SEES PROJECT

**Spatial Echolocation Enhancement System**

**Work Log and Milestone**

University of Victoria

CENG/ELEC/SENG 499 Summer 2015

Design Team 27

Supervisor : Dr. Gebali

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## Milestone Summary

The revised objective of this milestone upon discovering through mobile software investigations that the Kinect would not easily run on a regular Android smartphone was to refine and finalize the software and hardware design, and to integrate the system design with the original prototype software.

On the software side, research into achieving successful communication between an Android smartphone and the Kinect proved unfruitful (as outlined in detail in Progress Report 2), causing a shift in the milestone plans. The system was instead integrated into the prototype software simulation from 399, producing a working software prototype for converting real world distance to objects into binaural audio. The audio signalling model responsible for this underwent a number of iterations, reacting to anomalies in real world signals in order to improve accuracy.

For hardware, the teardown of the Microsoft Kinect proceeded smoothly after the necessary tools were obtained. The Kinect was striped down to the framework and all unnecessary part such as the microphones, fan and servomotor were removed. Further research was done into the power supply and data inputs of the awkward Kinect plug. This has both 5V and 12V supply for different parts of the system. The goal being to supply the Kinect through a single USB port became unrealistic. The Kinect can be rewired to have a USB and power adapter, however these are already commercially available for the Kinect. The problem with the commercial product is that it requires a wall outlet, the kinect could be made mobile through rewiring and a portable power supply.

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| ***ORIGINAL Milestone 3: System Refinement & User Testing*** | | **REVISED Milestone 3: System Definition Finalization & Refinement** | |
| *Iterate on Audio Signalling Model* | | Iterate on Audio Signalling Model | |
| *Migrate System to Mobile* | | Mobile Investigation | |
| *Design User Test Protocol* | | Project Prototype Design Finalization | |
| *User Testing* | | Integrating System With Prototype Software | |
| ***Milestone Deliverables:*** | | **Milestone Deliverables:** | |
| *Progress Report 2* | | Progress Report 2 | |

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## Work Log

**Daniel Faulkner**

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| ***Date*** | ***Time (Hrs)*** | ***Description of Task*** |
| 18-JUN-2015 | 1.5 | Group planning meeting |
| 19-JUN-2015 | 2.0 | OpenNI work - compiling older OpenNI and open Kinect drivers |
| 20-JUN-2015 | 10.0 | OpenNI work - attempt to run Kinect on Android; USBFS on Android investigation |
| 21-JUN-2015 | 1.5 | OpenNI work - last attempts to get a simple program working for communicating with the Kinect |
| 23-JUN-2015 | 1.0 | Group planning meeting |
| 25-JUN-2015 | 0.5 | Group planning meeting |
| 29-JUN-2015 | 3.0 | Setting up Unity project on computer; progress report work |
| 30-JUN-2015 | 4.0 | Progress report |

**Jason Lim**

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| ***Date*** | ***Time (Hrs)*** | ***Description of Task*** |
| 18-JUN-2015 | 1.5 | Group planning meeting and report review |
| 19-JUN-2015 | 5.0 | Depth Image Processing System Development |
| 20-JUN-2015 | 3.0 | Depth Image Processing System Development |
| 21-JUN-2015 | 5.0 | Software Signalling Model Development |
| 23-JUN-2015 | 1.0 | Group Planning Meeting |
| 25-JUN-2015 | 0.5 | Group Planning Meeting |
| 25-JUN-2015 | 0.25 | Intel Near Field Depth Camera Solicitation |
| 27-JUN-2015 | 3.0 | Software Signalling Model Development |
| 30-JUN-2015 | 4.0 | Progress Report |

**Rajpal Chauhan**

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| ***Date*** | ***Time (Hrs)*** | ***Description of Task*** |
| 18-JUN-2015 | 1.5 | Group Meeting |
| 21-JUN-2015 | 0.5 | Kinect research |
| 21-JUN-2015 | 1.5 | Kinect Teardown |
| 23-JUN-2015 | 1.0 | Group Meeting |
| 25-JUN-2015 | 0.5 | Group Meeting |
| 27-JUN-2015 | 0.5 | Hardware Research |
| 29-JUN-2015 | 2.0 | Progress Report |
| 30-JUN-2015 | 2.0 | Group Meeting/Progress Report |

**John Delorme**

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| ***Date*** | ***Time (Hrs)*** | ***Description of Task*** |
| 18-JUN-2015 | 1.5 | Group Meeting |
| 21-JUN-2015 | 0.5 | Kinect research |
| 21-JUN-2015 | 1.5 | Kinect Teardown |
| 23-JUN-2015 | 1.0 | Group Meeting |
| 25-JUN-2015 | 0.5 | Group Meeting |
| 27-JUN-2015 | 0.5 | Kinect Teardown |
| 28-JUN-2015 | 1.5 | Kinect Power Research |
| 29-JUN-2015 | 1.5 | Progress Report |
| 30-JUN-2015 | 3.0 | Group Meeting/Progress Report |

**Ian Brown**

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| ***Date*** | ***Time (Hrs)*** | ***Description of Task*** |
| 18-JUN-2015 | 1.5 | Group Meeting |
| 20-JUN-2015 | 1.0 | UI design |
| 21-JUN-2015 | 3.0 | Android dev |
| 23-JUN-2015 | 1.0 | Team meeting |
| 25-JUN-2015 | 0.5 | Team meeting |
| 26-JUN-2015 | 0.5 | UI design |
| 29-JUN-2015 | 1.0 | Progress Report |
| 30-JUN-2015 | 2.0 | Progress Report |