LOG BOOK **WEEK NO: 3-4**

WEEK NO	DATE	BRIEF DESCRIPTION OF DAILY ACTIVITIES
3	**16th September 2019**	• Modified Module 2;Ikea Assemble regarding Multiplayer Mode
	17th September 2019	• Fixing error regarding Multiplayer Mode
	18th September 2019	• Add Remote Procedures Call in the code to transfer data
	19th September 2019	• Add Ownership Transfer to the code to receive and request for non-Master Client
	20th September 2019	• Disable camera for non-Master Client
4	**23rd September 2019**	• Adding teleport function to player in Module 2
	24th September 2019	• Study snapping function and redesign UI interface for instructions • Rearrange the lobby and room scene
	25th September 2019	• Add Snapping function in the code
	26th September 2019	• Fixing error of snapping in the scene
	27th September 2019	• Differentiate object snapping and object

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: 3**

Objective(s) of the activities :

- Multiplayer Mode

Contents :

Make Module 2 in multiplayer Mode. Here are few things that I did to make the module in multiplayer mode.

1. Import Photon from Asset Store
2. Create a new script : "MyPlayer" , "Manager"
3. Add "Manager" script in the scene and "MyPlayer" script in the CameraRig
4. Drag CameraRig inside the player Prefab in "Manager" script
5. Add PhotonView and Photon Transform View in the CameraRig

Then, I run and tested it using two PCs, when player connect to own server and join the same room, it spawn the CameraRig as "Player" but there are a few problems that occurred. These are the problems:

- Player spawn and they can see each other but the cube that attached to Camera in CameraRig is following the player of the PC owner.
- It does not show other player movement and only shows that there are 2 players in the room.
- Player also cannot see each other controller hence they cannot see any pickup and drop object activities from other player

DETAIL REPORT **WEEK NO: 3**

Objective(s) of the activities :

- Fixing error regarding Multiplayer Mode

Contents :

We had a meeting with Dr Fairuz and his students. We updated Dr Fairuz on the progress and also get help on our problem with his students.
I tried a few suggestions from his students.

1. Adding a few code in "MyPlayer" script. The code adds functions to CameraRig which are it can deactivate scripts and objects that should only be enabled for local player.
2. Then I removed Photon Transform View in the CameraRig and add it to cube that attached to camera instead.
3. Then, I dragged the cube to "MyPlayer": local scripts
4. Add Photon Transform View to controller and drag it to local objects

Then, I run and tested using two PCs, resulting in player can see each other and follow each other movements. There are still a few problems.

- The controller still cannot be seen by other player.
- They cannot see any pickup and drop object activities from other player

DETAIL REPORT **WEEK NO: 3**

Objective(s) of the activities :

- Adding RPC Function to Player

Contents :

I found an information regarding the problem; controller cannot be seen hence the pickup, drop activities data cannot be send and received to other player which is RPC. RPC is Remote Procedure Call. Remote Procedure Calls are exactly what the name implies: method-calls on remote clients in the same room. To enable remote calling for some method, it must apply the [PunRPC] attribute.

1. I tried to add code in "Hands" script using [PunRPC] on the public void PickUp() and public void Drop().
2. Then, call them in "MyPlayer" script using photonView.RPC("Drop", RpcTarget.AllBuffered) and photonView.RPC("Pickup", RpcTarget.AllBuffered)
3. I used RpcTarget.AllBuffered because it sends the RPC to everyone else and executes it immediately on this client. New players get the RPC when they join as it's buffered (until this client leaves).
4. I also replaced the controller model with cube object and drag it to local scripts in "MyPlayer" script

I run and tested using two PCs, when player join the same room, they can see each other and the cube followed each player movement. The player also can see each other controller. I encountered one problem:

- Only Master client movement: Pickup and drop object data send to other player and when other player pickup or drop the object , the data is not be sent to other client hence they only Master client movement data is being sent and received through the network.

DETAIL REPORT **WEEK NO: 3**

Objective(s) of the activities :

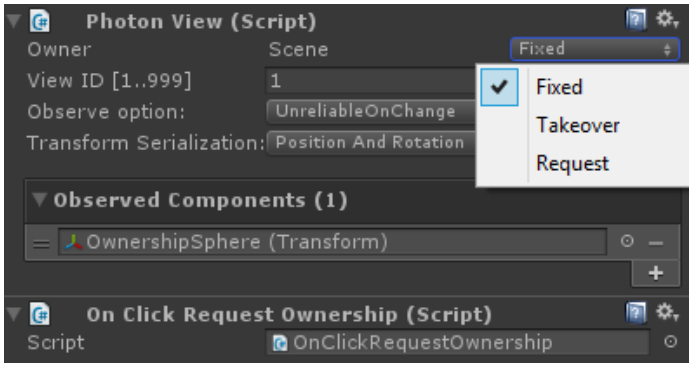
- Adding Ownership Transfer to the scene

Contents :

I did some research on the previous problem and found out about transferring ownership. Ownership Transfer allows clients to pass control of any networked object. In Pun, every object can only be controlled by one client.

When a client instantiates something, it will be the owner of that new object, PhotonView.isMine is true on that client only and if use OnPhotonSerializeView, only this client will write to the PhotonStream. The others just receive and update accordingly. Here are the few things that I modified in the scene:

1. I configured the Photon View; changed it from "Fixed" to "Takeover". There are three options Fixed, Takeover and Request. "Fixed" owner keeps the creator of a GameObject as owner. "Takeover" enables any client to take the GameObject from the current owner. "Request" asks the current owner to pass it over that also can be rejected.



2. Then, I created a new script called "OwnershipTransfer" and add OnOwnwershipRequest and OnOwnershipTransfered to the code
3. I also used base.photonView.TransferOwnership(requestingPlayer);.
4. I called them on private void OnTriggerEnter using base.photonView.RequestOwnership();.

I run and tested using two Pcs, and master client can see others client movement and also pickup and drop objects. Other clients also can see master client movement. They can see each other controllers. I did encountered a problem where the owner of the PC can see the cube which is like a mirror since HMD camera took other players camera.

DETAIL REPORT **WEEK NO: 3**

Objective(s) of the activities :

- Enable camera for other Player over network

Contents :

I searched previous error on the Internet and there is same issue in Unity Forum. They suggested to enable the camera if the player is not local player. Here are few things that I add in the project:

1. I add Photon Transform View and Photon View in the camera.
2. Then I added a few code in "MyPlayer" script where I initiated my camera using Public Camera cam;.
3. Then I enabled the cam in the if(PhotonView.IsMine) else, using cam.enabled = false;. This wil deactivate the other client camera.

This help the HMD Camera took each player camera correctly.
I also changed the controller model with VR glove model.

1. I dragged the VR glove left model slim and VR glove right model slim prefab to each Controller in Camera Rig.
2. Then, I removed the Steam VR_Behaviour_Skeleton inside the VR glove prefab.
3. I added the Photon View and Photon Transform View in the VR glove prefab.
4. I unchecked the model in each controller.

The controller successfully changed into the VR glove once I run the project but the problem is the finger figure in the VR glove is not functioning even though it still can pick up and drop objects.

DETAIL REPORT **WEEK NO: 4**

Objective(s) of the activities :

- Adding teleport function to player in Module 2

Contents :

Mr. Shri Rai suggested to add teleport function for the player in the Module 2 – Ikea Assemble. Here are a few things that I did to add teleport function to Player:

1. Add a few code in "Hand" script – tryTeleport()
2. Create PR_Pointer from GameObject to navigate the player where to teleport to.
3. Select "/teleport" in teleport action options in "Hand" script.
4. Drag the PR_Pointer to "Hand" script in M_Pointer field.
5. Add Steam_VR_Fade script to PR_Pointer.

Then, I run and tested for one player. The player can teleport as well as pickup and drop the object in the scene.

Next, I run and tested using two PCs, when there is two players in the same room. Both players are not able to teleport. When teleporting the player flashes quickly in the right direction, then goes back to the original position just as quick. I narrowed down the problem that it does not send any data of the new position over network.

DETAIL REPORT **WEEK NO: 4**

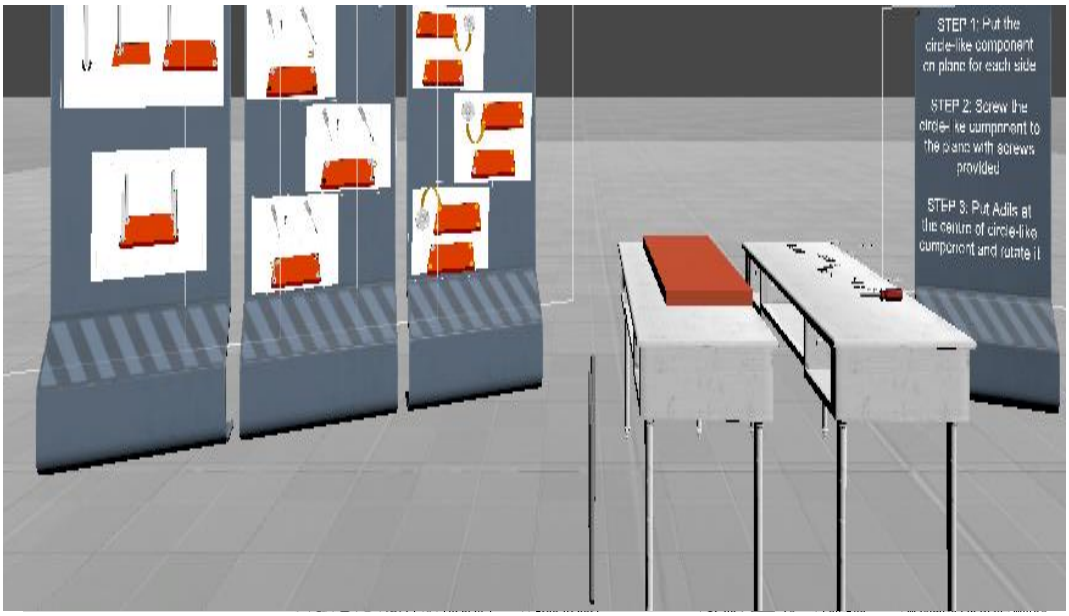
Objective(s) of the activities :

- Study snapping function and redesign UI interface for instructions
- Rearrange the lobby and room scene

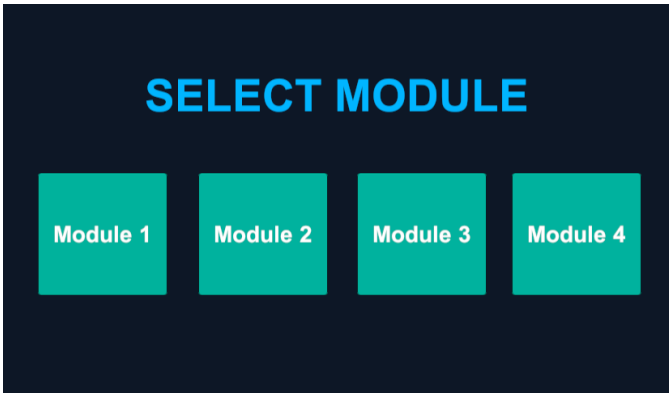
Contents :

I studied and followed a few tutorial regarding snapping object. There are a lot of action VR required to add in "Hand" script. It needs a slot which is the place for snapping the object to. The snapping function is still under development.

Next, I redesign the UI interface for instruction in the Module 2. I add an Image script in all the images to make it clearer in Virtual environment.



Then, I modified the Lobby and create room scene. I added the two module in it.



DETAIL REPORT **WEEK NO: 4**

Objective(s) of the activities :

- Add Snapping function in the code

Contents :

I followed a few tutorials that I found on Internet. These tutorials are for adding snapping function to the player interaction. Here are few things that need to be done:

1. Create "slot" from GameObject. This is to determine where is the place to snap the object.
2. Create "slot" script and add function HeldObject() so that the slot can hold the object.
3. Add "slot" script to "slot" object
4. Create "socket" script to let the interaction between hand and object
5. Add "socket" to "slot" object and "controller"
6. Create "Moveable" script for interaction between the slot and the "interactable" script for Hand
7. Add "Moveable" script in each of the snapping object

I run and tested the scene using one PCs and the snapping can be done but the position of the object is not correct.

DETAIL REPORT **WEEK NO: 4**

Objective(s) of the activities :

- Fixing error of snapping code in the scene

Contents :

I added the box collider in every snapping object and edit the collider according to the shape of the object. I changed a few things in the code:

1. Add a few code in "Interactable" script. Add GetAvailability() to determine the availability of the snapping position.
2. Create "InputManager" script to add function of Hand for snapping function.
3. Add "InputManager" script in the Hand (controller)
4. Drag the Controller(left) and Controller(right) to the trigger down in "InputManager" script and choose TryInteraction() function.

I run and tested using two PCs and we can see the snapping function is functioning.

DETAIL REPORT **WEEK NO: 4**

Objective(s) of the activities :

- Differentiate object snapping and object

Contents :

I want the player to be able to interact with the object that need to be snapped and the object that does not have to be snapped.

1. I differentiate the object by tagging and layering.
2. I tagged the object that does not need to be snapped as "Interactable" and layering the object that need to be snapped as "Interactable".This help me to add a few codes to indicate which object is player interacted with.
3. I also use GetComponent<> to find the object with "Interactable" tag when the controller picks up the object.
4. I added the [PunRPC] to interactable script to let them synchronize over the network

I run and tested the scene. Both players are able to see each other and the snapping and players` movements is synchronizing over network. However, sometimes latency happens resulting in server late to send the data.