**Week 2**

# Before Meeting

**5th October 2015**

* A crude idea was made for different aspects of human computer interface that can be researched and worked upon like the collection till at railways, ATMs, mind control, gesture control, touch control, etc.
* Controlling media on different platforms via gesture recognition taken as an input from a camera. Further integrating the software with various specific commonly used programs to have extended functionality.

**1st Meeting** **6th October 2015**

**04:00 P.M. to 04:30 P.M.**

* Hand gesture controlling a bionic arm by mimicking the hand movement.
* Development of a windows or an android application.
* Looking on previous year’s dissertation submitted by students on university website under the department webpage.
  + Nicholas Howes
  + Michael Toumbas
  + Mathew Kavanagh

## Individual Work

**7th October 2015**

* Taking references and reading articles from Google Scholar and Star-Plus
* Gesture control on android via camera inputs
* Finally settling for a remote controlled car via hand gestures on a laptop with a raspberry pi.

**2nd Meeting** **8th October 2015**

**11:00 A.M. to 11:30 A.M.**

* Discussion on the input module that should be used for the hand gestures. (Xbox Kinect, 3-D Camera or a Leap motion)
* Discussion regarding the choice between controlling a quad-copter or a remote controlled car
* Library routines for the Software Development Kit (SDK). A coding language with more programming expertise is preferred.
* Discussion about the contents of the literature review of the final report.

# Individual Work

**10th October 2015**

* Looking at various articles from University Sources like StarPlus and google scholar
* Using various varied searches to gather information of all sorts like gesture recognition, remote control, virtual reality, telemetry and walking and climbing robots.
* Finalizing materials for the remote controlled car and finding their UK suppliers as possible.
* Looked at various modes of input for the gesture recognition and their feasibility while implementation.

**12th October 2015**

* Looking at already developed modules for these specific purposes like Xbox Kinect, 3-D Camera, Leap motion controller, etc.
* Comparing these modules on the basis of economic and developer friendly factors resulted in Leap motion controller to be the best out of the lot.
* Giving a deep thought to the device that would be finally controlled and the complexity each device would add to the project. A device was to be chosen so that other modules won’t suffer.

#### Week 3

**3rd Meeting** **13th October 2015**

**04:00 P.M. to 04:30 P.M.**

* Asking about the readability of the log book
* Finalizing on the human input interface based on economic, ease of use and open source nature
* Discussion on the way to make the remote device available to control for longer distance and thus finalizing Wi-Fi as the network
* Robotic and HCI Journals to be included in the literature review
* Quantification of Aims into Basic and Advanced
* Discussion on part of project to be completed before Week 12 Sem 1.

# Individual Work

**14th October 2015**

* Deciding on the use of coding language based on self-expertise ( C/C++/Python/Java )
* Discussion on the way to make the remote device available to control for longer distance and thus finalizing Wi-Fi as the network
* Robotic and HCI Journals to be included in the literature review

**15th October 2015**

* Leap motion controller available at different place for different prices
* Researching for similar examples already available on the internet

**18th October 2015**

* References to Node.js and Cylon.js frameworks
* Reading articles for leap motion and its data processing

#### Week 4

**4th Meeting** **20th October 2015**

**04:00 P.M. to 04:30 P.M.**

* Ask for expert advice on Node.js and Cylon.js
* Feedback on the Aims and Objectives document
* No expertise available at the department. Thus, self-exploration is the key in each part of the development of the human interface and the device communication protocol
* Requisition form for the ordering of the hardware ( Leap-Motion )
* Progress Review for the second semester to be included in the Gantt chart
* Example: Hybridgroup cylon on github

# Individual Work

**20th October 2015**

* Filling of requisition form for primary hardware ordering

**23rd October 2015**

* Reading articles for leap motion and its data processing

**25th October 2015**

* Researching for the system configuration and its components
* Researching on the motors for the movement of the remotely controlled device

**Week 5**

**5th Meeting** **27th October 2015**

**04:00 P.M. to 04:30 P.M.**

* A lack of ability to find much on Node.js and Cylon.js resulted to dropping of the plan in making the coding part of the project easier.
* A request was made for an extra monitor due to the lack of lab access

## Individual Work

**30th October 2015**

* Finalizing on the system configuration. A raspberry pi mini-computer will be loaded on the remote controlled device with a router and a power backup which will be communicated with the human interfacing device via laptop on a virtually private network. The commands will be sent to the raspberry pi via remote access making it a secure form of communication.
* The laptop screen will also display the current recording hand movements with a legend of commands that will control the device
* The Raspberry pi will be controlling some motors via a motor driver for the movements

#### Week 6

**6th Meeting** **4th November 2015**

**12:30 P.M. to 01:00 P.M.**

* Discussion on project progress review
* Update to references and the articles found that would be a baseline to set the project upon

## Individual Work

**6th November 2015**

* More article regarding data input categorization of leap motion hardware were read and references to the same were made
* Information regarding the sorting of data received from the interfacing device was researched upon
* Encountered permission issues and controller services error while setting up test project

#### Week 7

**7th Meeting** **10th November 2015**

**2:00 P.M. to 02:30 P.M.**

* Complaint about updates that are done outside the meetings that needs to be included in the log book.
* Updated the literature review
* Feedback for progress review

## Individual Work

**12th November 2015**

* Researched about the permissions error and found that the error is most common due to corrupted installation files, usage of USB 3.0 ports for connecting the controller instead of USB 2.0 and some missing header files that need to be included in every code snippet
* Referred to forums and blogs for the error

**15th November 2015**

* Updated the log book according to the complaints of the supervisor

**17th November 2015**

* Data received from controller is too random and with mixed signals from all channels. Thus, separating them is necessary but having troubles doing the same due to randomness.

#### Week 8

**8th Meeting** **19th November 2015**

**3:00 P.M. to 03:30 P.M.**

* Updated on the progress of getting random mixed channel data
* Also the reasons why the controller could not be properly detected
* Discussed the possibility of drones again instead of remote controlled cars and slashing down the idea due to flying rules and permissions and the limitation of the budget of the project
* Discussed the case of using Cylon.js and Node.js in the project to create a benchmark for the development of future projects
* Contacting alumni student from supervisor side to get any help available regarding the project

## Individual Work

**20th November 2015**

* Bought online learning kits for Node.js and raspberry pi with starter kit and some setup tutorials for getting help in the project development due to lack of technical and expert advice from the department.

**21st November 2015**

* Making final list of hardware, mechanical and electrical components needed for the project, cost estimation and asking for the re-imbursement of the personal expenditure used on project

**24th November 2015**

* Categorizing the input data from the leap motion controller into recognizing bones and fingers and some gestures and the apparent width and length of fingers.
* The gestures made are clockwise and anti-clockwise circle and tapping

#### Week 9

**9th Meeting** **25th November 2015**

**2:00 P.M. to 02:30 P.M.**

* Showcase of the leap motion gesture control
* A little testing of the same by the supervisor

## Individual Work

**28th November 2015**

* Research on the process and structure of a literature review
* Drawing an outline to write a draft version

**29th November 2015**

* Drafting the literature review

#### Week 10

**10th Meeting** **30th November 2015**

**11:00 A.M. to 11:30 A.M.**

* Discussion on first draft of dissertation
* Structure proofing the report with some content modification

## Individual Work

**2nd December 2015**

* Final changes were made to the report with all content addition and formatting

#### Week 10

**11th Meeting** **4th December 2015**

**12:00 P.M. to 12:30 P.M.**

* Final update on the report with content verification

## Individual Work

**6th December 2015**

* Getting in structured input from the leap motion controller and getting the code ready for demonstration

#### Week 11

**12th Meeting** **7th December 2015**

**9:30 A.M. to 10:00 A.M.**

* Demonstration of the leap motion controller
* Planning further steps for the progress of the project

## Individual Work

**11th December 2015**

* Some minor changes to the Interim report
* Submitting the report

#### Week 19

**13th Meeting** **5th February 2016**

**01:00 P.M. to 01:30 P.M.**

* Feedback of dissertation
* Discussion of marks obtained with areas of weakness

#### Week 20

**14th Meeting** **9th February 2016**

**02:00 P.M. to 02:15 P.M.**

* Discussion about communication protocols between the two modules with Master’s student and the supervisor

## Individual Work

**11th February 2016**

* Attempts were made to find a solution for remote control of the device while having a dynamic IP address
* Many options were discovered but relevance and expertise to use them were variable

**17th February 2016**

* List of some viable solution was made with a their respective pros and cons

#### Week 22

**15th Meeting** **22th February 2016**

**10:00 A.M. to 10:30 A.M.**

* The viable options were presented and were deeply discussed
* More research to be done for the finalization of the option

## Individual Work

**25th February 2016**

* Research was done and a solution was deduced by using a publicly available pubnub server which will host the commands between the remote device and the processing device

#### Week 23

**16th Meeting** **29th February 2016**

**10:00 A.M. to 10:30 A.M.**

* The option was explained and the way of communication was finalized as was the protocol
* Gesture defining task needs to take precedence

## Individual Work

**4th March 2016**

* Article, literary papers were read and an attempt was made to use standardized gestures on the basis of ease of usability of the user

#### Week 24

**17th Meeting** **7th March 2016**

**10:00 A.M. to 10:30 A.M.**

* Standardized gestures were not found and thus self-defined gestures to be used but to be properly supported with evidence of ease of use

## Individual Work

**10th March 2016**

* After much reading of articles and journals, gestures were defined for the use in the project
* These basic gestures would consist of basic function that would be performed by the user