DUBLIN CITY UNIVERSITY

SCHOOL OF ELECTRONIC ENGINEERING

Universal Design For An Internet Radio Appliance

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BACHELOR OF ENGINEERING

IN

ELECTRONIC AND COMPUTER ENGINEERING

MAJORING IN

THE INTERNET OF THINGS

Supervised by Dr Barry McMullin

Semester 1

Week 5

Received my title and specifications for my Final Year Project and gathered relevant information regarding the design brief (Universal Design, Universal Access, Internet Radios, etc.)

Week 6

Scheduled and came together with my project supervisor for our first meeting. We were able to discuss relevant points from the design brief and I was given resources to understand more about Universal Design, Accessibility and Personas.

Week 7

Worked on my Risk Assessment document and gathered more resources and information relevant my design brief and project.

Week 8

Continued working on my Risk Assessment document and finally completed it. Continued to gather more resources and information relevant my design brief and project.

Week 9

Started working on my Status Report document. Continued to gather more resources and information relevant my design brief and project.

Week 10

Continued working on my Status Report document and finally completed it. Continued to gather more resources and information relevant my design brief and project.

Semester 2

Week 1

This week, I started re-evaluated my status report before submitting. I made requests for the equipment I need for my project work from my technical advisor. I started working on my video PowerPoint presentation due for the end of the month. I have covid this week, hence I haven't done much physical work the pieces already have.

Week 2

This week, I started have started coming up with the personas I have in mind that will be the basis of my design choice. The personas outline Mobility, Vision and Hearing. I have made slides for my video presentation.

Week 3

This week, I have recorded a video voice over for the presentation. I have begun researching into relevant software dependencies that I will require for the development of the software application for the internet radio appliance.

Week 4

This week, I have submitted my presentation. I had an interview with my supervisor and second accessor. I took away that I need to outline the engineering specifics of my project design (power considerations, calculations, why for certain choices, etc.).

Week 5

This week, I have received my hardware components from my technical officer. I have begun by building the display of the appliance with the Raspberry Pi. The display uses an Adafruit RGB LCD with female to male connecters between the GPIO of the Pi and the display module. Test codes written in Python were able to test the display and its function ability.

Week 5

This week, I have begun by building the audio hardware design for the appliance. This required 2 loudspeakers and an audio amplifier card. This required me to research methods in which external audio devices can be configured with the Pi. At the same time, I have come up with a solution to have radio stations to be stored on the Pi using an open source software, MPD.

Week 6

This week, I have come up with the idea to use rotary encoders instead of push buttons from the display for the operation of the appliance. I looked up information regarding the datasheets and was able to implement this hardware component into my design. I also designed a battery powered supply.

Week 7

This week, I was able to install an infra-red sensor to allow operability of the appliance. I put together the relevant software to setup the sensor with the remote and give commands to operate the appliance. I have also started working on the software for internet radio.

Week 8

This week, I have continued working on the internet radio software. This required installation of open source applications such as MPD, MPC and the beginning of developing a Python Application. I have also bought a wooden box and marked it for cutting and drilling to house the appliance.

Week 9

This week, I was sick so I couldn't come to the campus to work on the project design but I have begun my report. (Introduction and Tech Background)

Week 10

This week, I have completed the internet radio software. I was able to begin testing of the appliance in regards to wireless connectivity, system performance and power consumption. Also ensuring whether it meets the set accessibility design specifications.

Week 11

This week, I have progressed through my report (Design, Implementation and Ethics).

Week 12

This week, I was not in Ireland but I was able to remotely access my Raspberry Pi and perform some final tastings to include in finishing my report.