Meeting minutes

18/09/2023 11:00-11:30 with Awais Aziz Shah

This was the first meeting of the project. During the meeting Awais outlined one of the ways the project could be taken forward along with an outline of the technologies we shall be using.

He outlined that the project will be spilt up into development and research, where the first two weeks should be looking at different research papers.

He, also, mentioned that we will be collaborating with Derek, who may be in future meetings.

This meeting ran 20 minutes shorter as it was an initial meeting and not much to discuss.

25/09/2023 10:00-11:00 with Derek Somerville

Following Awias' advise, I started to look at different research papers using obsidian to document and link each one. I, also, started to develop various applications to try and create a bluetooth app to start off with.

In the meeting with Derek, he suggested reading ahead on the RMT lectures for more help on reading research papers. Derek also ran through his outline of the project and told me to create an confluence page to document all of the meetings.

This meeting ran over by half an hour discussing various topics such as the evaluation (e.g. going to an elderly home or a deaf community for the evaluations), outlining a MVP and licensing (we both agreed to make this open source).

During the meeting, I informed Derek about my struggles with the bluetooth app development since there are many restrictions with iOS and asked if he knew of any alternatives. He suggested we request a MyMac.

The objectives we agreed to are:

- Request a mac
- look into other bluetooth development alternatives
- create a model diagram for the project

02/10/2023 11:10-11:30 with Awais Aziz Shah

Leading up to the meeting, I had gotten the MyMac and looked into further development within iOS. I found that there was an iOS Developer University Program and contacted the MyMac team regarding this.

In the meeting, I caught Awais up with the meeting i had with Derek and explained how I had been looking at different research papers for ways to implement BLE and live captioning.

The objectives we agreed to are:

- Work on live captioning
- Keep on working on bluetooth application

This meeting ran 10 minutes shorter than scheduled.

05/10/2023 16:00-16:30 with Derek Somerville

Leading up to the meeting, I had gotten the MyMac and looked into further development within iOS. I found that there was an iOS Developer University Program and contacted the MyMac team regarding this.

During the meeting we discussed looking into:

- how Web Speech API encrypts the data
- researching different fonts and sizes best for the elderly
- researching speech recognition based off the person how is talking
- test if the app works with background noise and music
- research if we can detect current pitch
- research noise cancelling
- research beta version of react native that allows ble

09/10/2023 10:00-10:30 with Derek Somerville

Leading up to the meeting, I had:

- implemented text to speech as discussed
- implemented the ability to change pitch, speed and volume of the test to speech voice

During the meeting we discussed:
- Creating a Jira board to create issues and to invite Derek
- Invite Derek to GitHub repo
- Research ways to store a person's data (their pitch range) on the cloud and use edge-computing this way
- Look into auto detecting accent and the app be able to change voice to accommodate this

Priorities till our next meeting:
- Derek look into Android phone
- Amy create Jira board
- Amy invite Derek to GitHub

10/10/2023 12:45-13:00 with Awais Aziz Shah

Leading up to the meeting, I had:
- implemented text to speech as discussed
- implemented the ability to change pitch, speed and volume of the test to speech voice
- created a Jira board

During the meeting we discussed:
- creating a small essay (3 paragraphs with figures) for the application to funding

Priorities till our next meeting:
- Amy write essay

16/10/2023 10:00-10:30 with Derek Somerville

Leading up to the meeting, I had:
- researched papers on UI/UX designs for elderly and started styling app on Figma
- has some issues with mic input

During the meeting we discussed:
- next to mic on/off put what input it is
- maybe a guide for bluetooth connection
- there are already noise cancelling in new earbuds/headphones so should look into whether it's worth it or not (good to write in dissertation)
- buffer for text to speech so it is dynamic
- look into just changing pitch of audio
- test gibberish words on speech to text

Priorities till our next meeting:
- Amy put mic input in design
- Amy finish fundraising application based of feedback
- Amy look into noise cancelling to see if worth

30/10/2023 10:15-10:40 with Derek Somerville

Leading up to the meeting, I had:
- been ill for the past week
- implemented mic playback
- fixed issue with text to speech interrupt when speech to text active

During the meeting we discussed:
- recommended a code review from a peer at the end of November and the end of February to show progress
- implement unit tests and user guide
- make sure all libraries are documented in user guide for a clear installation of the app
- run test coverage tool
- mutation testing
- mid November/December should start writing background and literature review
- recommended 25 citations for dissertation and make sure they are academic papers
- research react-native implementation of web-speech API
- start looking into evaluation

Priorities till our next meeting:
- Amy put mic pitch slider
- Amy start to research mobile version
- Amy look into start writing evaluation tasks

- Amy look into testing and code review

06/11/2023 11:00-11:40 with Derek Somerville & Awais Aziz Shah

Leading up to the meeting, I had:
- got volume amplifier to work with real time audio
- need more research into real time pitch shifting (quite challenging)

During the meeting we discussed:
- potentially create buffer for text to speech
- ML for siren
  - alert on screen
- create backlog on Jira for future work
- look into speech recognition for specific person
  - pitch detecting libraries
  - don't display what user says (on/off feature)
- library to detect name of speaker
  - could try brute force
- can the webapp work offline?
  - keep on client side
- will the current libraries being used work on raspberry pi
- for motivation:
  - 5/6 different papers in hearing aids
  - recent (w/in 3 years)

Priorities till our next meeting:
- Amy: look into detecting speaker
- Amy: implement feature to omit owners voice
- Amy: look for libraries to detect name from text

13/11/2023 10:05-10:50 with Derek Somerville

Leading up to the meeting, I had:
- Sent out user studygot
  - 43 responses
- Started to write python scripts
  - better for raspberry pi

During the meeting we discussed:
- looked over responses from user study
  - feature: user input text to speech since some deaf people are mute
  - this would need to change audio output
  - formalise the responses for dissertation
- discussed more onto raspberry pi implementation
  - offline on raspberry pi could be future work (i.e. low priority)
- meetings are going to now be every two weeks up until January

Priorities till our next meeting:
- Amy: keep working on Python web app
- Amy: formalise responses

27/11/2023 10:10-10:40 with Derek Somerville

Leading up to the meeting, I had:
- created page for user input text to speech
- started implementing eagle speaker detection package
- research papers for motivation section of dissertation

During the meeting we discussed:
- could have pitch on screen

- - could implement this with pitch correction with user bounds
- derek gave me a raspberry pi
- derek will send over the funding application for me to look over
  - we could receive £5,000
- we tested the live audio and it does need a little bit of cleaning up but this may be to do with the amplification distorting the audio
- discussed evaluation (e.g. what would be the perfect evaluation set up)
  - do we get a range of quality of phones and ear phones to test
  - could send out survey again to see if anyone would join the evaluation
    - give different equipment scenarios
    - ask if they already have some technology
- I need to formally write up my user survey
  - this could get us a sponsor to help with funding

Priorities till our next meeting:
- Derek: write section for funding
- Amy: read over funding application from Derek
- Amy: write up user survey

18/12/2023 10:00-10:30 with Derek Somerville

Leading up to the meeting, I had:
- done introduction section for dissertation
- doing research on existing technologies

During the meeting we discussed:
- fix new features for live audio feedback
- new survey for who would like to attend evaluation
- RNID may want to collaborate
  - could put this into dissertation
  - could set up meeting in the new year
- look into making the user guide catered towards the elderly
- try making speaker detection priority
- look into links sent by RNID for existing tech section in dissertation
- Derek may be the first marker for dissertation

Priorities till our next meeting:
- Derek: See if worth setting up meeting for RNID
- Amy: look into links by RNID for existing technology
- Amy: fix bugs with audio
- Amy: create new survey and advertise it
- Derek: look into changing first marker

15/01/2024 13:30-14:00 with Derek Somerville & Awais Aziz Shah

Leading up to the meeting, I had:
- implemented code for speaker recognition, but still need to debug
- made progress onto dissertation (i.e. introduction and background)

During the meeting we discussed:
- contact developers to see if the bug with speaker recognition is on their end
- want to turn dissertation into a paper, to submit to get published
- evaluation to take place early-mid February
  - contact disability services to see if they would email deaf and hard of hearing students/staff
- look into emergency siren detection
- look into saving people's settings for certain people
  - e.g. if "Derek" is in transcript the web app will change to their saved settings for derek
  - this can be the edge computing part

Priorities till our next meeting:
- Amy: contact disability services
- Amy: contact speaker detection developers

- Amy: look into evaluation write up
- Amy: look into emergency siren
- Amy: look into edge computing for saving playback states

22/01/2024 14:00-14:10 with Derek Somerville

Leading up to the meeting, I had:
- implemented code for user profiles and saving states to their profile
- implemented code for trigger word saves
  - e.g. if the speech to text picks up "Hello Derek" and there is a save named derek, then it will change to that state

During the meeting we discussed:
- start writing up things with the evaluation
- start thinking about when the first draft of the dissertation will be sent to Derek
- try emailing disability services again

Priorities till our next meeting:
- Amy: email disability services again
- Amy: start writing up evaluation
- Amy: start plan for first draft of dissertation

12/02/2024 14:00-14:30 with Derek Somerville

Leading up to the meeting, I had:
- wrote chunks of dissertation
- planning out evaluation
- weighing up options for features to implement

During the meeting we discussed:
- Derek looked over dissertation
  - Wants to give feedback when the first draft is complete
- Have pilot evaluations to gather feedback and refine the survey
- Derek suggest that the project is good enough so any features are not important and can be put in future work
  - can implement if have enough time but focus on dissertation

Priorities till our next meeting:
- Amy: undergo pilot evaluation

19/02/2024 14:00-14:20 with Derek Somerville

Leading up to the meeting, I had:
- sent out evaluations

During the meeting we discussed:
- Derek gave feedback for the evaluation
  - make last task optional

Priorities till our next meeting:
- Amy: gather feedback from those emailed
- Amy: put evaluations on facebook next week after feedback

11/03/2024 15:30-16:00 with Derek Somerville

Leading up to the meeting, I had:
- sent Derek first draft of dissertation (excluding evaluation and conclusion)

During the meeting we discussed:
- Derek gave feedback for the dissertation
- Showed Derek analysis of evaluation
- Discussed submission and presentation requirements

Priorities till our next meeting:
- Amy: send Derek official first draft of the dissertation

18/03/2024 10:30-11:00 with Derek Somerville

Leading up to the meeting, I had:
- Given first draft
- Went over comments left by Derek
- Started presentation
- Cleaned up repo

During the meeting we discussed:
- Ways to improve dissertation
- Ways to give a good presentation
- Made sure we are in line with the marking scheme for submission

Priorities till our next meeting:
- Amy: finalise dissertation
- Amy: record presentation
- Amy: submit!