LOG BOOK **WEEK NO: 7-8**

WEEK NO	DATE	BRIEF DESCRIPTION OF DAILY ACTIVITIES
7	**14th October 2019**	• Fixed UI instructions position in Module Ikea Assemble • Add leave room button in Module Ikea Assemble
	15th October 2019	• Fixed Ray cast SteamVR Laser Pointer integration with Leave Room button in Module Ikea Assemble
	16th October 2019	• Photon Connection on Leave Room Function
	17th October 2019	• Hand Animation for Controllers • Rotation Function to fix Table fly away
	18th October 2019	• Add teleportation to both Module
8	**21st October 2019**	• Appearing player nickname on List of players in Lobby
	22nd October 2019	• Get feedbacks from Dr. Fairuz and Mr. Shri Rai
	23rd October 2019	• Connection Database and research on object jittering
	24th October 2019	• Grabbing: pass around object between hands
	25th October 2019	• Integration with Window Mixed Reality (WMR)

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Logbook Weekly Evaluation by HOST COMPANY SUPERVISOR					
Instruction to Host Company Supervisor Please refer to the student's to assess his/her performance. Please award the scores based on the range below:					
Student's Score	**Beginning (<2.0)**	**Developing (2.0 to <3.25)**	**Accomplished (Rare) (3.25 to <4.0)**	**Exemplary (Exceptionally Rare) (4.0 to 5.0)**	**Score**
Initiative & Creativity	Had little observable drive and did not have new ideas	Some observable drive and some new ideas	Mostly self-starter and sometimes sought new challenges and offered new ideas	Always a self-starter and consistently sought new challenge and offered new creative ideas	**/5**
Task Accomplishment & Commitment	Partially accomplished given task despite full supervision	Accomplished given task but with full supervision	Accomplished given task but with some supervision	Accomplished given task with very minimum supervision	**/5**
Attendance & Punctuality	Frequently absent and always late	Sometimes absent and sometimes late	Never absent and almost always on time	Never absent and always on time	**/5**
Attitude & Self Control	Unable to demonstrate positive attitude and hardly maintained self-control under pressure	Occasionally demonstrated positive attitude and occasionally maintained self-control under pressure	Sometimes demonstrated positive attitude and maintained self-control under pressure	Consistently demonstrated positive attitude and consistently maintained self-control under pressure	**/5**
				Total Score	**/20**
Comments:					
Host Company Supervisor's Signature & stamp:					
Name & Designation:					
Date:					

(make copies if necessary)

DETAIL REPORT **WEEK NO: 7**

Objective(s) of the activities :

- Fixed UI instructions position in Module Ikea Assemble
- Add leave room button in Module Ikea Assemble

Contents :

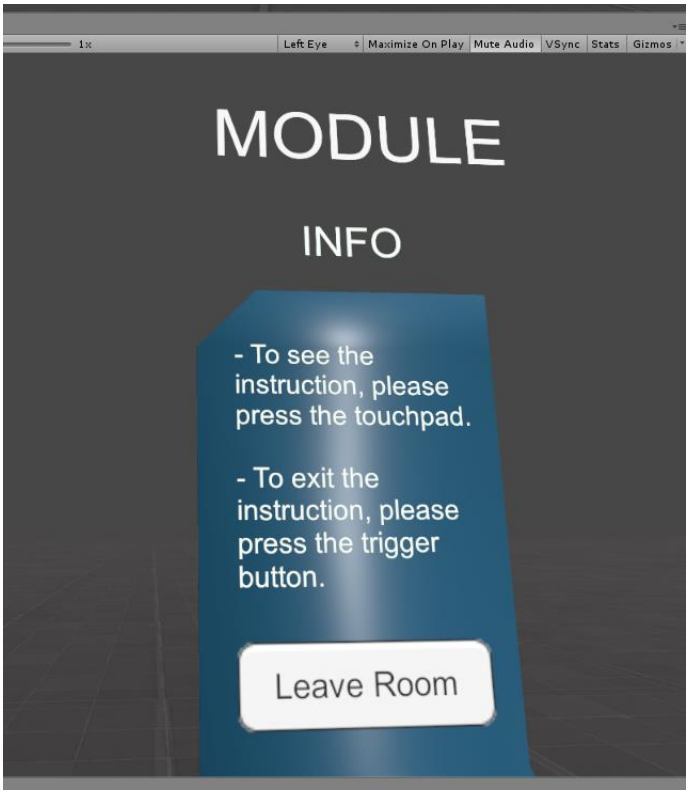
One of the feedbacks from Dr. Fairuz is to fixed the UI instruction when player press the touchpad. The position has been fixed by rotate the X-Axis to 10 degrees and X-Axis position has been increased.

From this:

To this:

Next feedback is to add Leave Room function when the player in the room. Here are the few things that I did:

1. Create "Button" from Unity UI
2. Create new script called "UIButton"
3. Add "UIButton" script in Controller(right)
4. Add Steam_VR_LaserPoint in Controller(right)
5. Drag Controller(right) to Laser Pointer in "UIButton" script
6. Add OnClick() event on the "Button" UI by dragging Controller(right) and choose LeaveRoom() function.



Leave Room button on Wall

I tested and the button is functioning where player will leave the room and back to Lobby. The problem that I encountered is the Laser Pointer need to be activated only when player wants to leave the room.

DETAIL REPORT **WEEK NO: 7**

Objective(s) of the activities :

- Fixed Raycast SteamVR Laser Pointer integration with Leave Room button in Module Ikea Assemble

Contents :

I fixed the Leave Room Button in Module Ikea Assemble since I want the player activate the Laser Pointer when they want to leave the room. Currently the Laser Pointer is active all the time and it feels inconvenient to the player. I amended a few things:

1. Create a new empty Game Object
2. Add SteamVR Laser Pointer and UIButton script in the empty Game Object
3. Remove the existing SteamVR Laser Pointer and UIButton script in Controller(right)
4. In Controller(right), In Input Manager, remove the MenuAppear() Function in TouchPad Action
5. I add a few line of codes in Hand Script to let the player press the TouchPad to activate the Laser Pointer
6. Then, add the LeaveRoom() Function in Controller Right

I run and tested them. Player is able to activate the Laser Pointer when it presses the TouchPad and also able to leave the room and choose other Module.

DETAIL REPORT **WEEK NO: 7**

Objective(s) of the activities :

- Photon Connection Leave Room Function

Contents :

I run and tested the scene in Multiplayer Mode. The problem is that once the player leaves the room by pressing the UI Button, the other player still be able to see the player even they have left the room. I figured out the problem causes by Photon Connection. I have not put any connection to Photon Server or send any data to tell the other player has left the room. I did a few things to solve the problem:

1. Add a few codes and override Photon function: OnleftRoom().
2. Use PhotonNetwork.LeaveRoom() and PhotonNetwork.LoadLevel().

Player will able to press the Leave Room Button using trigger and will be direct to Lobby scene.

This allowed the player to recreate room or join other room with other player.

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Objective(s) of the activities :

- Hand Animation
- Rotation Function

Contents :

Since the error in the Module 2: IKEA Assemble is the table will fly away when the object is snapped so I did found a few line of codes to help me on the error.

1. Create a new script called "Rotation"
2. Used the following codes:

```
public float moveSpeed;

void Update()
{
    float v = Input.GetAxis("Vertical") * moveSpeed;
    transform.Translate(new Vector3(0, 0, v) * Time.deltaTime);
}
```

3. Then, drag to TablePlane GameObject

It did rotate to the desired position but the table still floating in the sky.

Then, I did a few hand animation using a free asset in Unity and try to import in the scene. Firstly, I tested in the sample scene and it did work just fine. I tried to use in the two modules and it did not work since it is not compatible to the hand that I have been used. Both errors still under development.

DETAIL REPORT **WEEK NO: 7**

Objective(s) of the activities :

- Add teleportation to both Module

Contents :

Amiera and I had figured out the error regarding teleportation in Multiplayer Mode. We did change and add a few line of codes.

1. Create a new script called "Teleport"
2. Then, add codes as followed:

```
private Transform CameraTesting;
    private Vector3 Camera;

private void TryTeleport()
    {
        //Check for valid position, and if already teleporting
        if (!m_HasPosition || m_IsTeleporting)
            return;

        //transform
        CameraTesting = GameObject.FindWithTag("Player").transform;
        Debug.Log("Camera Rig Found!" + CameraTesting);

        //vector3
        Camera = GameObject.FindWithTag("Camera").transform.position;
        Debug.Log("Camera Found ! " + Camera);


        //Figure out translation
        Vector3 groundPosition = new Vector3(Camera.x, CameraTesting.position.y, Camera.z);
        Vector3 translateVector = M_Pointer.transform.position - groundPosition;

        //Move
        StartCoroutine(MoveRig(CameraTesting, translateVector));

        Debug.Log("Position = " + CameraTesting.transform.position);
        Debug.Log("Head Position: " + Camera);
        Debug.Log("Teleport");
    }
```

We used CameraTesting and find the player using tag instead of using Camera Rig directly since the data will be passed based on the position and movement of Camera Rig. When in Multiplayer Mode, the position and movement data must be passed to all player through server.

DETAIL REPORT **WEEK NO: 8**

Objective(s) of the activities :

- Appearing player nickname on List of players in Lobby

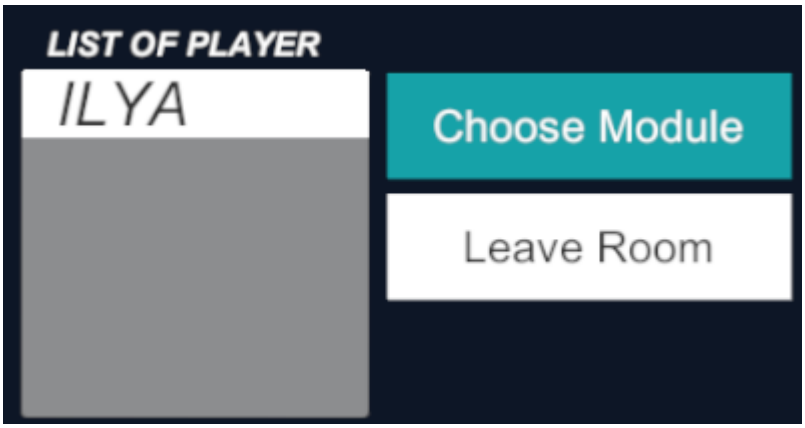
Contents :

Appearing the player nickname:

1. Add a few line of codes in "Launcher" script
2. Use PhotonNetwork.Nickname() to send data to Photon server
3. Use PhotonNetwork.LocalPlayer.Nickname to differentiate the players
4. Add text UI GameObject called Status for Photon server connection
5. Add text player name UI GameObject

I run and tested. The output is as follows:

LOBBY:



DETAIL REPORT **WEEK NO: 8**

Objective(s) of the activities :

- Get feedbacks from Dr. Fairuz and Mr. Shri Rai

Contents :

We had a meeting with Dr. Fairuz and Mr. Shri Rai and their students. We got to experience the meeting that involved opinion and testing from client. We got to try their project and asked a few question and solution.

We also demonstrated our project to them. We have been informed that the IKEA Assemble Module will be the last module. We got a few things that we need to amend for our project:

1. Clean Up scenes:
    i) Size of the interface
    ii) Object jittering
    iii) Snapping in Multiplayer Mode
    iv) Play Area VR
2. Database (Web Server)
3. Integration with other VR
    i) OCULUS
    ii) Window Mixed Reality (WMR)
4. Documentation

On the Object jittering part, we have met Manu, one of the students to ask for any solutions. We did try out their suggested solutions but none of them seem to work out.

DETAIL REPORT **WEEK NO: 8**

Objective(s) of the activities :

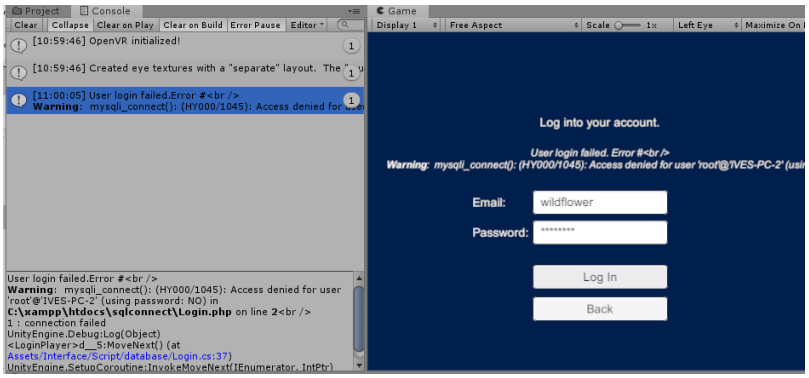
- Connection Database and research on object jittering

Contents :

As Dr Fairuz`s feedback regarding the database. I did create a connection to the database. Here are a few things that I did:

1. Install Xampp in the computer
2. Start Apache and SQL through Xampp
3. Install MySQL : Connector/NET

I run and tested the database and I encountered an error. I still figuring out the solution for this problem.



I did a research regarding object jittering. Here is the solution to it:

1. Rigidbody ; Interpolate, extrapolate
   - Interpolation : will make the rigidbody act similarly to a normal lerp but it will lag behind the wanted position more if the rigidbody is moving fast. (method of constructing new data points within the range of a discrete set of known data points)
   - Extrapolation : predicts movement based on the current velocity of the rigidbody which allows it to keep up when the rigidbody is moving fast. Can result in rubber banding effect where if the rigidbody hits a collider at high speed, it may appear to cli inside or through it for one frame until the rigidbody realizes that the collider is there in the next frame. (Extrapolation will predict the position of the rigidbody based on the current velocity.)

DETAIL REPORT **WEEK NO: 8**

Objective(s) of the activities :

- Grabbing Function() : pass around object between Hands

Contents :

For the jittering object, I tried the solution that I found during the research. I changed all Rigidbody: Interpolate component from None to Interpolate.
I run and tested the scene, there is a little bit of jitter when player sacked the object but there is an improvement compared to the previous testing.

Regarding the grabbing function, Dr. Fairuz asked us to add function where objects can be passed around between hands(controller). Mr Shri also asked us to improve our grabbing function since currently when the player wants to grab the object, they will have a hard time since there is lack of interaction between object and Hands.

I did a few changes:

1. For improvement of grabbing function, I edited the box collier from radius: 0.1 to radius:0.05 and place it in the middle of the hands. This will improve the interaction since the collier is fit enough and will not distract with any object surrounding the Hand
2. For pass around object function, I added SteamVR Hand script to both of the controlles and SteamVR Interactable script to all the objects that need to be interacted with the Controllers.

DETAIL REPORT **WEEK NO: 8**

Objective(s) of the activities :

- Integration with Window Mixed Reality (WMR)

Contents :

I did a research on how to integrate the current project with WMR. The requirement tools are Visual Studio 2017 and development and HoloLens Emulator and Holographic Templates (Only required for HoloLens development).

Then, for project setup and to fully support Window Mixed Reality features, I need to change Camera, performance and publishing settings.

1. For Camera Settings, tag the Camera that intended to use as "Main Camera"
2. For Performance Settings, use the Fastest quality settings in Edit > Project Settings, then select the Quality category. This can help in maximizes performance and reduces power consumption.
3. For Publishing Settings, go to Publishing Settings panel of the Player settings and check the box for each option to use from the Capabilities list.
4. Configure Player settings to build Windows Mixed Reality applications correctly:
    i. From the Build Settings window, click the Player Settings button, and then navigate to the XR Settings panel.
    ii. Enable Virtual Reality Supported.
    iii. Click the + button on the Virtual Reality Devices list and select Windows Mixed Reality

Then for exporting a visual studio solution, Go to File > Build Settings and select Universal Windows Platform from the Platform list. Then, click the Switch Platform button at the bottom left of the window to configure the Editor to build for Windows.