Project Timetable:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Tasks | Start | End | Outcome | Completed |
| Research proposal   * Initial reading * Decide aims and objectives | 12/06 | 22/06 | I outlined a broad topic of research, including aims, objectives, related work, and methodologies. However, this did not narrow in on a particular focus area but summarised the research field with potential project purposes | Yes |
| Unity skill development   * Attend a virtual reality workshop * Use unity hub to develop basic game engine skills * Research unity in health care and rehabilitation | 3/07 | 9/07 | I attended a 2 day VR workshop, and developed my unity game engine skills by completing course provided by Unity | Yes |
| Project inspection   * Narrowing down to a more specific area of research * Prepare slides, and decide what devices will be used for the research | 10/07 | 13/07 | Completed a presentation, demonstrating the importance of my research, what challenges there will be and how I will overcome these challenges | Yes |
| Project focus   * Decide a focus point for my project (this was part of my inspection feedback) * Reading and discussion with supervisor/other professionals | 14/07 | 17/07 | Determined the focus point  Production of an immersive environment using forces to assist with upper limb rehabilitation | Yes |
| Project specifications   * Determine a project plan, including tasks, system requirements | 17/07 | 18/07 | Created a list of tasks to be completed to satisfy the system and project requirements | Yes |
| Creating a client sever architecture between unity game (server) and the haptic device (client) | 18/07 | 4/08 | Using UNET, or mirror  This did not work as the communication wasn’t robust enough. I was used DLL to communicate between game engine and haptic device | No |
| Using DLL import to access functions and classes from the force dimension SDK. This means I can use the force dimension delta in unity | 28/07 | 31/07 | The use of dynamic link libraries allowed me to establish a communication platform between unity and the force dimension delta device. This may cause issues in the future, and may need to re think communication strategy | Yes |
| Learn the force dimension SDK and start producing exercises using forces with unity | 31/07 | 4/08 | I produced an assistive forces interaction exercise that attracts the user to an object, and will produce 2 variations of resistive forces   1. produce a 5 second resistive force every 10 seconds 2. Produce a resistive force when the user is places their object inside a target object for longer than 5 seconds | Yes |
| Make a repelling force to act like a clinician training a patient in rehab | 31/07 | 6/08 | I created a repelling force that pushes the user away from an object | Yes |
| Design an immersive environment for virtual reality | 07/08 | 08/08 | Produced a immersive scene, including objects to the user will have some orientation when using it in virtual reality | Yes |
| Virtual reality, Force dimension delta device and unity integration | 07/08 | 13/08 |  |  |
| Rehabilitation game design   * Create an interactive game that will use forces to test a patients upper limb motor control and strength ability | 07/08 | 13/08 |  |  |