Documentation for

AR INDOOR NAVIGATION PoC

2023

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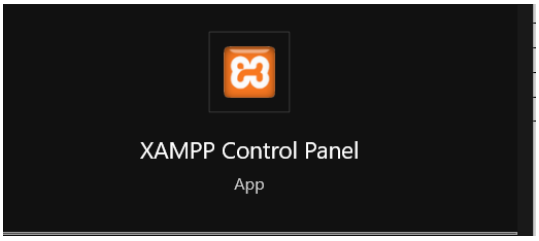
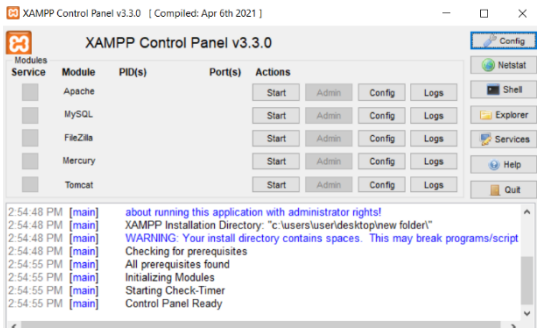
These are the tools needed to build the AR Indoor Navigation PoC.

Tools	Requirement
Unity Hub	3.3.0
Unity Editor	2021.3.12f1
Microsoft Visual Studio 2019	16.11.5
Microsoft Visual Studio Code	1.73.1
XAMPP Control Panel	7.4.33
Android Devices	Android Devices with ARCore Supported

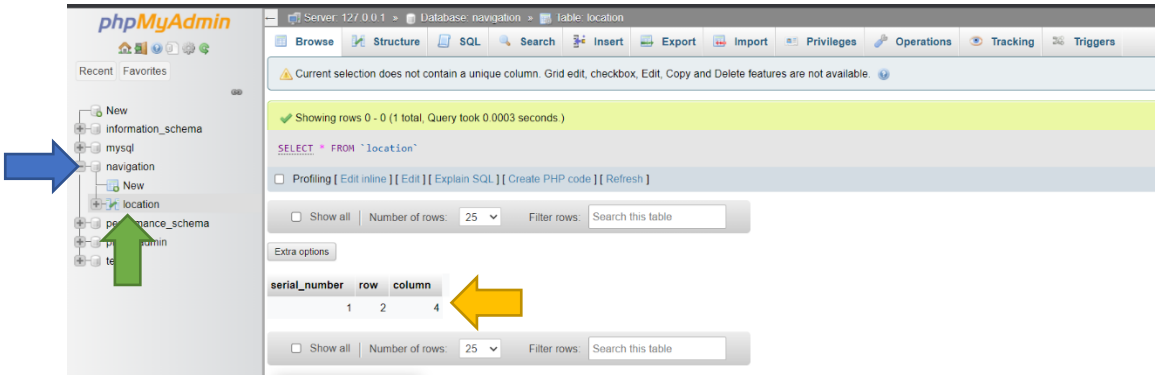
First Step: Setting Up the XAMPP Server

Before proceeding with the project, please launch the XAMPP panel first as below.





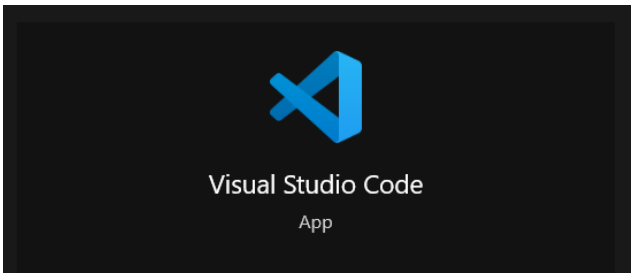
This is how the panel will look like when you open the application. Then, proceed to click on the “Start” button for the Apache and MySQL Module. Then, click on the “Admin” button for the MySQL button. Once it is clicked, it will direct you to a page as below:



Create a database called “navigation”(blue arrow) and create a table in the database called “location”(green arrow). Add the values of the table as shown by the yellow arrow above. Then, proceed to the next step below.

Second Step: Setting up Code for the Database

For the database code, it uses PHP coding which we will run using Microsoft Visual Studio Code application as shown below.



Once the app is opened, the code is written as below:

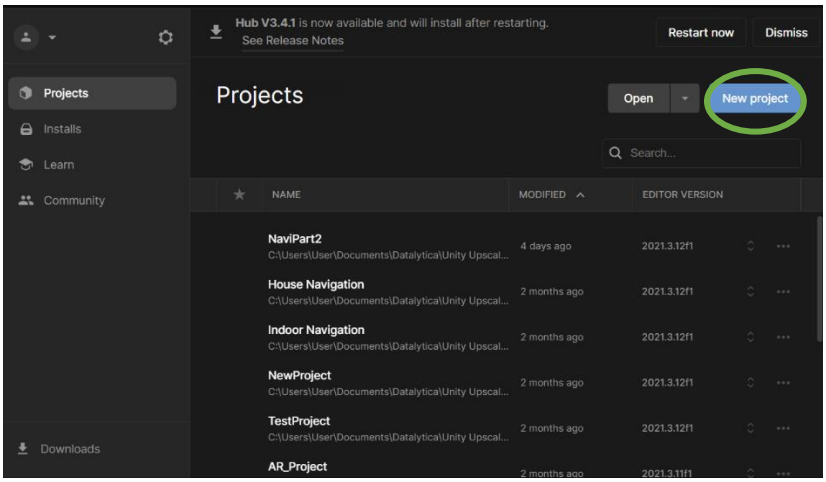
C: > Users > User > Desktop > New folder > htdocs > IndoorNavi > Unity > index.php

```php
<?php
$hostname = 'localhost';
$username = 'root';
$password = '';
$database = 'navigation';

try
{
    $dbh = new PDO('mysql:host='. $hostname .';dbname='. $database,
        $username, $password);
}
catch(PDOException $e)
{
    echo '<h1>An error has occurred.</h1><pre>', $e->getMessage()
        ,'</pre>';
}


$sth = $dbh->query('SELECT*FROM location WHERE serial_number = 1');
$sth->setFetchMode(PDO::FETCH_ASSOC);

$result = $sth->fetchAll();

if (count($result) > 0)
{
    foreach($result as $r)
    {
        echo $r['row'], "\n _";
        echo $r['column'],"\n _";
    }
}

?>
```

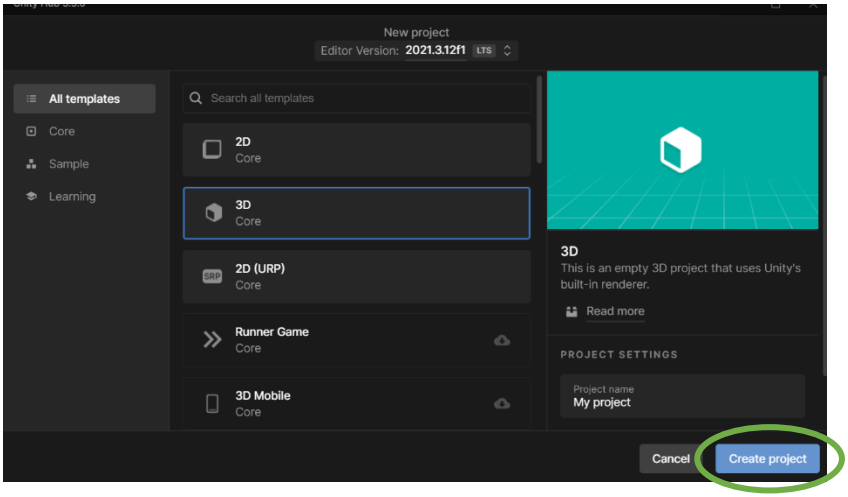
Once done, proceed to the next step.

Third Step: Setting up Unity.

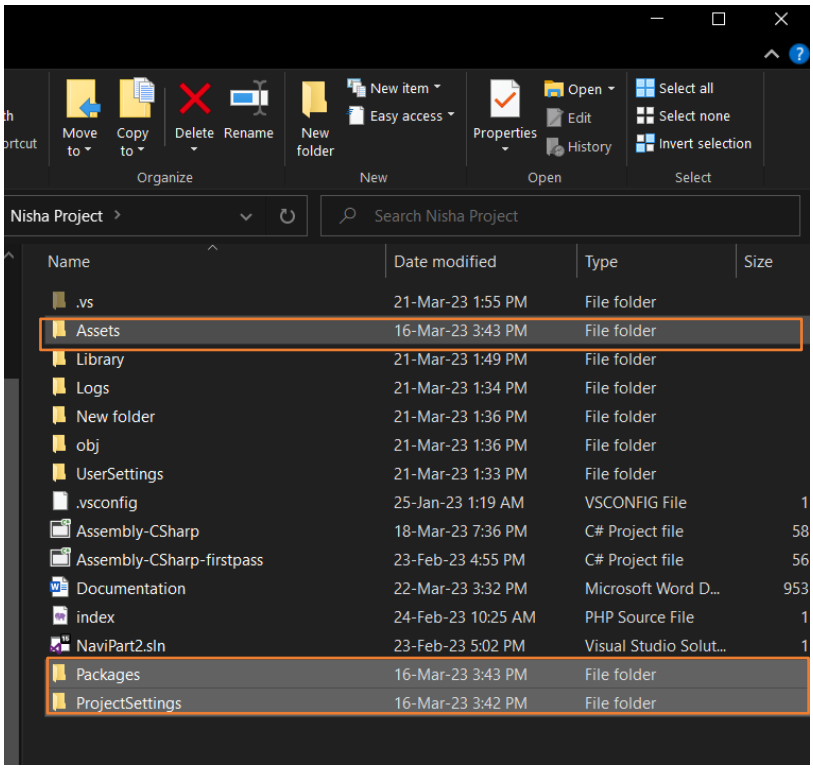
Open Unity Hub and create a new project as shown below.



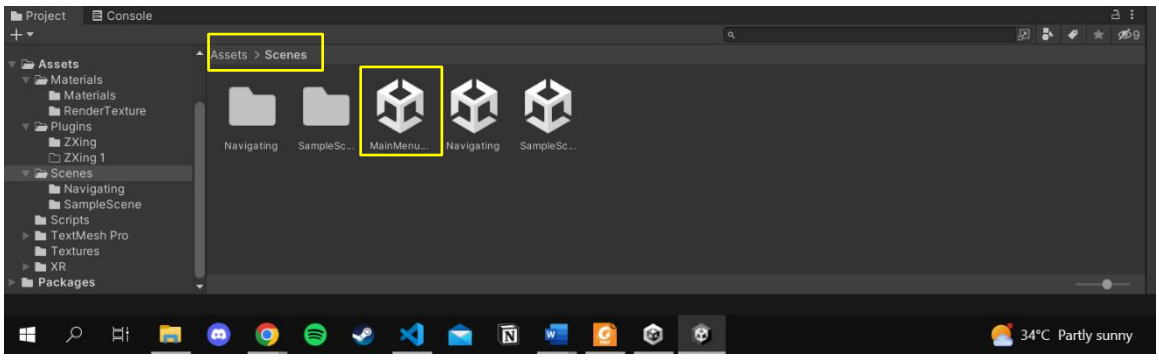
Then, name the project and store the project in a folder that is easy to locate. Then, click “Create Project”.



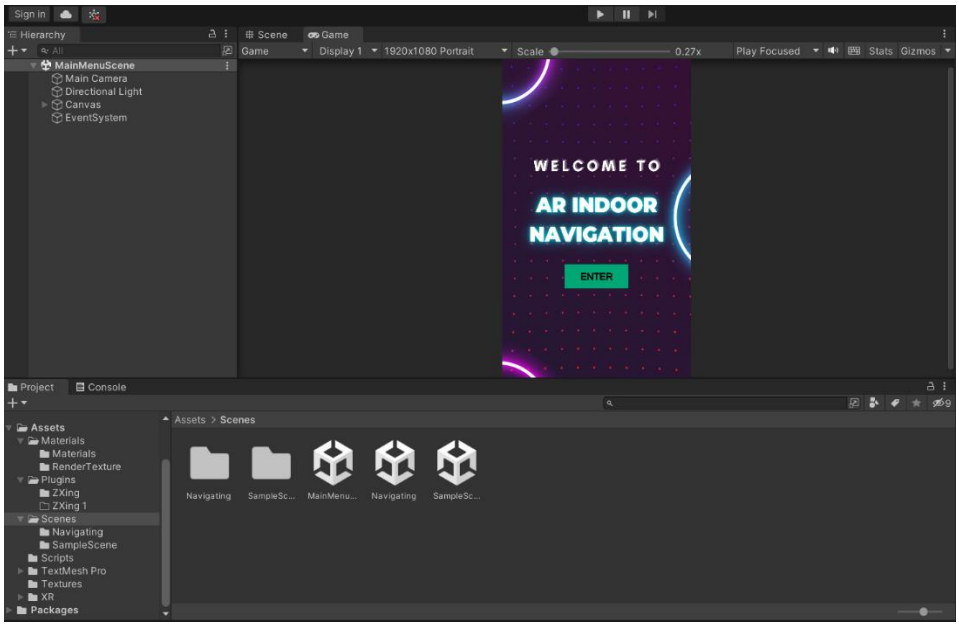
Then, export these folders that you have downloaded from GitHub below to the Unity project.



When the folders are exported, open the Assets folder and click on Scenes. Then , click on “ Main Menu” to load the project scenes.



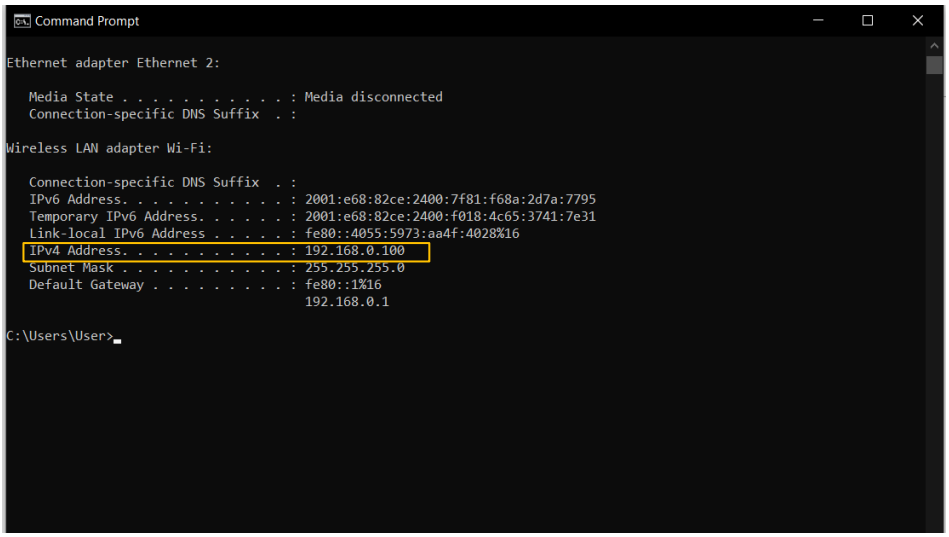
The scene should show up as below.



Fourth Step: Build and Run.

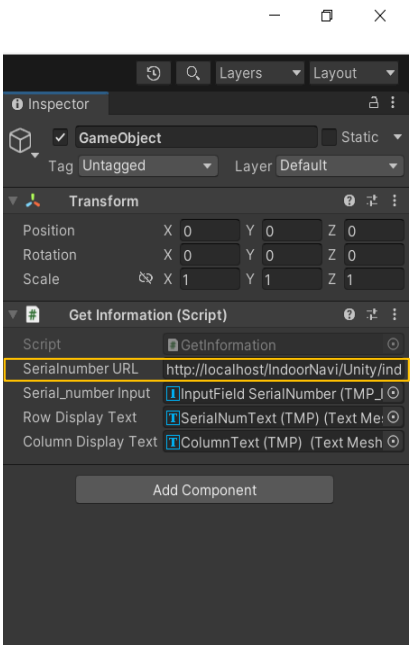
Before building the project, there are few important things to be noted:

1. In order to retrieve IP address, go to Command Prompt and enter ipconfig. Select the IP address as shown below:

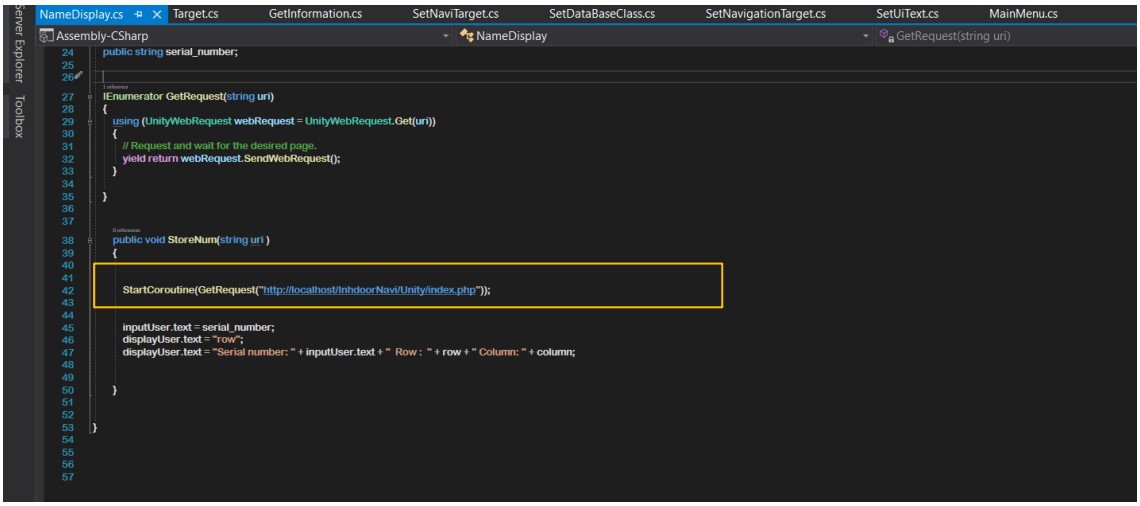


2. To make sure that the phone is connected to the localhost server, simply enter the IP address shown in your mobile phone's browser. It should appear as below:

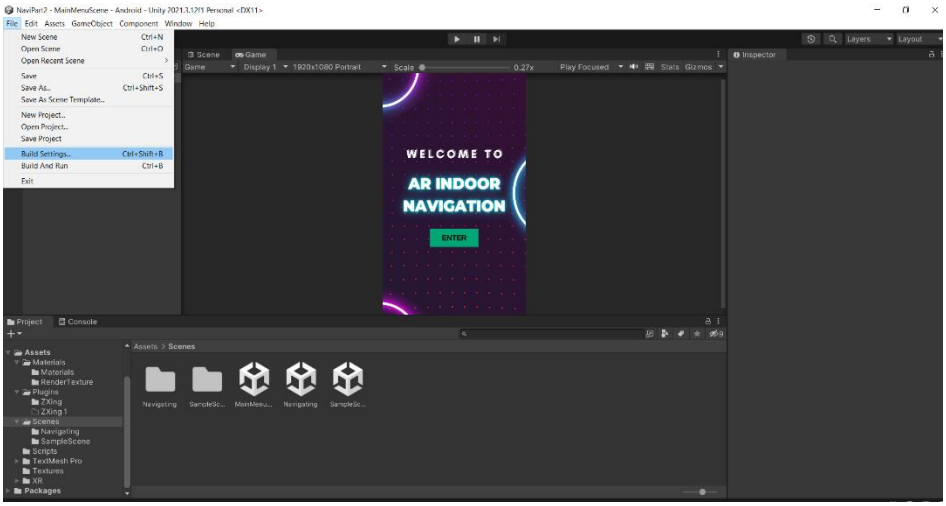
3. Then, edit the URL in the highlighted column in Unity as shown below with the copied IP address :



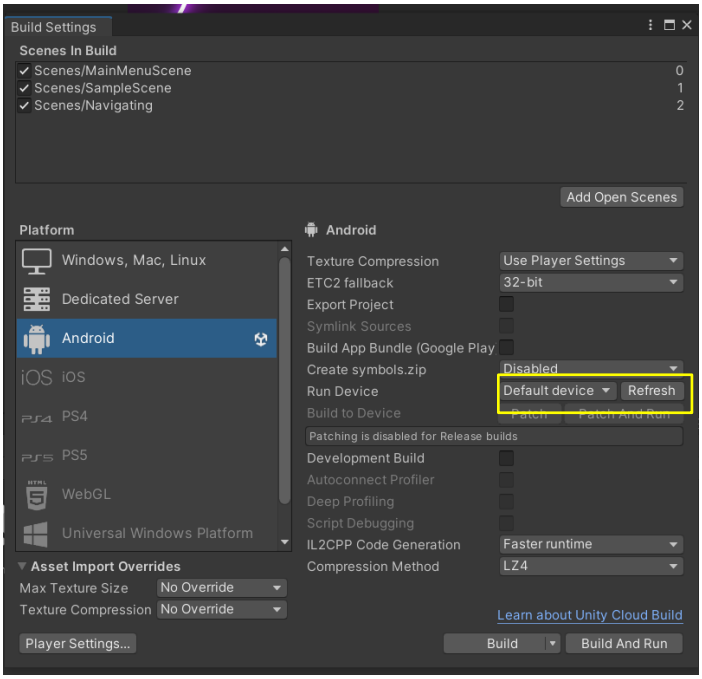
4. Copy the same link as above and edit the link into the NameDisplay.cs script as shown below :



The next step is to build and run the project in your Android phone. Go to File and click on “Build Settings”.

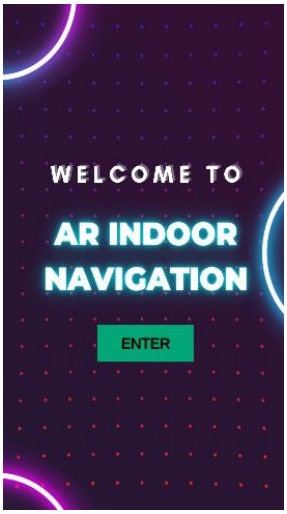


Then, this pop-up will show up. Make sure to click on every scene below to build all of them. Then, connect a USB cable from your laptop to your Android phone and click on the button “Refresh” as below. Then, click on the dropdown menu beside the button and click on your Android phone’s name. Example: “Redmi Note 11 Pro”



Once you have clicked on your device’s name, you will be able to view the project on your phone and start navigating.

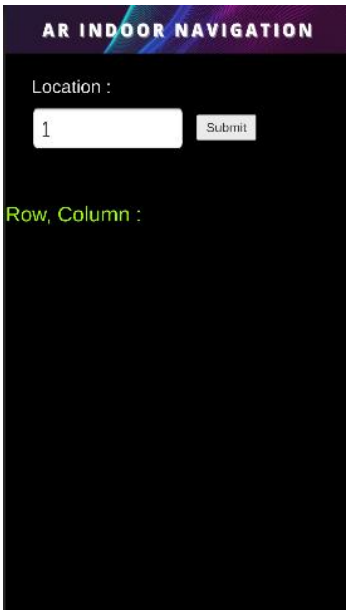
Fifth Step: How to Use



First Scene: Click on “Enter”.
and Start Navigating

Second Scene: Scan the Environment

1. In the second scene, click on “Show Line Options” button.
2. Then, choose your preferred location from the dropdown menu.
3. Then, click on “Toggle Line Visibility” button and the line will be appearing.
4. You can also change the line height according to your preference by clicking on the “Show Debug Options” button.



Last Scene: Enter the Serial Number of the Item that you would like to locate, and the coordinates should show up on the screen.

For now, the only serial number that works is “1” as it is the only number registered in the database.