

Bi-Weekly Report 8

Date: 04/03/2016
Project: MSF Google Project 1
Project Title: Video and sensor display on the Google Cardboard
(Previously: Alzheimer's Experience using the Google

Cardboard)

Team Members:
Garrett May (Team Leader)
Hekla Helgadóttir

Overview

We have placed great focus on understanding and negotiating the deliverables that we need to create and present by the end of the project. This has allowed us to split the work into smaller, more easily managed parts, so that the project will be finished on time and the result will be up to standard. Importantly, we have made progress on the drone system, and hope to continue to do so.

Meetings

Date: 02/03/2016
Attendees: Garrett May
Hekla Helgadóttir
Daniel Eldar
Aron Monzpart

We discussed the several possible ideas that could be implemented for the project, based on what our current Proof of Concept could do, and how it could be improved. It was agreed that we should try to complete the sensors, the gimbal movement, and the video on the drone system, as these were of highest priority. If we have time, we could make use of the terrain projection algorithm we had created to generate a 3D terrain map of the nearby area, and place arrows upon this. The arrows would demonstrate where landmarks were, with help from GPS locations.

Date: 04/03/2016
Attendees: Garrett May
Hekla Helgadóttir
Daniel Eldar
Carla Hyenne

We had a catch up with all team members to catch up on what we have done in the last weeks and talk about the priorities of our project (prioritise getting sensor readings to the cardboard, live stream the video, gimbal control with head movement, GPS location plotted on a map and the landmark information edit or addition).

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Conferences

Date: 04/03/2016

Conference: Festival for Digital Health

Attendees: Garrett May

Hekla Helgadóttir

Dr Patty Kostkova

The Festival for Digital Health, run by the institute of digital health at UCL, included talks, panel discussions, students posters and more. Our part was showcasing a poster, giving a 1 minute lightning talk about our project and to answer questions attendees had about our project and our poster. We received the highest amount of votes for the poster, joint with another team, and ended in 2nd place after the judge's decision.

Completed Tasks and Project Projection

We have completed most of the networking system. This includes the sensors, the radio, and the bluetooth and has allowed us to test this part of the system.

By managing our work and what needs to be done, our project looks to be on projection.

We will need to place more emphasis on the GPS retrieval, the gimbal movement, and the video. These are proving difficult, as without components, we can only research, or at best, create a program that is not able to be tested.

Problems to be resolved

The data coming through the server should be saved in some sort of database, to be able to be queried at a later date.

We also require the components needed to begin work on the video transmitter and receiver, and the gimbal.

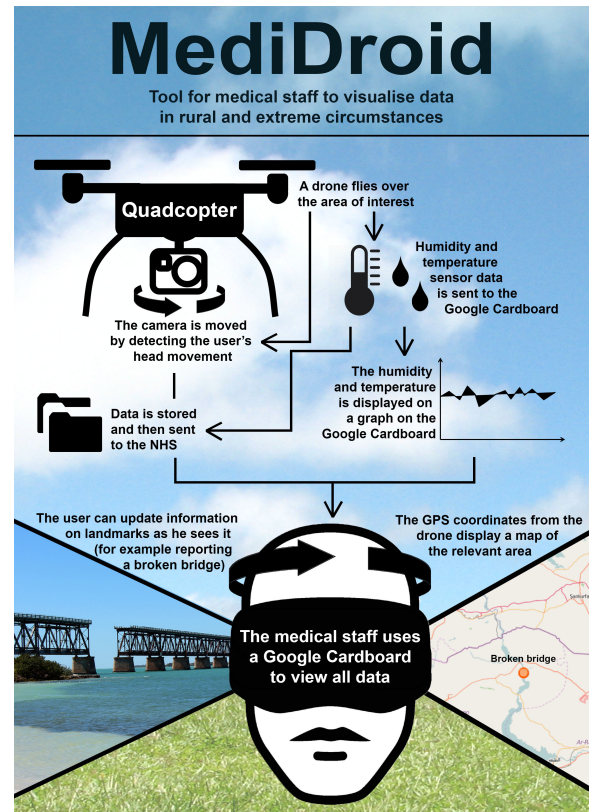
Finally, some work with OpenStreetMap is necessary, as it seems to be quite complicated, due to the age of the software.

Workload - Past Two Weeks

Garrett:

The bluetooth subsection of the project has been successfully created. It involves a bluetooth class for the mobile application, and a server on the laptop. The bluetooth class is, like the rest of the app, coded in Android, whilst the server is in Java. The server make use of a library called BlueCove, which allows it to connect to the phone's bluetooth libraries. This allowed me to send data from the laptop to the mobile phone.

I did some work on the temperature and humidity sensor. I searched online to find a library that will be able to retrieve the values, as there was only a single input, rather than two. Eventually, I found one, and was able to read the values in the JeeLink.



The poster for the Festival of Digital Health

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I was also able to connect the server to the JeeLink via a USB port. The server also required a library, jSerialComm, in order to read data. This allowed the radio subsystem and the bluetooth subsystem to be combined, to form most of the networking system.

Hekla:

I have made progress with the gimbal control, I have gotten it to respond wirelessly when a joystick on a remote control is moved, by connecting it to a flight controller and a transmitter, using the CleanFlight configuration tool for the flight control system.

For the Festival of Digital Health, I created a poster to explain how our system works. I presented a 1 minute pitch to the guests of the contract, explaining what our project is about. Our poster received the highest number of votes for the best poster from conference guests joint with another poster, but was awarded second place after the organiser's decision.

Workload - Next Two Weeks

Garrett:

Whilst the data is going through the server, I will need to process this information. Most importantly, I need to save the data in a particular format (this may be used for the NHS for health reasons), and into a database. This data must be able to be queried, most likely by time of occurrence, via some sort of application. The application may be created using HTML, JavaScript and CSS, so I will need to look into how I can do this whilst maintaining the database the server will generate.

Hekla:

My focus for the next couple of weeks will be mostly on the gimbal control. I am hopeful I will be able to achieve wireless control between the gimbal and the cardboard, integrating it with our existing cardboard application. I will also look at existing videos we could use for video analysis, and if weather conditions allow record a video from a drone, trying to simulate a video footage that would be seen from the drone in real circumstances.