

**STUDENT INDUSTRIAL INTERNSHIP PROGRAMME LOGBOOK**

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**Matric No: 24657**

**Programme: Bachelor of Technology in Information System**

**Place of Training: Universiti Teknologi PETRONAS (UTP) / Murdoch University, Australia**

**Period of Training: 6th May 2019 – 6th December 2019**

**Project Title: Project Neuromender (a home computer-based stroke rehabilitation system).**

**LOG BOOK WEEK NO: 9–10**

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| **WEEK NO** | **DATE** | **BRIEF DESCRIPTION OF DAILY ACTIVITIES** |
| **9** | **01.07.2019** | * Meet with supervisors, Dr.Fairuz Shiratuddin and Shri Rai. * Report Duty. * To learn set up the Virtual Reality equipments (HTC and Lenovo). |
| **02.07.2019** | * Project discussion with the supervisors. * To find and list the research papers from Doug Bowman. |
| **03.07.2019** | * To read the research papers. * To do research and read about Multiplayer Collaborative in Virtual Environment. |
| **04.07.2019** | * Continue to read the research papers. * Discuss on the idea to present to the supervisors. * To try setup the haptic devices. ( CaptoGlove, Pen) |
| **05.07..2019** | * Meeting with the supervisors. * Present the ideas. * To do research and read about how to connect two PCs using Ethernet. * To do research ad read about Photon Cloud Server. |
| **10** | **08.07.2019** | * To continue read about Photon Unity Network. * Watching tutorial on YouTube on how to connect multiple VR devices in one PC. |
| **09.07.2019** | * Try to install MySQL on PC. * Try to set up multiple VR devices in one PC. |
| **10.07.2019** | * Continue to try set up multiple devices in one PC. * To do research and read about PlayFab. * Try to do PlayFab in Unity. |
| **11.07.2019** |  |
| **12.07.2019** |  |

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| Logbook Weekly Evaluation by HOST COMPANY SUPERVISOR | | | | | |
| I**nstruction 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: 9**

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| **Objective(s) of the activities :**   1. **To report duty.** 2. **To meet with supervisors.** 3. **To set up the Virtual Reality equipment.** |
| **Contents :**  **Monday (01st July 2019)**   1. **We report our duty at Murdoch University, Perth, Australia.** 2. **Meet the supervisors, Dr. Fairuz Shiratuddin and Mr. Shri Rai at 10.30 a.m. for the first time.** 3. **Then, we introduce ourselves and having briefing session from the supervisors.** 4. **After that, we having campus tour by visiting the labs and rooms in that building.** 5. **After having campus tour, we get an instruction to set up the Virtual Reality equipment, which are HTC and Lenovo, and we were success.** 6. **For setting up the equipment, we refer to several video tutorials in YouTube and it helps us a lot and we success in setting up the Virtual Reality equipment.** |
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**DETAIL REPORT WEEK NO: 9**

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| **Objective(s) of the activities :**   * **Project discussion with the supervisors.** * **To find and list the research papers from Doug Bowman.** * **To find the difference between GitHub and BitBucket.** |
| **Contents :**  **Contents :**  **Tuesday (02nd July 2019)**   1. **Our supervisors give us explanation regarding the project that we will carry out throughout the internship.** 2. **For the first step, we have been instructed to find the research paper about Multiplayer Collaborative in Virtual Environment written by Doug Bowman.** 3. **Other than that, we also try to find the differences between GitHub and BitBucket because we want to choose the best apps for our project management.**     **Here is my findings:**   |  |  | | --- | --- | | **GitHub** | **BitBucket** | | * **Unlimited public repository free.** | * **Charge a fee for user more than 5.** | | * **Easy to contribute to an open source project.** | * **Own a server to keep all data. (BitBucket Server).** | | * **Provide a free wiki, issue tracker, project planner, a code review system.** | * **Free issue tracker and Wiki.** | | * **Allow source code repository to be posted in public.** | * **Source code repository hosting does not charge a fee for each private repository.** | | * **Does have collaboration through online bit and requires no setup for new user.** | * **Does have authentication via GitHub.** | |
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**DETAIL REPORT WEEK NO: 9**

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| **Objective(s) of the activities :**   * **To do research and read about Multiplayer Collaborative in Virtual Environment.** * **To create an idea and design the project.** |
| **Wednesday (03rd July 2019)**  **1. We continue reading and doing further research regarding Multiuser Collaborative in Virtual Environment.**  **2. We try to find the best way on how to connect the multiplayer in Unity and we found that using Photon Unity Network (PUN) is the best way.**  **- Photon Unity Networking (PUN) is a Unity package for multiplayer games. Flexible matchmaking gets your players into rooms where objects can be synced over the network.**  **3. After we read the research papers, we discuss and exchange our opinions on idea that we are going to present to our supervisors.**  **- For the idea, we will connect two computers using Ethernet or using 2 ports HDMI on one PC.**  **- Then, the Head-Mounted Device (HMD) will be connected using Photon Unity Networking (PUN) in different PC.**  **- Photon Network Manager is a part of Photon Unity Network (PUN) where it will act as Photon Transform View. It function is to track any movements of the HMD.**  **- Other than that, Photon Cloud Server in the PUN will store the authentication of the player in the server.**  **4.Then, we try find several video tutorials on YouTube on how to connect multiplayer using one PC and how to connect multiplayer using several PCs but one engine which is Unity.** |
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**DETAIL REPORT WEEK NO: 9**

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| **Objective(s) of the activities :**  **• Continue to read the research papers.**  **• Discuss on the idea to present to the supervisors.**  **• To try setup the haptic devices. ( CaptoGlove, Pen)** |
| **Contents :**  **Thursday (04th July 2019)**   1. **To continue read the research papers about Multiuser Collaborative in Virtual Environment.** 2. **To further reading about Photon Unity Networking and watching several tutorials on YouTube on how to use PUN in Unity. Based on the video, we need to download the PUN first in the Unity asset store and import it. After that, the PUN wizard pop out to request for application ID.** 3. **We discuss again on the idea and the design for the project for improvisation before presenting to the supervisors.** 4. **We try to setup the Augmented Reality device, which is Windows Mixed Reality. To set up the equipment, we refer to video tutorial on YouTube. Everything went well and we got no problem on it but the controller got no batteries.** 5. **Other than that, we try to setup the haptic device, which is CaptoGlove but our first attempt was failed. We already tried to follow the instruction in the manual book to set up the device but we cannot make it. The challenge that we face is that the haptic device cannot connect with the Bluetooth of the computer.** |
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**DETAIL REPORT WEEK NO: 9**

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| **Objective(s) of the activities :**   * **Meeting with the supervisors.** * **Present the ideas.** * **To do research and read about how to connect two PCs using Ethernet.** * **To do research and read about Photon Cloud Server** |
| **Contents :**  **Friday (05th July 2019)**   1. **We presented the idea to the supervisors regarding the idea and the design. As for the idea, the PCs will connect through Ethernet while the Head-Mounted Devices will be connected to Photon Network Manager in Photon Asset.**      1. **To get the data collected from the device and user, Photon provides Photon Server to store all the data. The Cloud Server is connecting to Photon Unity Networking. Photon also provides user a license for its user to setup the server hosted but the user. We choose to have the license to get maximum of 100 Concurrent User (CCU).** |
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**DETAIL REPORT WEEK NO: 10**

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| **Objective(s) of the activities :**   * **To learn further about Photon Unity Networking (PUN)** |
| **Contents :**  **Monday (08th July 2019)**  **I continued study about Matchmaking for multiplayer in Virtual Environment.**  **Learning outcome:**   1. **Getting into a room to play with (or against) someone is very easy with Photon.** 2. **There are basically 3 approaches:**  * **Either tell the server to find a matching room** * **Fetch a list of rooms to let the user pick one.** * **Follow a friend into her room.**  1. **If there are issues on matchmaking players:**  * **Verify that you are using same AppId in all clients.** * **Verify that clients are connected to the same Region. Only players connected to same region can play with each other no matter what device or platform they are using.**  1. **Verify that you are using same App Version in all clients.** 2. **Verify that players have different UserIds. Players with same UserId cannot join the same room.** 3. **Before trying to join a random room, make sure to choose the same lobby (name and type) used when creating it.** 4. **If you are doing random matchmaking, using room properties as a filter make sure to set the keys of those properties to be visible from the lobby when creating the room.** 5. **If you are doing random matchmaking with SQL filters make sure to set the reserved filtering properties keys used to be visible from the lobby. It is also important to relax the SQL filter with each random matchmaking attempt or create new rooms at some point after a number of failed attempts.** |
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**DETAIL REPORT WEEK NO: 10**

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| **Objective(s) of the activities :**   * **Try to install MySQL on PC.** * **Try to set up a connection between users through Unity.** |
| **Contents :**  **Tuesday (09th July 2019)**   * **I tried to install MySQL on my PC by following the guidelines from the internet. After installing MySQL, I try to connect the MySQL with Visual Studio so that the data that stored in the MySQL can transfer to Visual Studio but my first attempt was failed.** * **Then, we tried to set up a connection between users through Unity by referring to video on YouTube. The coding and method of setting up the network is followed one by one.** * **For the first step, we need to create User Interface (UI) in Unity. Then, we did some coding to allow the User Interface.** * **Photon engine is imported in the Unity code to allow connection to master server of Photon. Finally, the project has connected to the master server.** |
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**DETAIL REPORT WEEK NO: 10**

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| **Objective(s) of the activities :**   * **To read about PlayFab.** * **To try doing PlayFab in Unity** |
| **Contents :**  **Wednesday (10th July 2019)**   * **Unity3d SDK provides everything that we need to access the PlayFab API. In my situation, I use PlayFab as the authentication for the game. Before importing the PlayFab into Unity,I need to sign up into PlayFab account to store all the players’ authentication data.** * **To do the PlayFab in Unity, I refer to video in YouTube. It helps me a lot, as it shows the steps one by one.** * **After successfully doing the simple authentication using PlayFab, I tried to do the authentication to another level where I tried to make an authentication using Facebook.** * **I found that to make an authentication using Facebook is quiet hard because I cannot catch up with the tutorials that I have watched on YouTube.** |
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**DETAIL REPORT WEEK NO: 10**

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| **Objective(s) of the activities :**   * **To try connect two head-Mounted devices in one time in different PCs.** |
| **Contents :**  **Thursday [11th July 2019]**   * **We try to connect two Head-Mountain devices, which are Windows Mixed Reality (WMR) and Vive using different PC but we are using the same Steam VR account.** * **At first, we tried to connect WMR first, we played a game, and the device is working.** * **Then, after connecting the Vive, the WMR is not functioning when we played the game.** * **This is due to we use the same Steam VR account at the same time.** * **Steam VR only allows one HMD to connect at one time.** * **For the alternative, we made another Steam VR account so that we can connect multiple Virtual Reality device at one time.** |
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**DETAIL REPORT WEEK NO: 10**

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| **Objective(s) of the activities :**   * **To update the progress of project to the supervisors.** * **To try make an authentication using PlayFab.** |
| **Contents :**  **Friday [12th July 2019]**   * **We update the progress of our project to the supervisor. We failed to achieve the goal for that week because we got problem on the Master Server where there is error on the coding.** * **Our supervisor gives us advice to update the Unity so that it will compatible to the Photon Server.** * **After that, I tried to make second attempt to create the authentication using Facebook. I tried to follow the step and refer to several videos on YouTube but my second attempt also failed.** * **I also refer to some documentations on the Internet that I did not skip any steps but I cannot detect my error.** |
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**LOG BOOK WEEK NO: 11–12**

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| **WEEK NO** | **DATE** | **BRIEF DESCRIPTION OF DAILY ACTIVITIES** |
| **11** | **15.07.2019** | * **To connect Virtual Reality equipment, HTC Vive using different PCs.** |
| **16.07.2019** |  |
| **17.07.2019** |  |
| **18.07.2019** |  |
| **19.07..2019** |  |
| **12** | **20.07.2019** |  |
| **21.07.2019** |  |
| **22.07.2019** |  |
| **23.07.2019** |  |
| **24.07.2019** |  |

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| 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** |
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| Total Score | | | | | **/20** |
| **Comments:** | | | | | |
| **Host Company Supervisor’s Signature & stamp:** | | | | | |
| **Name & Designation:** | | | | | |
| **Date:** | | | | | |

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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **To connect Virtual Reality equipment, HTC Vive using different PCs.** |
| **Contents :**  **Monday [15th July 2019]**   * **I tried to connect two (2) Head-Mounted Display (HTC Vive) using different PCs.**   **-Purpose: to connect the multiplayer in the game.**   * **We played multiplayer games where we interact with the player in the virtual environment.** * **Challenges:**  1. **At first, we having some difficulties where when we try to connect the two Head-Mounted Display in one time, one of the Vive will terminate from the Steam VR.** 2. **The problem was that, we could not connect two HMDs using one Steam VR at one time so we have decided to sign up another Steam VR account.** 3. **When we try to play the sample games in one of the PC, the Steam VR sends notify that space of the disk is not enough to download the games.**  * **Solution: I try to clear the download cache to fix the problem.** * **Based on my reading, there can be a conflict with an installation and with the steam client. It may be possible that the game that we are trying to run is partially downloaded because of any error. Because of this, steam does not understand whether to install it or download it again. Hence, it pops up an error that there is not enough disk space.** * **We can try deleting the downloading file and running the game again.** * **Steam may download some files again but it will run expected if it’s does.** |
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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **To transfer the authentication data to the hosted server** |
| **Contents :**  **Tuesday [16th July 2019]**   * **I have decided to use PlayFab in order to secure login/authentication. All I’ve got to do is to transfer all the authentication data to the hosted server.** * **What I was originally going to do was the client login to PlayFab, the cloudscript would send a REST request to server.** * **Problem:**  1. **I am not sure how the server would ensure the client trying to connect is the right one.** 2. **Is there a simpler way to use PlayFab as middleman for authentication? All I need is to go from getting the user logged in (I already have the PlayFab client running fine on Unity) to have them authenticated/identified with the hosted server.**  * **Solution:**  1. **Using externally hosted game servers with PlayFab. With this solution, we will still using the existing server, all I need to do is adding some code to integrate with PlayFab and in server.** 2. **Once we have made the decision to use externally hosted servers, the setup is easy.** 3. **In the settings, API features tab of the PlayFab Game Manager, select the “Use external game server provider’ option and click “SAVE API Features”** |
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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **To update the progress of the project to the supervisor.** * **To try connect the multiplayer in the sample game.** |
| **Contents :**  **Wednesday [17th July 2019]**   * **We update the progress of the project to our supervisors.** * **Feedback:**  1. **The server is headless.** 2. **Try to extract the data into the database.** 3. **Try to find a sample multiplayer VR application and try to running on two headsets going through the server.**  * **I took my part on finding a sample multiplayer VR application to run on two headsets going through the server.** * **My partner, Nur Amiera and I try to run the sample VR game without user login and authentication.** * **A first, we try to find the sample game but end up we try to do the sample our own.** * **We refer to tutorial video on YouTube to make a simple game to connect with two headsets.** * **We also create room so that client can enter and interact with other player in the Virtual Reality environment.** |
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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **To install and setting up MySQL Workbench.** |
| **Contents :**  **Thursday [18th July 2019]**   * **We try to install and setting up database. The database is to store clients’ data, so we have decided to use MySQL Workbench because it has an application interface that visualize the table and running server in one application.** * **To setup a free database, we chose to download MySQL workbench community as it is free to download and use.** * **After the connection in the MySQL server has been setup, we tried to figure out on how to connect data from Unity to database of MySQL workbench.** * **However, we cannot retrieved the data from Unity.** * **There are several questions and challenges that we need to overcome:**  1. **Which address we need to use to connect to database when coding the .cs file? Is it the localhost of the database or Ip address of the PC?** 2. **In which files should the SQL queries (the connection setup) placed? Is it in the cs? We tried to follow a tutorial, the tutorial code the connection setup in C# file by including namespace of system and MySQL. However, when we run the code, there’s error that client cannot be authenticated and need to consider upgrading MySQL client. We are not sure about this error because the solution from website suggested that we Grant a privilege for the localhost, but the solution does not work as the same error keeps appearing.** 3. **Is database connection related to Photon server connection? Should we use the same IP address used in Photon server when establishing a database connection? We tried to include the IP address of Photon server (which is also an IP address of local PC) but the connection can’t be established.** |
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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **To continue connect the multiplayer to running on two headsets going through the server.** * **To connect the multiplayer authentication to Photon server.** * **To update the progress to our supervisors.** |
| **Contents :**  **Friday [19th July 2019]**   * **We have tried to connect the multiplayer in Virtual Reality games to running on two headsets going through the server.** * **However, it was failed to connect the multiplayer using different PCs.** * **Other than that, we connect the multiplayer authentication to Photon server.** * **After running the code, it said that we have connected to the true server, but, when we checked on the server, there is no data updated.** * **Challenges:** * **To configure whether the connection of Photon server has established or not. The connection is determined by trying to get connected form other PC in the lab using the same IP address. Result: the other computer cannot get connected to the Photon server and remain in the “trying to connect” state.** * **Connection to database. It is still in confusion on how to link Unity to database.** * **Today, I learned how to identify if the connection between PC is blocked by firewall or not. Using Command prompt and ping the IP address of the other PC that we would like to connect to will show the result.** |
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