

# Meeting Log (week 4)

**22<sup>nd</sup> March 2019, 12:30 PM – 2 PM**

## Attendance:

| <b>Ben Li</b>           | <b>Attendance</b> |
|-------------------------|-------------------|
| Jiawei                  | Yes               |
| Jireh                   | Yes               |
| Jordan He               | Yes               |
| Jose                    | Yes               |
| Link Geng               | Yes               |
| Minh Doan               | Yes               |
| Ben Li                  | Yes               |
| Frederick Chew (client) | No                |

## Tasks review (from last meeting):

1. Addressing client's concern regarding the project progress and expected prototype

## Main objectives:

1. Revising conference device visual input
2. Revise set up of camera(s)
3. Delegate further tasks

## Points of discussion:

### Choice of implementation approaches (image)

Previously we have chosen to utilise 4 cameras for the visual input (device representation may be viewed in Concept of Operations). Through this configuration, a 360 degree view was aimed to be achieved through image stitching to combine the different views of the camera. Testing two web cameras have shown that this solution is limited by the maximum bandwidth that Raspberry Pi can support – there is a 2 second delay.

Due to this problem, the team has discussed three alternative options:

- 1) Use a wide view camera lens on top of a single camera to increase the field of view
- 2) To get the image to stitch after, we have to downscale the initial webcam captures significantly to produce a mapping of the downscaled image. From the mapping we can identify homography to find the stitched image. Through this image we can achieve a full scale image; although this is not in real-time.
- 3) Using x3 120 degree cameras to achieve an approximate 300 degree view

## Leadership workshop discussion

What was learned during the first session was briefly shared with the team. In regard to the team performance, it was agreed that the governance maturity of the team (communication and decision making) is at an acceptable value, although the Development maturity concerning project outputs need work. Through the coming weeks, we aim to work towards actual testing and prototyping.

In terms of Team Dynamics, it was agreed that our collaboration with other groups is lacking. After Audit 1, we aim to ask for more feedback while provide constructive criticism to help other teams and improve the performance of the whole tutorial (the “firm”) as a whole.

## Project Budget

Option 1: Multiple cameras setup, 90 degrees FOV each

- Microsoft LifeCam HD-3000 Business Web Camera - \$35 (\$140)
- Raspberry Pi 3 B+ - \$65
- ReSpeaker 4-Mic Array - \$45

Option 2: Multiple cameras setup, 120 degrees FOV each

- Genius WideCam F11 Ultra Wide Angle - \$85 (\$255)
- Raspberry Pi 3 B+ - \$65
- ReSpeaker 4-Mic Array - \$45

Option 3: Single fish-eye camera, 180 degrees FOV

- ELP 180 Degrees Fisheye Lens 1080p Wide Angle - \$75 to \$80
- Raspberry Pi 3 B+ - \$65
- ReSpeaker 4-Mic Array - \$45
- Neewer USB Microphone - \$42

## Critical decisions made:

We will not be building the fish eye lens camera ourselves, instead we will be buying a camera with the fish eye lens already implemented. Benefits of this solution include:

- Camera possessing existing calibration already
- No image stitching required;
- 4 cameras require overlap
- Uses the same methodology for visual input as Owl Lab; which is what the client is using as a reference for the desired performance

## Team roles:

| Name           | Role                         |
|----------------|------------------------------|
| Minh Doan      | Project Lead                 |
| Jose           | Sound Technician             |
| John Fan       | Sound Technician             |
| Jordan He      | Video Integration Technician |
| Ben Li         | Video Integration Technician |
| Link Geng      | Video Integration Technician |
| Jiareh Mendoza | Assembly Technician          |

## Task delegation:

| Task   | Description  | Assignee             | Due Date   |
|--|--|----------------------|------------|
| Sound localisation testing                       | Test of the microphone array   | John and Jose        | 25/03/2019 |
| Cleaning repository and document rearranging     | Clean up the documentation   | Minh and Jireh       | 25/03/2019 |
| Speech recognition and facial detection research | Research whether it's possible to run speech detection/ facial recognition (lips) on raspberry pi. | Jordan, Ben and Link | 25/03/2019 |