# Bi-Weekly Report 7

Date: *12/02/2016*
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 met up with MSF and Google to finalise our ideas and client expectations. The team has made progress on video analysis, phone, laptop and drone connectivity, head tracking, and sensor assembling.

Meetings

Date: 0*4/02/2016*
Attendees: *Garrett May*
*Hekla Helgadóttir*
*Carla Hyenne*
*Daniel Eldar*
*Aron Monszpart*
*Usama Inam*
*Patty Kostkova*
*Idriss Ait-Bouziad*
*Dean Mohamedally*
*Harry Strange*

In this meeting we discussed with the clients about the stage at which the project was, by showing them our updated Proof of Concept (PoC). We also went through several use cases which would prove to be useful later in developing our product further.

Both MSF and Google were shown our PoC, which was an application for Android and the Google Cardboard displaying graphs and video in a 3D virtual reality. The PoC had been mainly aimed to suit Google's requirements, as they had expressed their wishes for an application that is visually aesthetic and interesting. It also served to show MSF how we intended to display the data.

After this, we talked about how we would fulfil the needs of MSF in the upcoming weeks, by implementing a system on the drone and a system for managing the networking side. Through discussion, we managed to draw out three major ideas which could be used in our implementation.

The first idea was including temperature and humidity as data to be displayed in the app. This was a concept we had initially conceived, as we had purchased the components before the meeting.

The second proposal was a landmark viewer and adder. By means of a database, an API to gather information about the surrounding area, and a GPS module, we could create a map which would display tags of a landmarks nearby. New landmarks may be able to be added by use of the Google Cardboard's trigger. Although this idea would be difficult to implement, it could be seen to be reasonable within the time frame.

The final concept was being able to take aerial images of the area and stitching the resultant images together in order to gain one larger picture. This may be especially useful in gaining information of a whole encampment. However, this may backfire if it is not allowed by law to fly too close to camps, and if it causes refugees to be afraid.

Date: 0*9/02/2016*
Attendees: *Garrett May*
*Hekla Helgadóttir*
*Carla Hyenne*
*Daniel Eldar*
*Aron Monszpart*

In this meeting, we reviewed the previous meeting in order to consider our project goal and the priorities to focus on in the upcoming weeks. We decided that, out of the three major possibilities, the temperature and humidity sensor had the greatest priority, seeing as it was the feature that was most easily and readily able to be implemented. Out of the other two, the landmarks concept was placed second, due to its greater value in usefulness.

Completed Tasks and Project Projection

Although there is a lot to be done before submitting our final work, we believe we are on the right track timewise. We have finalised our ideas and client expectations in the joint meeting with MSF and Google. We aim to produce a system that allows humidity and temperature sensor readings to be displayed and recorded, it will also allow the user to view and update statuses of landmarks and to control the view of the camera by tilting and moving his head.
Depending on how long the above tasks will take, we hope to add the aerial photography and video recording to our project, stitching the photos together to analyse a large area and analysing number and movement of people from the videos.

Problems to be resolved

We will need to get a sample set of the data we would be using from MSF with existing landmarks. We will also need to finalise an order for the parts that we haven't got yet but are necessary for the system

Workload - Past Two Weeks

Garrett:

In the last two weeks I was able to successfully verify that the JeeLink and the JeeNode were Arduino-based. This meant that I could write a simple program in the Arduino C/C++ environment. I was also able to establish a connection between the two circuitries and send data over on a radio frequency. The light sensitive sensor used for testing was also shown to work.
Some more progress was made on the Bluetooth side of the networking subsystem. However, although the laptop and the device are able to see each other, they have not been able to connect, hence no data has yet been able to be sent.

Hekla:

In the past two weeks my main focus has been on starting working on the head tracking. I have managed to get the gimbal to respond to movement of

the flight controller when the two are attached with a cable, and I have also managed to make it respond to a wireless remote control. I have also started doing research on how to make the gimbal respond to the movement of an Android phone.

Workload - Next Two Weeks

Garrett:

In the next two weeks I intend to make a connection and send data between the mobile device and the laptop, and vice versa. This will ensure the device can receive information and send commands, which will be vital for the project.

I also hope to work out how the humidity-temperature sensor works. At the moment it seems reading a digital signal from the component will somehow retrieve both values, but some further research into it is needed.

If I have time, I will look into whether I can improve the aesthetics of the graphs, and write some unit tests to assert our work.

Hekla:

For the next two weeks I will be working on controlling the gimbal wirelessly from the Android phone. The ideal option would be to use the existing gyroscope, but an alternative could be to attach a head tracking unit to the Google Cardboard. I will also record a drone video footage of people to use for video analysis on counting people.