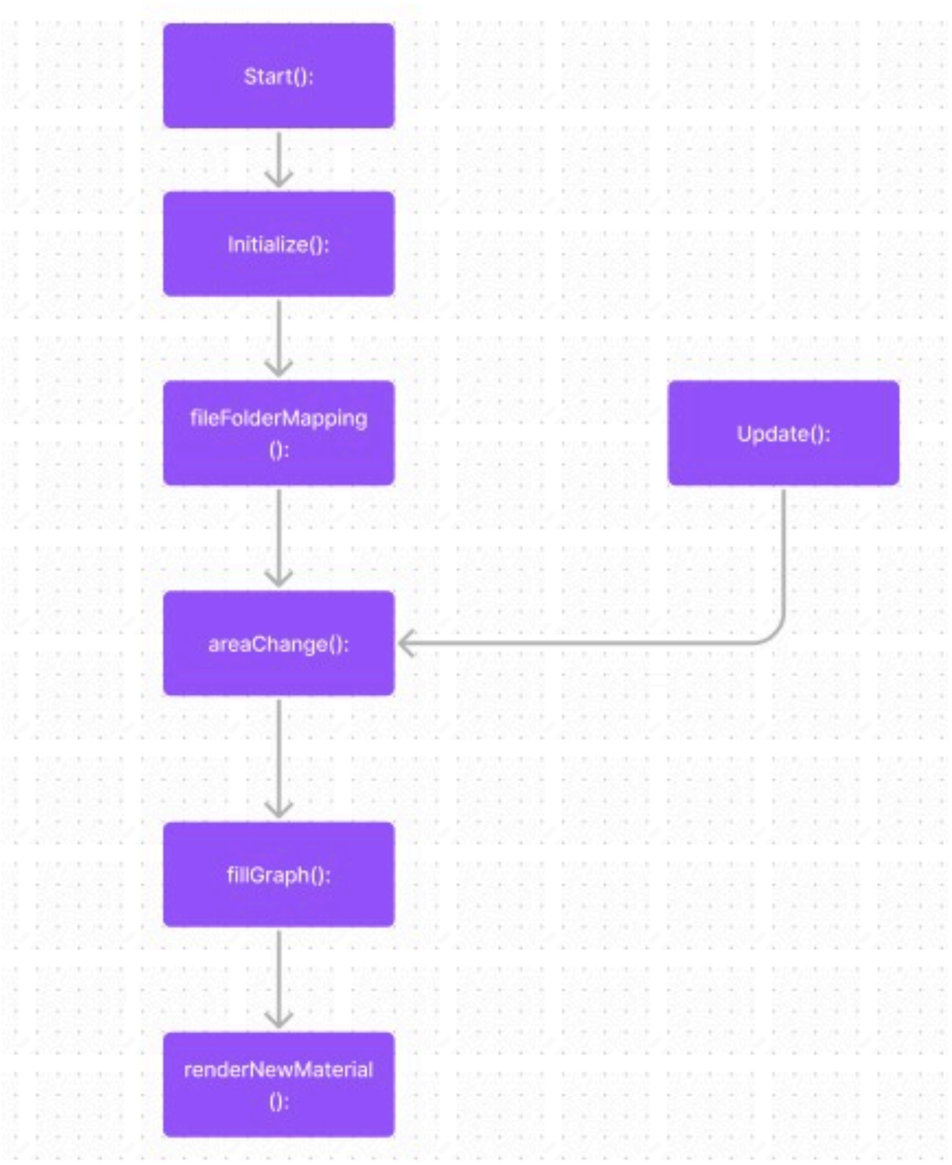
Description: This code enables input actions for movement, toggling the map, and moving the pointer.

10. onDisable():

Input: NULL

Description: The OnDisable method disables the input actions movement, toggleMap, and movePointer.

A brief flowchart diagram for the functions of script.



For Full DFD Diagram, please follow the link:

https://www.figma.com/file/FEjEgQJUiWHBDKw12Vfoyu/Untitled?node-id=1%3A1767&t=d5o3zDd2TtFt4RcZ-1