**Final Year Project Plan**

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Department: CSC/4

Matriculation Number: U1220814B

**Project Title:** Development of healthcare and sports application using wireless wearable devices

Supervisor: Wang Ping, Associate Professor

Supervisor on I2R lab: Dr. Ge Yu

Project Scope:

**Part1:** EMG application on human body movement – phase 2: improvement of output signal synchronization in high speed movement

**Part2:** Convert the generated power into energy by using Computrainer

**Part3:** Data analysis on part1 and part2

**Part4:** Comparison of predicted data and real situation for sport players

**Timeline:**

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|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 - 30 |
| Research on EMG sensor and output signal synchronization |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementation of EMG application (phase 2) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Computrainer research and analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Data collection and analysis |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Project Optimization |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Prepare Project Report & Oral Presentation |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

**Time Period allocated for each task:**

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| --- | --- | --- |
| Task | Estimated Number of Weeks | Time Period |
| Research on EMG sensor and output signal synchronization | 4 | 2015 Aug 17th – 2015 Sept 13rd |
| Implementation of EMG application (phase 2) | 7 | 2015 Sept 14th – 2015 Nov 1st |
| Computrainer research and analysis | 2 | 2015 Nov 2nd – 2015 Nov 15th |
| Data collection and analysis | 4 | 2015 Nov 16th – 2015 Dec 13rd |
| Project Optimization | 3 | 2015 Dec 14th – 2016 Jan 3rd |
| repare Project Report & Oral Presentation | 10 | 2016 Jan 4th – 2016 Mar 13rd |

**A brief description of each task:**

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| --- | --- |
| Task | Description |
| Research on EMG sensor and output signal synchronization | Research on signal sychornization issues and basic functionality of Shimmer EMG sensor. |
| Implementation of EMG application (phase 2) | Developing the second phase of an EMG application: by using Shimmer EMG sensor and software to synchronize the output signal in high speed movement. |
| Computrainer research and analysis | Study how to convert the input power into output energy and collect the essential data form CompuTrainer. |
| Data collection and analysis | Collect and analyze the input data (from EMG sensor) and output data (from Computrainer). |
| Project Optimization | Research and make possible improvements on the project. Targets include to improve the quality of output data and draw further conclusion from predicted data. |
| Prepare Project Report & Oral Presentation | Analyze the learning result of this project, prepare for the final report and presentation. |