



Honours Project

SCHOOL OF COMPUTING SCIENCE AND DIGITAL MEDIA

Student Name: SEAN SMART	Matriculation Number: 1602648
Supervisor: ROGER McDERMOTT	Second Marker: INES ARANA
Course: DIGITAL MEDIA (DESIGN, DEVELOPMENT AND PRODUCTION)	
Project Title: MAKING MULTIMEDIA ACCESS STRAIGHTFORWARD	
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Making multimedia access straightforward



SEAN SMART 2018

1602648

SUPERVIED BY ROGER MCDERMOTT

ROBERT GORDON UNIVERSITY

A thesis submitted for the degree of

Bachelor of Science with Honours

May 2018

DECLARATION

I confirm that the work contained in this Honours project report has been composed solely by myself and has not been accepted in any previous application for a degree. All sources of information have been specifically acknowledged and all verbatim extracts are distinguished by quotation marks.

Signed



Date.....29/01/2018.....

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ABSTRACT

Audio and visual production has been used mostly in the entertainment and advertising industry people like to go to the movies and watch the images come to life and to listen to the sound effects, people also get this enjoyable experience on video streaming applications such as YouTube and Netflix, videos are a great way to spend some quality time to yourself, creating these kind of multimedia such as software like Adobe Premiere Pro for editing video clips and inserting titles and there is also Audacity to edit the sound to crisp, clean and high quality.

For this project the goal is to take in account of accessibility issues such as visual and audible (hearing impairments) and how enhancements can impact the user when it comes to watching something on a television screen, there are many ways to address the problem by the use of technologies and features for using audio narration with someone taking in the background for someone that has a difficulty for hearing and the use of closed caption or subtitles and the size of monitor resolutions are used to aid people with visual impairments to make the picture bigger and to help them see better, also headphones can be used to listen to enhance users with hearing impairments. Research and looking at various papers which relate to the project have been used to get a clear explanation of how the research will be carried out.

Why this research is being carried out is to understand how everyone can go to the movies or watch TV despite having an impairment that can affect the experience of the user, to ensure that everyone including those with impairments can watch something on the screen and also enjoy the experience and to see what is happening and how it can attract the users, what is being created for this investigation is a short film using various features such as audio narration and captions to help enhance the user experience for the people watching the video.

Finally, as part of the project, testing was undertaken. User experience testing was undertaken in a form of a questionnaire where the participants will answer the personal and technical sections of the form regarding the video performance of what was done well and what could have been improved the feedback will describe whether that this short film will be fit for people with visual and audible impairments and with this given feedback this help for implementing any other future video projects or for carrying out another similar project.

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CHAPTER 1: INTRODUCTION

Throughout this report, I shall discuss my findings after researching on possible solutions of how people can use a multimedia product such as a website, a game or a video much more straightforward especially when a person has some form of impairments (audible or visual) I shall cover the development of a video project associated with the finding of this research.

Over the past century, multimedia applications have been for many different things such as advertising, presentation, business, pleasure or for free time, multimedia appears as many forms such as a website for people to do their shopping, applying for jobs, courses at college or university, to play games online, videos are used for advertisement, business and pleasure, but they also tell a story, videos have ways to attract the audience and how to capture the audience's attention. People tend to create videos for movies as everyone enjoys a time to relax, turn on the television or a trip to the cinema after a long day either at work or school.

However, not everyone can have an easy time experiencing watching videos as people would struggle to look at the picture that the screen would appear blurred which can deteriorate the visual experience of the video people with visual impairments may have a difficult time viewing a video and rely on audio narration in the background or the use of a bigger monitor. People with visual impairments would listen to the story, the sound effects, the soundtrack, the characters tone in their voice to understand what is happening, people with audible impairments tend to struggle with hearing the video especially when a character is whispering or any background noises. How this is helped is from the use of closed captions (subtitles) where the text appears on the screen which will allow the person to read the text or to add speakers to the screen so the sound will blast towards the audience.

The use of narration in a TV show or in movies is to tell a story of all what is happening on the screen it gives you a sense of feeling the action for an example the narration on Planet Earth 2 and Blue Planet 2 are powerful in telling what the animals are doing and Sir David Attenborough telling you how the animals think, feel or respond to a situation while keeping the audience engaged into the show, while the background music composed by famous film composer Hans Zimmer gets the excitement and the thrill of what is going on during the show. Subtitles/Closed Captions are used in telling you what is happening on the screen or to translate the language to English for an example the Netflix Television series Narcos or any foreign film will contain English subtitles to aid people with audible impairments to view the show even if they do not speak the language.

The video created during this project is a short movie titled "A Strict Routine", which tells the story of a man with routines he follows through the day, in this video the character does not speak throughout the feature film as the narration will tell us the story throughout while closed captions are used at the bottom of the screen for the audience to read along using those two features could help in people to watch this video more smoothly even if they suffer from audible or visual impairments.

Creating the short movie will require a wide selection of software and techniques which I have learned from College and University, from writing a script, drawing up a few storyboards, filming and video editing using the appropriate software (Adobe Premiere Pro) for placing all the audio tracks and video clips together in post-production. Some of these processes will be discussed in the analysis, design and implementation stages in this document.



Figure 1. *Planet Earth* uses narration for the visual impaired



Figure 2. *Netflix's Narcos* uses closed captions for the audibly impaired

Image Source: <https://consequenceofsound.net/2017/12/planet-earth-ii-is-now-available-to-stream-on-netflix/>

Image Source: <https://mistress.agency/work/narcos/>

1.1 PROJECT AIMS

Upon starting this research and video project, there was a number of goals I aimed to achieve over the course of it.

- To research the technologies and software used to enhance the accessibility for people with audible and visual impairments when they watch live action short movies (2 minutes approx.).
- To research reasons why these technologies help people watch movies and why everyone with impairments can still enjoy the audible and visual experience with colours and sounds.
- To implement a short movie featuring techniques that will enhance the visual and audible experience.
 1. To write up a script and design storyboards for the short film.
 2. Film the short film in a professional manner.
 3. Use of software to record the audio narration and use of closed captions.
 4. To produce a video of high quality for the target audience (HD 1920 x 1080).
- To learn new information regarding cinema techniques and hardware and software which helps people with visual and audible impairments when watching videos.

1.2 PROJECT BACKGROUND

Videos and movies have played a key part in my life for as long as I can remember. I always loved going to the cinema or after a long day at work, school or university I put my feet up, turn on the TV and put on one of my favourite movies. One of my oldest memories was going to the cinemas to watch The Lord of The Rings, the fellowship of the ring which is still one of my favourite movies the present day. I always buy the DVD extended cut of the movie to see more of the amazing scenes and I became really fascinated while watching the behind the scenes of how they brought the movie to life (special effects, locations and the soundtrack.) So every time I watch a movie and I really enjoy it I usually buy the art book and look at the amazing pictures of what the director's vision was and where the inspiration came from and I really wanted to learn how to film and any other cinematography techniques.

When I fell in love with cinema and wanting to learn how to perform more cinematography, another passion of mine was photography, when I'm off work or having a break of studying, I'm out and about in my car or on my bike to visit new places and other tourist attractions and take pictures of these various locations. Once I take the picture when I get home I like to imagine how this location could be used if it were in a movie. If it was an old castle I would imagine the castle in an old times such as the show Game of Thrones or Outlander or if it were in a sandy area I'd imagine something out of either movies such as The Martian or Mad Max Fury Road. I have all these ideas and I would love to see certain locations on the big or silver screen.

Through my Digital Media course here at Robert Gordon University, I have learned how to use a variety of programs for video editing. I have been a part of a group last year to produce an advertisement video of a product to sell to the public for my coursework which has been a lot of fun to do, not only did I learn how to film and edit but I also learned how to write a script which gives my group the direction of where the video was going and we also designed a lot of storyboards for how exactly the video was shot. I also had another audio and visual module in the first semester of this year's session where I was on my own and needed a crew to help me film my new video project with the theme it came from above where I had a brilliant idea of how it can be filmed. In my spare time I am part of a media group which involves video editing which allows me to practice my skills.

This project was perfect to combine my interest and everything that I needed to know about filming, editing and to also manage the project and how to apply it in a problematic situation. For example how can I make a short film for people with visual or audible impairments where they can watch the video without any problems. I wanted to put my hobbies into play and to challenge myself using the tools which I have used throughout my Digital Media course.

1.3 ANALYSIS OF CONTEXT

There are many technologies out there that can enhance the accessibility issues that heavily effect those with either visual or audible/hearing impairments, many technologies such as hardware and software has attempted an effort by using a variety of features.

Examples for those with visually impairments computers use speech syntheses to read the text and screen contents giving visually impaired access. Adding speech to support to standard software can give additional help to anyone with visual difficulties, there is also equipment which includes portable Braille computers and Braille input and output devices for standard computers. Settings for text sizes, fonts and colours can be used to alter the appearance of the screen and to increase its legibility. The monitor controls can be used to alter contrast and brightness or a larger or higher quality monitor may be easier to use.

Software that I will use is Audacity where I record myself speaking through my headset microphone and then edit the sound to a higher quality for my video project so anyone with visual impairments can hear my voice and be able to understand me speaking. The advantage with audacity is that it is free to use, there are other software to use such as Dolphin ScreenReader or ZoomText magnifier but they are incredibly expensive.

Dolphin ScreenReader allows people that are blind or partially sighted computer users to hear rather than see what is happening on their computer screen. The text on the display screen is converted to speech which can be heard through your computer, this can also be customized through the speed and volume of any voice input and you can also control the level of detail and punctuation that is spoken. What can be read through this software are documents, announce numbers, capital letters, punctuation or text attributes and graphic objects labelling.

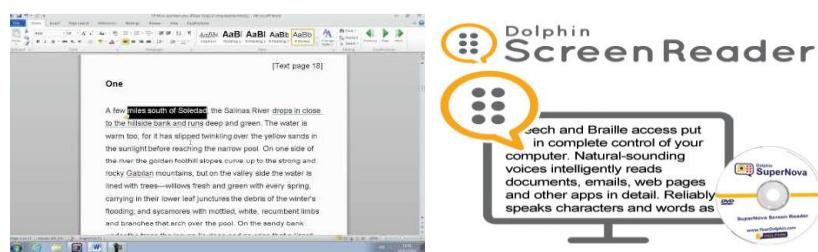


Figure 3 - Dolphin ScreenReader reads the text on a document for blind or hearing impaired audiences can listen to what is being read

Images sources: <https://www.maxiaids.com/dolphin-screen-reader-cd-version>

<http://editmicro.co.za/product/supernova-screen-reader/>

The ZoomText Magnifier/Reader is a fully integrated magnification and reading program tailored for low-vision users. Magnifier/Reader enlarges and enhances everything on your computer screen, echoes your typing and essential program activity, and automatically reads documents, web pages and email.



Figure 4 - ZoomText Magnifier

Image Source: <https://www.canadialog.com/product/zoomtextmagnifierreader>

Comparing the two software, both have Intuitive pinch-to-zoom magnifications on touchscreens, a scan and read (Optical character recognition) at no extra charge, accurate and quick focus tracking, precise and responsive focus highlighting, multiple monitors can be used to show camera using SuperNova Connect & view and more colour, display and mouse options including problem colour replacement Dolphin can do these features better than any other screen reader brand, what Zoom Text can't do is that they can't replace problem colours, it does not contain on screen keyboard for tablets and touch screens, fixing images or taking pictures from a camera window can't be done, there is no Item Finder which will not fix your spelling and grammar errors, headings and document revisions and they can't remember your settings for windows, dialogs, or websites (situation settings)

You get all kinds of hardware for people with hearing impairments such as videophones and videoconferencing which allows for two-way, real time visual and audio communication at a distance. Both technologies allow for communication with deaf or hearing people in sign language, directly through an interpreter, at home or abroad. You can get hearing aids such as radio aids, loop system or Personal Listening Devices such as television amplifiers, environment alert systems and telephone alerting systems. Also on television subtitles are displayed at the bottom of the screen so that they can read the text.

Television subtitles are used for people that are deaf of hearing and are effective because the text is large enough for the user to read the text. Some of the flaws is that they can appear off the screen quickly and can cause you to pause and rewind back to the clip that you are currently watching. A software that is also used for simplifying video captioning and subtitling in any digital workflow is the Captionmaker (for Windows) this allows you to easily author, edit, encode and repurpose video captions and subtitles for television, web and mobile delivery. Utilizing the exclusive e-Captioning technology simplifys the process of complying with great government regularity compliance, enabling greater access to broadcast content for television, online and mobile viewers.



Figure 5 CaptionMaker is well known for display closed captions which enhances accessibility for the deaf and hard of hearing

Image Source: <http://budgetvideosales.com/catalog/software/maccaption/maccaption-and-caption-maker-desktop-edition>

Software that can be used to support people with hearing impairments such as communication via the internet, E-mail, instant messaging, text messaging etc., Early Literacy can be used to develop literacy skills and reinforce concepts. Software is available to support word recognition, enhance reading skills and extend vocabulary, word processing is used where people can concentrate on their

thoughts and ideas which are written on the computer, feedback is later spread on any errors in the document (examples are Microsoft Word), Multimedia Authoring such as PowerPoint displays text, pictures, video and animation are used for audiences and desktop publishing which creates books, reports, brochures and newsletters where they can add as much images and text as they like.

I am going to use video editing software such as Adobe Premiere Pro to create my video for the people with visual impairments can watch and read the captions below the screen which acts as an enhancement aid which I own at home and is on the RGU computers, there are other video editing software such as Final Cut Pro X but it is incredibly expensive.

CHAPTER 2: BACKGROUND RESEARCH/LITERATURE REVIEW

2.1 THE SILVER SCREEN TECHNOLOGY

When deciding where to put the camera, cinematographers consider the movements, relationships and emotions of the characters; the arrangement of the set; the ambient light and opportunities for adding or subtracting light. Cinematographers have a toolkit for their trade: camera, film, lenses, lights, gels. [1] Similarly, the Synthetic Characters Group has constructed a set of tools appropriate to the interactive, digital kind of cinematography. [2] Documentary film making is much like narrative feature film making in technology. But quite different in technique. It is closer to a real-time environment. In that the cinematographer is often trying to capture events as they happen "for real", rather than having the luxury of a fully orchestrated film set. Although they often document real-time events, documentaries eventually have the luxury of the cutting room when crafting a final product; the system only gets one chance. [3]



Figure 6 - Documentary film making is much like narrative film making in technology

Image Source: <http://www.afieldinengland.com/masterclass/shooting/troubleshooting-on-a-tight-schedule/>

Interestingly there has been discussions that during cinema's history, a whole repertoire of techniques (lighting, art directions, the use of different film stocks and lens, etc.) was developed to modify the basic record obtained by a film apparatus. And yet behind even the most stylized cinematic images we can discern the bluntness, the sterility, the banality of early nineteenth century photographs. No matter how complex its stylistic innovations, the cinema has found its base in these deposits of reality, these samples obtained by a methodical and prosaic process. Cinema emerged out of the same impulse which engendered naturalism, court stenography and wax museums. Cinema is the art of the index; it is an attempt to make art out of a footprint. [4]



Figure 7 - Lighting has been used in filmography and photography

Image Source: <https://www.pinterest.com/pin/24980972913110900/>

The challenge which digital media poses to cinema extends far beyond the issue of narrative. Digital media redefines the very identify of cinema. In a symposium which took place in Hollywood in the Spring of 1996, one of the participants proactively referred to movies as “flatties” and to human actors as “organics” and “soft fuzzies.” [5] As these terms accurately suggest, what used to be cinema’s defining characteristics have become just the default options.

In another article the technology used to make videos is from the use of digital video cameras and digital still camera is becoming widespread. Digital video camera differ from digital still cameras in a number of respects. Digital video cameras capture approximately thirty frames per second and are optimized to capture a large amount of moving images, but sacrifice image quality, That is, digital video camera s typically capture thirty low-resolution 640x480 images per second, However, the uncompressed digital video signals from all these low resolution images require huge amounts of memory storage, and high-ratio real-time compression schemes, such as MPEG, are essential for providing digital video for today computers. Unfortunately, the hardware to support such processing is expensive, Placing most digital video cameras outside the reach of most consumers. Still digital cameras offer a less expensive alternative to digital video cameras, but are used primarily for capturing high quality static photographs. Still digital cameras are less expensive because they have a far less processing power and memory capacity than digital cameras. Even with these limitations, some still digital cameras are also capable of capturing sequential images such as a burst image. A burst image is a series of images captured in rapid succession, such as 3 images per second. [6]



Figure 8 – example of a digital video camera



Figure 9 - example of a digital still camera

Image Source: <https://www.lifewire.com/best-video-cameras-under-100-4149409>

Image Source: <https://www.amazon.co.uk/Kodak-EasyShare-Z990-Digital-Camera/dp/B004MMF7PU>

2.2 AUDIO NARRATION IN VIDEOS

According to the paper Using Descriptive Video Services to Create a Large Data Source for Video Annotation Research back in 2015, a use of audio narration technology which is used is a Descriptive Video Service (DVS) which is a US-based provider of descriptive narrations that are included as audio tracks in a variety of movies and TV programs distributed on DVDs and other visual media. Their purpose is to make visual media more accessible for the visually impaired. In different regions of the world this type of annotation is known under names such as Descriptive Video or Described Video in Canada or Audio Description in the UK. List of DVDs with DVS audio tracks are available on many websites such as that of the WGBH media group [7]. In Canada, the Canadian Radio-television and Telecommunications Commission (CRTC) maintains a list of television channels with described video [8]. While the WGBH television station was an early pioneer in the creation of this technology, there are now a number of providers of similar services [9].

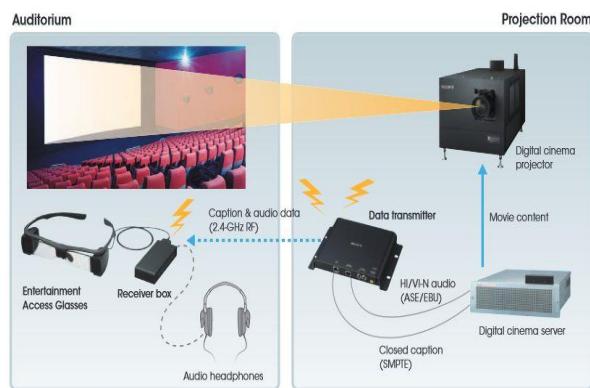


Figure 10- a diagram of using Descriptive Video Services

Image Source: <http://www.acb.org/adp/movies.html>

Another use for audio narration is through the use of Digital Storytelling. There are many definitions of “Digital Storytelling,” but in general, they all revolve around the idea of combining the art of telling stories with a variety of digital multimedia, such as images, audio, and video. Just about all digital stories bring together some mixture of digital graphics, text, recorded and audio narration, video and music to present information on a specific topic. As is the case with traditional storytelling, digital stories revolve around a chosen theme and often contain a particular viewpoint. The stories are typically just a few minutes long and have a variety of uses, including the telling of personal tales, the recounting of historical events, or a means to inform or instruct on a particular topic.

Digital Storytelling has also been used in education. One of the first decisions to be made when deciding to use this tool in the curriculum is whether the instructor will create the Digital Stories or have the students do it [10].



Figure 11 – the many ways to implement digital storytelling

Image Source: <http://guides.libraries.psu.edu/digitalstorytelling>

Storytelling is the original form of teaching (Pedersen 1995). It is a simple but powerful method to help students to make sense of the complex and unordered world of experience by crafting story lines (Bruner 1990; Gils 2005). Although storytelling is not new, the idea of digital storytelling is new (Meadows 2003). Within the last 10 years, digital cameras, editing software, authoring tools and electronic media outlets have encouraged teachers to utilize many more approaches and tools than ever before to help students to construct their own knowledge and ideas to present and share them more effectively (Standley 2003). One of these powerful approaches to multimedia production is digital storytelling. Meadows (2003) believes that digital storytelling is the social practice of telling stories that makes use of the low-cost digital cameras, non-linear authoring tools and computers to create short multimedia stories.

The Digital Storytelling Association (2002) describes Digital storytelling as:

A modern expression of the ancient art of storytelling. Throughout history, storytelling has been used to share knowledge, wisdom, and values. Stories have taken many different forms. Stories have been adapted to each successive medium that has emerged, from the circle of the campfire to the silver screen, and now the computer screen.

Robin and Pierson (2005) believe that digital storytelling has captured the imagination of both students and teachers and the act of crafting meaningful stories has elevated the experience for students and teachers. Compared to conventional storytelling, digital storytelling audiences are viewed only as listeners but also as learners who can interact and shape the story (Dorner et al. 2002).

Lynch and Flemming (2007) indicate that:

[The] flexible and dynamic nature of digital storytelling, which encapsulates aural, visual and sensory elements. Utilises the multitude of cognitive processes that underpin learning-from verbal linguistic to spatial, musical, interpersonal, intrapersonal, naturalist and bodily-kinaesthetic. [11]

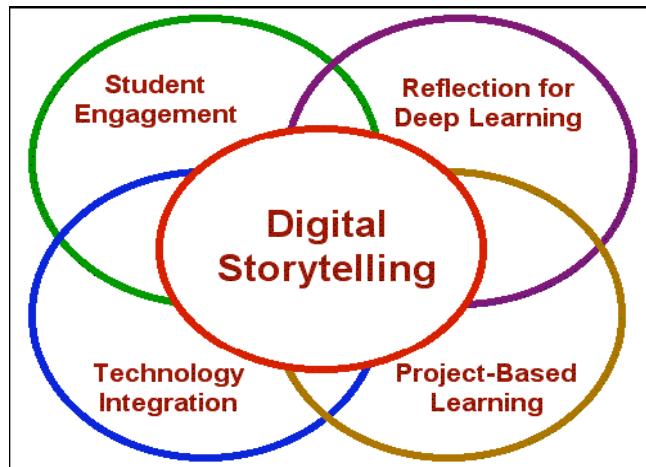


Figure 12 – the key points in digital storytelling

Image Source: <http://borchardtlibrary.edublogs.org/digital-storytelling/>

2.3 CLOSED CAPTIONS IN VIDEOS

Most videos tend to use Closed Captions for people that are audibly impaired so they can read the text at the bottom of the screen. Closed captioning is a method of letting hearing-impaired people know what is being said in a video by displaying text of the speech on the screen. Closed captions are found in Line 21 of the vertical blanking interval of a television transmission and require a decoder to be seen on a television [12]. In addition to representing the dialog occurring in the video, closed captioning also displays information about other types of sounds such as sound effects (e.g., (BEAR GROWLS)), onomatopoeias (e.g., grrr), and music lyrics (enclosed in music note symbols). Because closed captioning is not part of the video, it is possible for the viewer to turn them on and off. This allows them to be extracted from the transmission of the video. IN addition to closed captioning, text can be placed on the television screen with open captioning or subtitling. Open captioning serves the same purpose as closed captioning, but the text is actually part of the video and would need to be extracted with a character recognition program in order to be used for our purpose [13].

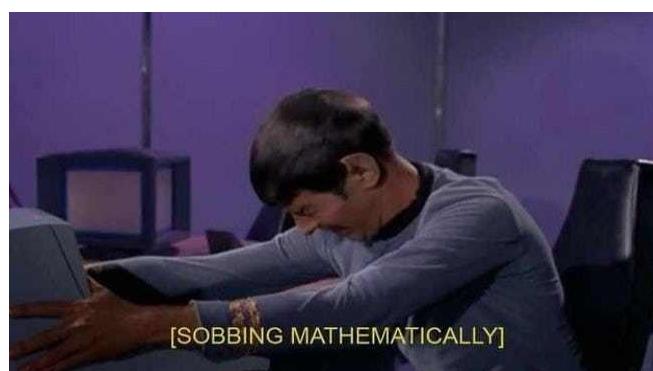


Figure 13 – example of using captions on the monitor

Image Source: <https://www.ranker.com/list/funny-closed-caption-subtitles-from-tv-and-movies/robert-wabash>

However, using closed captions does have some disadvantages. One is that the text available in closed captions is largely dialog; there is little need to describe what is being seen. For this reason closed captions do not capture what is occurring in the video. A second is that not all video has closed captions nor can closed captions be generated for video without dialog. A third is that while extracting closed captions is not computationally expensive, generating the feature vectors of terms and learning from them can be computationally expensive since the feature vectors can have ten thousands of terms. Many methods exist for representing video, but discrete cosine transform coefficients have the advantage of already being present in MPEG-1 videos as well as some other image and video formats [13].



Figure 14 – use of closed captions

Image Source: <https://www.ustream.tv/blog/streaming-video-tips/what-is-closed-captioning-and-how-does-it-work/>

The next article continues to talk about captioning but the system which was used was an older and rarer machine which is known as a real time captioning system. Real-time captions are written on a stenotype machine, the kind used by court reporters to record legal proceedings. Instead of spelling out each word letter by letter, the operator of the stenotype machine uses a form of shorthand. The stenotype machine is connected to a computer system, which translates the shorthand into regular English words, formats these words into captions, and determines caption line length, placement and other features. For closed captions, the computer is connected to a Line21 smart encoder, a device that adds the caption information to the television signal. The CIA wanted a method to translate quickly into English, and then print, Russian language intelligence data. As translators translated the Russian into spoken English, the shorthand reporter would input the data on the stenotype machine. The output was fed directly to a large mainframe computer, where it was processed through a series of dictionaries matching stenotype outlines and their English equivalents. The mainframe then printed the English text [14].



Figure 15 – a stenotype machine which types up closed captions

Image Source: <https://www.pinterest.com/pin/318348267386843063/>

The Emotive Captioning and access to Television paper refers that the one way of improving access to broadcast content for people who are deaf or hard of hearing is to translate the missing data into an alternative visual and/or tactile modality. (Oviatt 1999) suggests that simple translation is insufficient to convince content from one mode to another. For example, speech input is better at conveying time-dependent descriptions while gesture-based input is optimum for specifying spatial information such as location of an object in a room. Attempting to express spatial information with text (as speech or written form) is less efficient, more error-prone and requires more descriptors and interpretations. To understand the full message that is being communicated with existing closed-captioning models, the deaf or hard hearing caption viewer must rely on visual-only cues such as body language and gesture, and combine this information with the words and short text descriptors shown within the captioning. So what was happening was that a new form of captioning was being developed which was titled Emotive captioning [15].



Figure 16 – an example of emotive captioning

<https://iheartsubtitles.wordpress.com/tag/creative-subtitling/>

2.4 IDEA SOLUTIONS IN VIDEOS FOR THE VISUALLY IMPAIRED

According to the article Wide-band enhancement of television images for people with visual impairments there is a growing number of people suffer from visual impairments. These impairments and the resulting disabilities greatly impact the quality of life of many older, otherwise healthy people. The rehabilitation needs of people with visual impairments cover a wide scope of activities including reading, face recognition, independent mobility, attending to daily activities, and watching television (TV). Traditionally, vision rehabilitation has been aimed at improving mobility and reading skills, in the main future, the main value of image enhancement in providing people with visual impairments with access to the growing volume of video images presented on stationary monitors. TV is an important means of obtaining information and sharing in our culture. Since TV is primarily a visual medium, people with visual impairments do not have full access to it. It has been made clear that video access will become even more important – serving a wide variety of activities on the Internet [16].



Figure 17 - television enhancement has been used to aid people with visual impairments

Image Source: <https://www.indiamart.com/proddetail/panache-40-led-television-11044095197.html>

Another article suggests that people with vision impairment watch television regularly and to a similar extent as normally sighted viewers [17]. Patients with poor central vision frequently use magnification to increase the size of the image on the retina, which shifts the higher-frequency details into lower frequencies and, therefore, greater contrast sensitivity. Magnification of a TV picture can be achieved with optical devices such as spectacles and head born telescopes, Magnification may also be achieved by sitting closer to the TV, increasing the size of the TV screen, or via electronic zooming of the displaying images [18].

Although blind and visually impaired audiences watch television about as much as the general population they find it harder and get less out of the experience [19]. There has been an agreement that digital movie clips are becoming an important method of obtaining services from the internet, such as virtual tours and shopping, especially important if mobility is limited [20]. Moving closer to the television (limited in terms of room ergonomics), using a larger television screen, adjusting the television brightness and contrast settings, and audio description [20].

2.5 IDEA SOLUTIONS IN VIDEOS FOR THE AUDIBLY IMPAIRED

A Video Relay Service (VRS) may provide speech translation services, and sign language to speech translation services for a communication session between a video phone for an audibly-impaired user. In other words, the VRS may be used so an audibly-impaired user and a traditional telephone for an audibly-impaired user. In other words, the VRS may be used so an audibly-impaired user can carry on conversations with an audibly-impaired person. In such systems, the audibly-impaired user will use sign language to a translator and the translator will speak what is signed to the audibly-capable user. In the other direction, the translator will listen to the audibly-capable user then sign what was spoken to the audibly-impaired user. One of the methods included was the audibly-impaired user is unavailable to receive the call. Responsive to this determination, information is selected from a database with one or more entries associated with the audibly-impaired user, wherein the one or more entries include a video greeting previously recorded by the audibly-impaired user and a text greeting previously entered by the audibly-impaired user. The video

greeting and the text greeting are combined as a merged video stream and the merged video stream is presented on the video endpoint associated with the calling party [21].

Captions provide accessible text versions of video and audio in real-time. While the access is essential for people with hearing impairments, it also benefits people who do not have speakers, people in noisy places, and people in noise-minimizing environments such as libraries and cubicle offices. Captions or equivalent text transcripts can ensure accessibility for people who do not know the sign language. Captioning provides an alternative channel of information that may make content more understandable for people with learning disabilities and people learning a new language. Also adding text to video and audio content makes it more searchable and indexable [21].



Figure 18 – the differences between the two types of captions

Image Source: <https://commons.wikimedia.org/wiki/File:Closed-Caption-Example.svg>

At a minimum, an equivalent transcript of the audio should be provided, even if it cannot be synchronized. Transcripts can be useful to people who do not have the required video or audio player or who do not want to download the entire video or audio file. Either way, the captioning should be readily accessible through an easy to find link and/or instructions on how to enable the captioning. There are two different types of captions: closed and open: closed captions give the user the option to display or hide the captions and require a compatible recorder to process and display the caption data. Open captions are incorporated into the video itself and cannot be hidden. But, because they were designed with the video, they can be placed in visually convenient locations on the screen and with the appropriate colours and backgrounds. Designing an open captioned video often requires expensive and time consuming video editing tools [22].

In this project, a short movie will be produced with the research that was carried out using the hardware and software that is out there and what was discussed earlier. The movie “A Rough Day At The Office”, will focus on a man who is easily distracted at work. The video will have no spoken dialogue from the main character as the background will have background music and a narration to describe what our main character is doing in the movie. What is going to be used in the short film is the use of captions to translate what the narrator is saying throughout the whole movie. These tools that will be used will enhance the accessibility for people that have problems with eyesight or hearing (visually or audibly impaired for example) as after the video is implemented it will be tested with other people and at the end will complete an user evaluation form to discuss what was good and will the video be effective and accessible for everyone. This experiment and research will hopefully benefit everyone and everyone not just be able to access the video but enjoy it as well as it is also for entertainment purposes.

2.6 SOFTWARE

In creating the video project, there are many different software that is needed to tackle different problems. There are alternative software options, and a selection which could have been used throughout this project

2.7 VIDEO EDITING SOFTWARE

As part of this project as it involves putting together and editing the video clips there was a decision I had to make on which video editing software to use. There are a variety of choices from Sony Vegas Pro, Final Cut Pro X, Adobe After Effects and Adobe Premier Pro, I decided to go with Adobe Premiere Pro due to being more familiar and comfortable with the software since I have learned how to use it during my time at university.

2.8 SONY VEGAS PRO

VEGAS Pro provides all the tools you need to edit your video fast. Encode for 4K delivery or publish to your favourite screening outlet. Or, author and deliver your production in HD with Dolby Digital sound on a Blu-Ray disc. [23], However RGU does not have this software I won't use this software.



Figure 19 Sony Vegas Pro

Image source: <https://www.vegascreativesoftware.info/us/forum/vegas-pro-15-ui-concept-design--104300/>

2.9 FINAL CUT PRO X

Final Cut Pro X revolutionizes post production with 360 degree video editing and motion graphics, 4K HDR support and advanced tools for colour correction [24], however due to this software being more Apple based and I don't use Macs this software was unsuitable to use for the project.



Figure 20 Final Cut Pro X

Image Source: http://2.bp.blogspot.com/-hLjs2xJjq3c/TgDSalqms_I/AAAAAAAABt0/JxjCFaj5FM8/s1600/Apple+FCPX+Colour+screen.jpg

2.10 ADOBE AFTER EFFECTS

Animators, designers and compositors use After Effects to create motion graphics and visual effects for film, TV, video and web. You can combine videos and images to send an UFO across the sky, blur out a logo or create an explosion. After Effects has hundreds of effects to get just the look you want, adding fog to changing colours to making it snow. [25]



Figure 21 Adobe After Effects

Image Source: <https://adobe-after-effects.en.softonic.com/>

2.11 ADOBE PREMIERE PRO

Premiere Pro turns raw footage into flawless productions, the industry-leading video editing software. Whether you're just starting out for a seasoned pro, you can edit, adjust colour, refine audio and more. Premiere Pro is used by filmmakers, YouTubers, videographers and designers. [26]

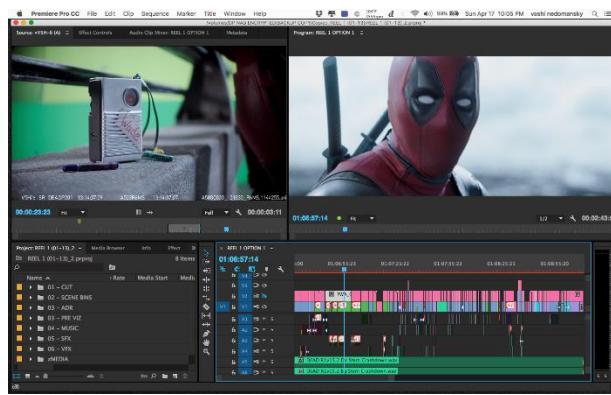


Figure 22 Adobe Premiere Pro

Image Source: <http://vashivisuals.com/tag/premiere-pro/>

2.12 AUDIO EDITING SOFTWARE

2.13 ADOBE AUDITION CC

Audition CC is a comprehensive toolset that includes multitrack, waveform and spectral display for creating, mixing, editing and restoring audio content. This powerful audio workstation is designed to

accelerate video production workflows and audio finishing – and deliver a polished mix with pristine sound. [27]



Figure 23 - Adobe Audition CC

Image Source: <https://larryjordan.com/store/180-audio-for-video-editors-adobe-audition/>

2.14 WAVEPAD

The audio editing software is a full-featured professional audio and music editor for Windows and Mac. It lets you record and edit music, voice and other audio recordings. When editing audio files, you can cut, copy and paste parts of the recordings, and then add effects like echo, amplification and noise reduction. WavePad works as a wav or mp3 editor, but it also supports a number of other file formats including vox, gsm, wma, real audio, au, aif, flac, ogg and more.[28]



Figure 24 – WavePad

Image Source: <https://wavepad.en.softonic.com/>

2.15 PRO TOOLS

Pro Tools is a digital audio workstation developed and released by Avid Technology for Microsoft Windows and OS X which can be used for a wide range of sound recording and sound production purposes. [29]



Figure 25 - Pro Tools

Image Source: <https://www.soundonsound.com/reviews/avid-pro-tools-10>

2.16 AUDACITY

Audacity is a free, easy-to-use audio editor and recorder for Windows, Mac OS X, GNU/Linux and other operating systems. You can use Audacity to Read live audio, Concert tapes and records into digital recordings or CDs, Edit Ogg Vorbis, MP3, WAV or AIFF sound files, Cut, copy, splice or mix sounds together, Change the speed or pitch of a recording and to add new effects with LADSPA plug-ins. [30]



Figure 26 – Audacity

Image Source: http://download.cnet.com/Audacity/3000-2170_4-10058117.html

2.17 HARDWARE

In creating the video project, many different pieces of hardware are needed especially when it comes to backing up the video project and technologies such as a laptop or desktop. In this section this describes the hardware that is involved in this project.

2.18 PEN DRIVE

Fast Flash Memory, High Speed USB which makes the ideal gift for anyone who needs to move around different computers. You can store 1000s of songs, photos, and eBooks. Compatible with Windows 2000/XP/Vista/7/8, MacOS 10.4 or later. [31] this device is sufficient for my project because it backs up my files if something went wrong or the data has been lost or corrupt. The insufficient of the pen drive is that is small and very likely to go missing if I am not careful with it and pen drive sometimes can get corrupted as well.



Figure 27- USB Pen Drive for backup storage

Image Source: https://www.amazon.co.uk/Ricco-Swivel-Speed-Metal-Memory/dp/B005K23Y88/ref=sr_1_4?s=computers&ie=UTF8&qid=1516793534&sr=1-4&refinements=p_n_size_browse-bin%3A310779031

2.19 ACER LAPTOP

The Aspire E-475 is part of our Everyday range of simple and reliable PCs. It's great for studying, working on essays, streaming TV on demand, and browsing the web. The Aspire E-475 has a powerful Intel Core i3 processor to help you get through your everyday tasks with ease. With 8GB of memory, you can browse the web, check your email and play music all at the same time without slowing down. A precision touchpad helps you to avoid unintended taps, while the slim design and easy grip makes it ideal for computing on the go. You can store all of your favourite pictures, videos and music on the laptop with ease as it features a large 1 TB hard drive. Whether you are enjoying your favourite music or watching a video, Acer TrueHarmony delivers lifelike audio to enhance your entertainment. By limiting the audio distortion and delivering a wider range of bass, you can enjoy immersive audio and finally by reducing the blue light emission, the Aspire E-475 lets you work and play for extended periods of time with less eye strain. [32] This laptop is a powerful machine and allows me to work from home, the device also acts as a backup device if my work in the university lab room computer crashed without any warning, the problem with this device is that it lacks the portability and since I live far from the university I have to drag my laptop and back home.



Figure 28- Acer Aspire Laptop used to work from home

Image Source: <https://www.trancelaptop.com/product/acer-aspire/>

2.20 RGU LAB COMPUTERS

The computers in the university lab rooms are state-of-the-art that are updated over a 3 year cycle to ensure they deliver a high performance and support the latest software. The school offers 100% wireless network coverage for laptops and other handheld devices. There's also a comprehensive

range of software on-site – some developed by staff to support course work and making wide use of open source and public domain technologies. Established relationships with major software suppliers mean access to the latest software wither for free or very low prices. [33] theses lab computers are very effective because they have all of the software that I need to make this video project happen. And its quiet so I can work away. The problem with the computer labs are that I live far away from the university so it will take me a while to get to the lab.



Figure 29- the RGU Computer Lab

Image Source: <http://www.rgu.ac.uk/areas-of-study/subjects/computing/why-study-here/facilities/computing-facilities/>

2.21 TURTLE BEACH X12 – XBOX GAMING HEADSET + AMPLIFIED STEREO SOUND

The Ear Force X12 is the definite headset for gamers seeking amazing game sound, crystal-clear communication and enhanced comfort – all at an unmatched value. The X12 features massive 50mm speakers, delivering superior audio quality with crisp highs and deep, rumbling lows. The in-line amplifier puts you in control, with quick access to independent game and chat volume controls and adjustable bass. With separate connections for microphone and line signals, the X12 also makes a great PC gaming headset. [34] how I will use this piece of hardware in my honours project is to record the audio narration by talking through the microphone. The headset audio is very high quality.



Figure 30 - Turtle Beach X12

Image Source: <https://www.amazon.co.uk/Turtle-Beach-Amplified-Stereo-Headset/dp/B005EQE0YM>

2.22 ETHICAL ISSUES

Throughout the process of developing the project, there are not much ethical issues that I see during this production. The only testing process which will take place in this project which involves other people will be showing the completed and final cut of the short film and then asking them afterwards to fill out an user evaluation form which tells me what was good about the final cut and what should be done better and if it will let people with audible and visual impairments be able to access and watch the video without any trouble. Some of the shots will involve only myself, while also directing myself in this short film. I will need to take care of myself and the crew from exhaustion, boredom or if one of us hurts ourselves.

2.23 LEGAL ISSUES

Throughout the process of developing the project, there can be major legal issues that I see during this production. An example of this is copyright infringement which means taking someone else's work that doesn't belong to you and to claim it as your own. This can involve images, videos and audio, however if you ask permission from the author to use a piece of multimedia in a project it will be fine. A problem is trying to use an audio background track in the video since the music could be copyright a way to prevent copyright from happening is by using non-copyright background music or to ask the authors permission if you can borrow the audio.

2.24 SOCIAL ISSUES

Whilst the video has been used for entertainment use, an addiction for wanting to watch more content which is similar to the video project that I am working on, this can lead to impacting people of all ages and leads to problems in regards of social life, this removes the need for us to carry out many tasks, as well as keeping us rooted to one spot through our working days and during our spare time, In particular plagiarism has become a problem such as copying soundtrack using similar fonts and colours without crediting or consult the rightful owner.

2.25 SECURITY ISSUES

In terms of security the video has been uploaded as an unlisted this is where the only person that can see the video is yourself or if you send the video link to someone else as the video has been used for education and someone who has seen the video can tell people about it and says things that may cause offense or to steal the video and to make in there on. Another security issue would be passwords being hacked for an example private videos on Vimeo can be locked up by a password to keep safe from unauthorised content browser.

2.26 PROFESSIONAL ISSUES

In terms of professional issues the video project is the commitment and time being put in for the project such as use of a project log to journal your thoughts and the things that you have done and what didn't go to plan etc, and taken in account of the use of professional technologies, hardware and software and remain consistent by using the same software that you have used to create the software, behaviour is another example of professional issue by showing that you are taking this work seriously and that you are keeping in contact with your supervisor during your project to show that you are committed and are placing your heart into the project.

CHAPTER 3: PROJECT SPECIFICATION

The project will produce a video that can be accessed for anyone especially for people that may suffer from disabilities such as audible and visual impairments. Audio and visual elements will be added using state of the art software such as Adobe products like Premiere Pro and After Effects. Testing with an appropriate audience will be conducted with an evaluation report. A full detailed report will be included with the product with the final outcome saved to a pen drive and a computer for back up purposes. A demonstration and presentation will take place after final hand in after final hand in of work.

A.1 Step by Step Guide

- 1) The project for the video will be used via a video camera and a microphone to help those who have visual or audible impairments
- 2) Research will be done to seek inspiration and looking at other people's work
- 3) Use of storyboards and a good script so I know what direction this video is going
- 4) The solution will have the following functions (sound, colours, text)
- 5) The solution will be deployed and tested on different monitors
- 6) I will test my video on people with visual impairments and audible impairments
- 7) The solution is aimed for people with visual and audible impairments as my research is used to come up with a solution for people with impairments to have a nice experience
- 8) I intend to use certain software to create and edit this video (Premiere Pro, After Effects, Audacity)
- 9) The project will be done either at university and at home
- 10) The video will let people easily access the video and will find the video interesting and amusing.
- 11) Write up my overall report on the project

TARGET MARKET = people with accessibility issues such as visual and audible impairments

FUNCTIONS = video will contain text, colours and an audio narration which will secure accessibility issues

EQUIPMENT = use of video camera, microphone and software such as Premiere Pro, After Effects and Audacity

SIZES= computer monitor, tablet and phone size

QUANTITY= 1 item a rough cut will be made then finally a final version

MAINTENANCE REQUIREMENTS = overall edit on video such as colour correction and adding titles and import after effects clips into premiere pro

PRODUCT LIFESPAN = forever once deployed

COST = none as it is a university project

TIME SCALE = up to 8 months (to test and evaluate as well)

A.2 Functional Requirements

The function requirements show the services produced by the product

- The project will provide a multimedia product in the form of a video.
- The project will let people with or without disabilities to watch.
- People with disabilities such as audible and visual impairments will be able to access the video with a feature of enhancements
- The project will contain titles, captions and audio.
- The project will contain a questionnaire for students and users to answer to get feedback.
- Editing and putting all audio and visual elements will be of a high standard and for people with disabilities to understand the video.
- All audio and visual elements in an appropriate format to ensure the quality is of a high standard.
- The text in the video will be presented in a clear legible font for acceptable viewing.
- The power point presentation will have an introduction outlining the steps that were carried out throughout the project.
- The Power Point presentation should be no more than 8 slides
- There will be a demonstration of how the final product worked to show how it has been developed.

A.3 Non-Functional Requirements

Constraints throughout the project:

- the project does not contain a budget.
- the project will be completed, submitted and presented by May 2018.
- The skills, ability and knowledge of the student is restricted due to constant learning.

Hardware for the project will include:

- A desktop PC capable of editing and rendering high quality videos, and sound.
- Hard drive of 32GB or 64GB of storage of files.
- Appropriate mouse, keyboard and monitor.

Software for the project will include:

- Adobe Suite including Photoshop, Premiere Pro and After Effects.
- Microsoft Office including Power Point, Word and Excel.
- Audacity to design the sound.
- Any audio will be recorded at 160Kbps using MP3/AAC file format for best sound quality to accompany the story as narration.
- All audio will be recorded by the student and will ask permission to obtain a source.
- All components of the project will be the property of The Robert Gordon University as well as it will be produced within the facility using their resources.
- The final project will be fully tested and then later evaluated by a test audience before completion.

CHAPTER 4: DESIGN/PRE-PRODUCTION

In this section, what is going to be discussed is the designing of the video project, I have had a series of ideas to design the concept of this video, the story, the script, the storyboards etc. which all takes place in the pre-production section of the video.

Initially the aim for the video being produced was to use a variety of enhancements of the techniques which I have researched back in the background research/literature review section and apply them onto this short film. I have taken inspiration from silent films such as Charlie Chaplin and short movies from film students which has involved audio narration in their videos which is exactly what I was going for in my final honours project. I have been looking at international movies and television series which has the use of annotations throughout the television which gives me an idea of what I need to do to implement my final deliverable.

Once the final movie concept has been decided and greenlit. The work has begun on producing a fully detailed script that tells the entire plot synopsis of what is going to happen throughout the short video and storyboards being produced to give me an idea of what shots I want while working both behind and in front of the camera which will supports the script by going in the direction that I want while filming (see Appendix C and D for the script and storyboards) there will be clips that will get cut from the final edit and the decisions will be discussed about why some scenes were filmed and why they were cut in the evaluation section of the document.

```
FADE IN:  
  
INT. OFFICE - DAY  
  
A man walks down the stairs and prepares a cup of tea in a  
precise manner then pours the milk into the tea and stirs  
the mug, the man puts his watch on and puts on his tie,  
the man's name is Steven  
  
NARRATOR  
This is Steven and he is  
about to start his day and he  
has a very interesting  
routine and he has a very  
specific way of doing things.  
He starts the day with a cup  
of tea and places the sugar  
in before the milk and stirs  
it together. He puts on his  
favourite watch and puts on  
his favourite tie before  
starting the day.
```

Figure 31 - Example structure of the script

During Pre-Production there is a lot of things to consider before filming the video apart from the script and storyboarding developing a production schedule to know what kind of filming will happen on the day. Wardrobe is also considered to know what the character looks like and how he behaves, the use of photo boards and visual references for the kind of style that the movie is going to have and a statement is very important because you want to know why you are doing this video project. A risk assessment must be taken to prevent any injury or damage to either the person or the equipment that could affect filming and a shot list is used to describe what kind of shots I want to use while filming. Finding a location to shoot is also a key factor in this project as this short video will have indoor and outdoor locations (weather is temporary) and a crew is needed to film the movie and the cast to star in it.

Date:	27/10/17	Location:	Fraserburgh Beach	Task/Activity / Process:	Filming	Risk assessor name:		Signature:		Review Date:	NOV/DEC 2017	Other:	
Identify the hazard		Who or what is at risk?		What controls are already in place?		What is the likelihood of an accident occurring?		What would be the impact if an accident did occur?		What, if any, additional controls are necessary?		When and by whom will the control measures be implemented?	
Tripping whilst holding the camera	Camera crew	The camera crew	walking/trotting and holding the camera it's safe to the Camera crew will have time to take a break the day before and spaces can be found to do this.	Walking/trotting	2	2	none	SEAN SMART					
Ensure batteries in cameras are fully charged	Camera crew				1	1	none	SEAN SMART					
Take care whilst holding the camera, losing your balance	Camera crew			Taking the time climbing up the steps and holding the camera on its tripod.	1	1	none	SEAN SMART					
Person tripping over equipment in front of the camera	Myself			Shoes to be tied and ensuring of my surroundings	1	1	none	SEAN SMART					
Likelihood of equipment breaking/breaking whilst filming	Myself			Put my hands in my pockets when I put my hands in my pockets when I am carrying the camera and not rush	1	1	none	SEAN SMART					
Sand in the eyes while windy	Myself/camera crew			Ensuring levels	2	2	none	SEAN SMART					
Loss of colour calibration due to USB pen drive	Myself/camera crew			Ensures to have the correct settings on the film	4	5	none	SEAN SMART					

Figure 32 example of a risk assessment

Now that the video plot, the crew is assembled with their roles and shots are planned, work on the production on the short film can finally begin.

4.1 DESIGN METHODOLOGY

A design methodology is an overarching approach to design that may include a set of philosophies, principles, processes and techniques. In some cases, they are associated with a type of design such as architecture or graphic design. It is also possible for a methodology to be generic enough to applied to all design. The design methodology I am using for my honours project is the Iterative Design which is a repeated process of quickly implementing designs or prototypes, gathering feedback and refining the design. It is intended to get things in front of clients, customers and users in order to rapidly improve designs with real world testing. How this applies in my honours project is that I have roughly 8 months to deliver a video with enhancements such as captions and audio that include hardware such as headphones to help people that may have audible and visual impairments enjoy the viewing experience. I have a series of ideas for stories and script in front of my supervisor. By the time the deadline rolls around I'll have already gone through multiple cycles of feedback and are confident that the work will be a successful honours project.

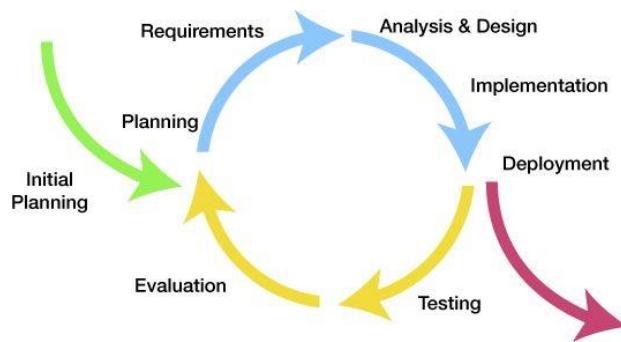


Figure 33 Example of an Iterative Design Methodology

Image Source: <https://danieltherobertson.wordpress.com/>

This approach is designed to cope with the complexity of modern projects and to allow these projects to be designed in a more flexible manner. Agile is able to take change requests into account to a much greater extent and respond flexibly to new requirements that only emerge when the

project is underway. The objectives are not completely planned at the beginning of the project life span and developed over a long period of time.



Figure 34- Agile Methodology Approach

Image Source: <https://www.360logica.com/blog/the-importance-of-different-agile-methodologies-included-in-agile-manifesto/>

How this approach will help me with my honours project is that get the requirements by creating a detailed project specification with the functional and non-functional requirements and the relevant research that will help me with my honours, for planning and design is to determine a design methodology and create a script with a storyboards then get around to developing the video with the added elements test it then review what went well then what went wrong go back and fix what didn't go well. The design will likely go into an iterative process before going into implementation.

4.2 NARRATIVE

For my honours project I chose to create a video project to come up with a solution for people with visual and audible/hearing impairments to access with. There is a lot of technology out there that can act as an enhancement to the selected audience.

One of the solutions that was used as an enhancement mostly for the visual impaired was the use of audio narration which has been used on many television shows such as planet earth which was narrated by Sir David Attenborough or any kind of documentary, another solution which is for the audibly impaired was the use of captions to describe to the audience on screen about what is happening (LION ROARING) or what the character on the screen is saying.

For writing the script I had an idea of a work colleague slacking and getting easily distracted at the office for the video project while the video is played the narration in the background will play and describe what the character is doing while he gets ready for his work, down below the screen are the captions (subtitles to tell the audience what the narrator is saying) I wanted the short video to be fun and humorous as well so the video project doesn't feel boring and serious all the time but also ensuring that it is accessible for the target audience. The story I have come up with feels relatable to us in real life because at times we can be easily distracted and tend to lose focus on the smallest things I feel this can be a good story to tell while I was planning my honours project. Most videos tend to use a happy ending to finish the story, I opted to use a different take on the ending as much as I like seeing happy endings in movies I like the use of plot twists to trick and surprise the audience unexpectedly. For the ending I had this idea of the colleague finish his report, go into his car, drive home and got to bed happily to make the audience think this was a happy ending and then realises he has forgotten to send the report via email to his boss where he quickly opens his eyes in complete shock which I felt was a good example of a plot twist.

The conflict or the obstacle to overcome in the story is how easily distracted by the smallest things such as playing with your pen, looking at emails or checking social media instead of focusing on the task at hand, I felt this was interesting to see how distractions from getting work done can be a really bad thing and that there can be consequences when you do not do what you have been requested to do.

In conclusion the video project is for humorous purposes, mostly just for a bit of fun but to tell a story as well and the use of audio narration and use of captions to age the target audience with visual and audible impairments to watch the video without difficulty.

The advantage of this project is that I have creative freedom and can do whatever I want for coming up with an idea for a plot while also following closely to the coursework requirements and how this will be developed with the right tools for the project and selected hardware and software to make the final project happen.

4.3 CHARACTER DEVELOPMENT/INFLUENCES

4.4 CHARACTER DEVELOPMENT

1. What does your character do for a living? – Graduate Student/Intern at Digital Media
2. Are they human? – Yes, human
3. What gender? – Male
4. What are their hobbies? – Filming, editing, Photography, Exploring
5. What do they like to wear? – White shirt, Tie, Black trousers and shoes, watch
6. Where are they from? – Scotland
7. Do they have any family? – yes a mum and a dad

So the character idea to give him a little backstory is about a young man named Steven aged 22 a freshly graduated student in Digital Media at Robert Gordon University who has earned himself an internship at a media production company, he's inspired, determined and always excited to undertake any challenge, when he is asked to write up a small evaluation report on a graphic, he gets nervous and unsure and he gets distracted by even the smallest things. On his break he goes into his car and heads off to his happy place to take his mind off the report and then he will come back refreshed, confident and ready to go back and finish off the report. He comes home feeling proud of himself after putting in the hard work and calls it a night, until he realises he has forgotten to email his report to his boss. The idea of this video project is to display behaviour of people that are distracted when they should be focusing on something very important.

4.5 PROJECT INFLUENCES

The project has been influenced by a short film called *A blind eye* by a Film Student which is on YouTube which has a similar style to what I am going for while developing this video project which has the use of background narration which tells the story without the main character saying a single word which engages the audiences and also captures their attention as well, also the work on Charlie Chaplin was heavily influenced with its background narration as it has a humorous description of all what is happening throughout the movie. Another influence for my main character was the main character in *The Accountant* (2016) starring Ben Affleck where his character is incredibly clever, he's dressed well when he's at work but he can be easily distracted as well.

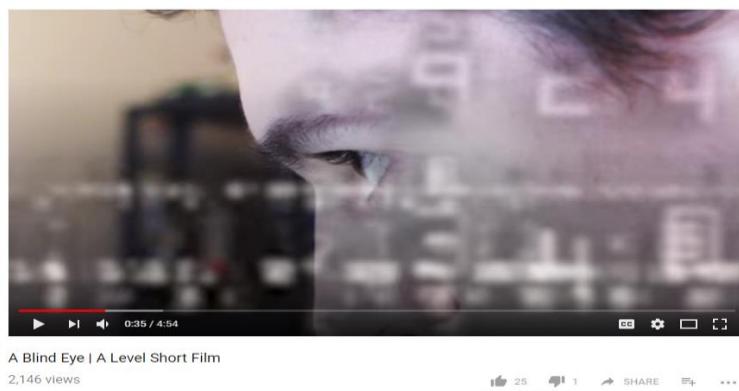


Figure 35- A Blind Eye



Figure 36 - Charlie Chaplin



Figure 37 - Ben Affleck in *The Accountant*

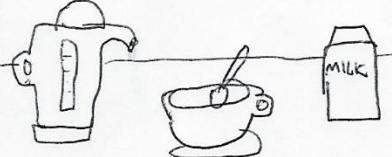
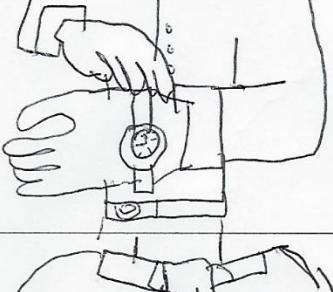
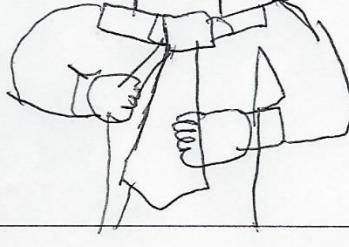
Image Source: <http://uproxx.com/filmdrunk/accountant-movie-review/>

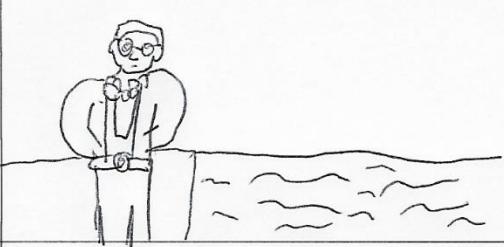
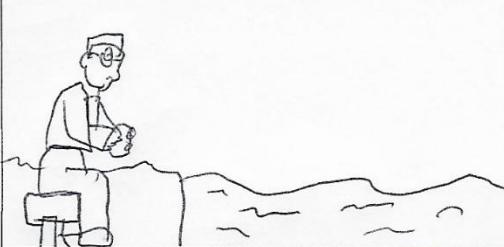
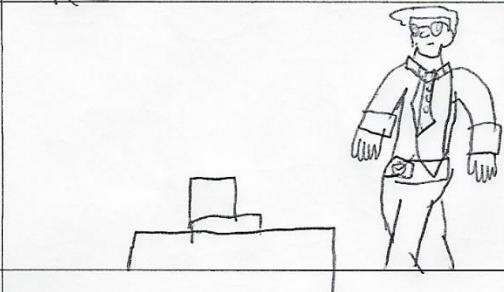
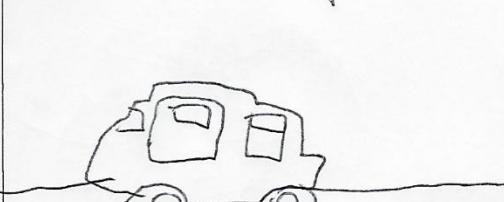
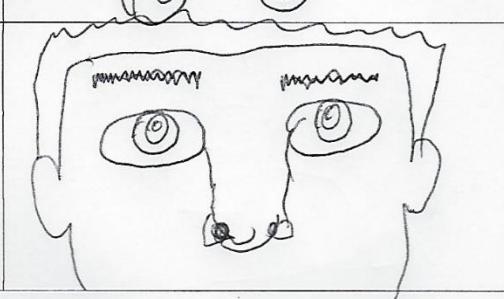
Image Source: <http://www.youthtimes.com.pk/charles-chaplin/>

4.6 STORYBOARDS

HONOURS PROJECT

Storyboard Panels

No.	Image	Description
1		man sits walks down the stairs
2		man prepares a cup of tea and stirs the cup
3		man puts on his watch
4		man puts on his tie
5		man sits on his office typing

6		man walks by the river
7		man sits on the beach to have his lunch
8		man returns to his office to finish up on his work
9		man comes to his house now that he has finished work
10		man realizes he forgot to finish his report

The storyboards are used to support my vision for the short video project. The use of drawings give me an idea of what kind of shots that I require for when I start filming. The goal of the storyboards is to try and follow them as close as possible so that the video project flows well, when filming started we didn't necessarily follow them in order we felt in terms of production was to film the upstairs scenes first and then the downstairs scenes second and then finally the outdoor locations later as me and my crew felt it would reduce the time so I can carry on with other modules that I am working on.

Why I decided to use storyboards for my project because the storyboard designed reveals whether the concept will work and to know if my supervisor understands it and if I understand it myself if I or my supervisor do not understand the concept then it is back to the drawing board and think of another concept, I had a variety of ideas before drawing my final storyboards such as a documentary but felt it was not enough and wouldn't be considered as an Honours Project.

So I came up with a concept for a short film using audio narration and captions for an accessibility enhancement so I tried to make this concept as simple as possible and not do a full length feature movie because it will be time consuming.

It's essential for me to get the most appropriate media content for the short video. Using my storyboards aids me to identify this when they visualise, but not always hitting the mark, there are questions regarding if it is complement in the content well? Are they represented well? Or are the elements that are required available to use?

All the images have a description on what will happen since the character does not speak in the short film there is no dialogue written on the storyboards. Once I completed writing up the script I drew up the storyboards to translate what I am trying to tell the audience but storyboards are very helpful in bringing the script to its visual stage.

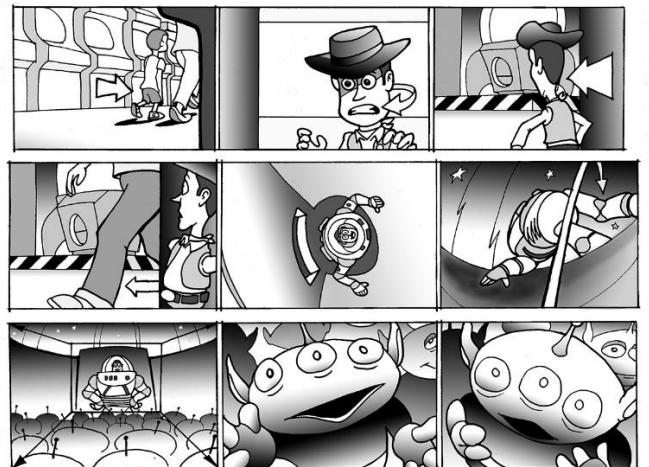


Figure 38 Storyboarding is effective while the script is completed

Image Source: <http://www.thewoodsmanfilm.com/importance-storyboarding-filmmaking/>

4.7 FILMING/PRODUCTION

In order for filming to begin for my video project, careful planning had to be taken into consideration such as looking for a location to shoot, which days are considered suitable to film, what kind of crew that I will need to film this project, and requiring the appropriate filming equipment. To produce high quality footage lighting is very sufficient so the location needs good lighting. Luckily I had some friends who are good with anything multimedia based such as graphic design and audio/visual production and helped me film scenes and had professional equipment and we used my friend's office for filming.

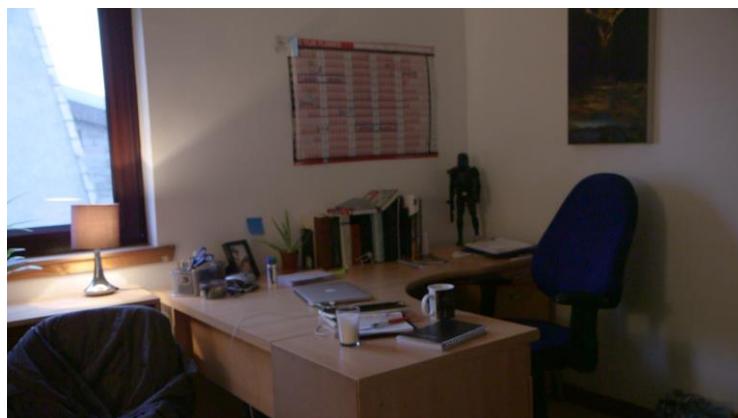


Figure 39 - Location for filming in my friend's office

4.8 FILMING WORKFLOW

The process for filming each shot was more or less the same process from shot to shot. The use of a basic workflow was produced to increase the efficiency of filming the large amount of shots planned. Now a shot list was created to support the filming process by writing a list and following it through so I know what shots are done and what else needs to be filmed. To reduce the timing, we decided to film all of the upstairs scenes first so my cameraman isn't going upstairs and downstairs multiple times and I didn't want to injure my cameraman because the equipment is heavy and the tripod can be easily damaged. The same shot was filmed multiple times and we went through take after take, and after take until it felt natural. Once we filmed our upstairs scenes we went to film the downstairs scenes then at a later date the outdoor scenes, this plan had increased the management, organisation and to film the video project error free.

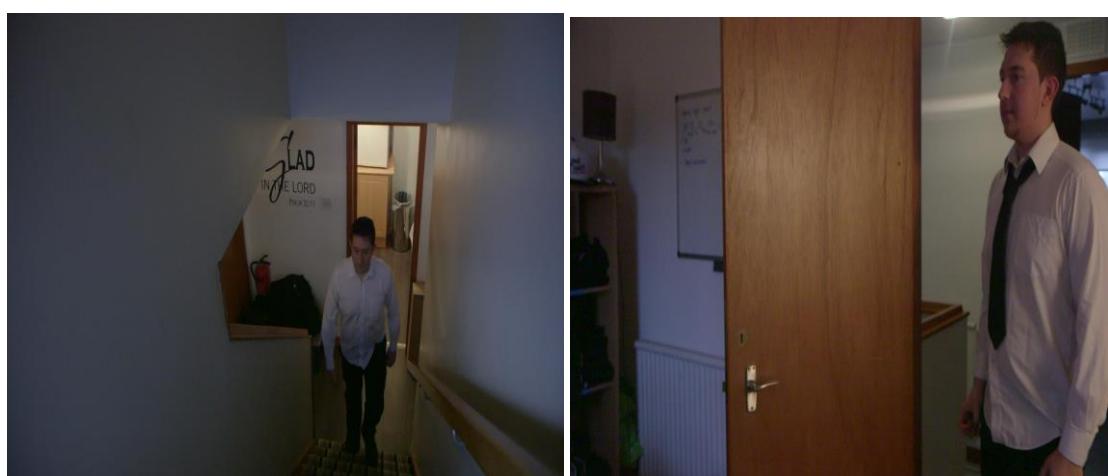


Figure 40 filming upstairs was done first to reduce timing

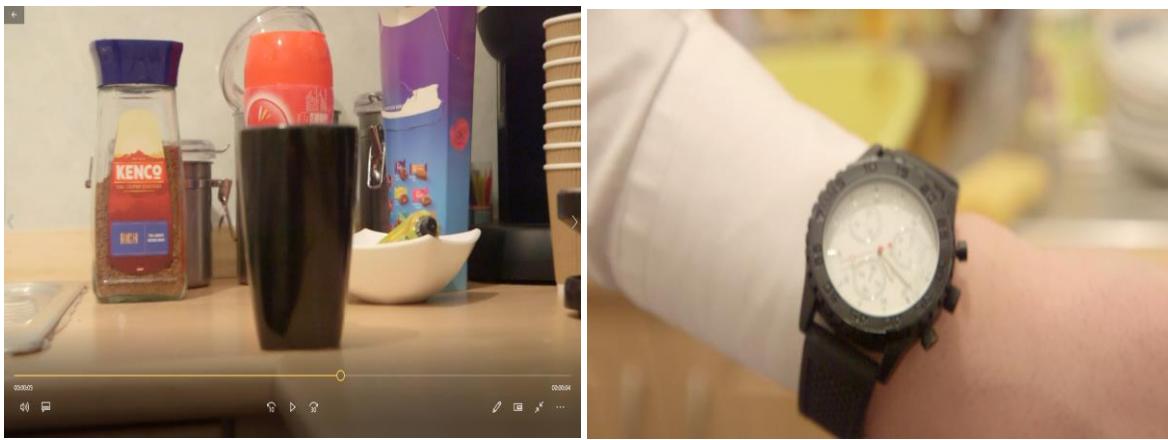


Figure 41 - downstairs scenes were filmed second

4.9 EQUIPMENT

Now for filming the final project we used a canon EOS 600D as it redefines this area of the DSLR Market with its following key features: this includes a 3" Vari-Angle LCD screen for excellent control when shooting at different angles, 18 Megapixels capture every scene in dazzling colour and brilliant detail, Full HD movies at 1080p with optical zoom, stereo sound, Dynamic IS and HDMI, Scene Intelligent Auto combines technologies to ensure high image quality, Feature Guide explains each mode and gives onscreen help for example for the Aperture setting "adjust aperture to blur background (subjects stand out) or keep foreground and background in focus". [35]



Figure 42- A Canon 600D was used for filming

Image Source: <https://www.amazon.co.uk/Canon-Digital-Camera-18-55-3-5-5-6/dp/B004MPQXZ0>

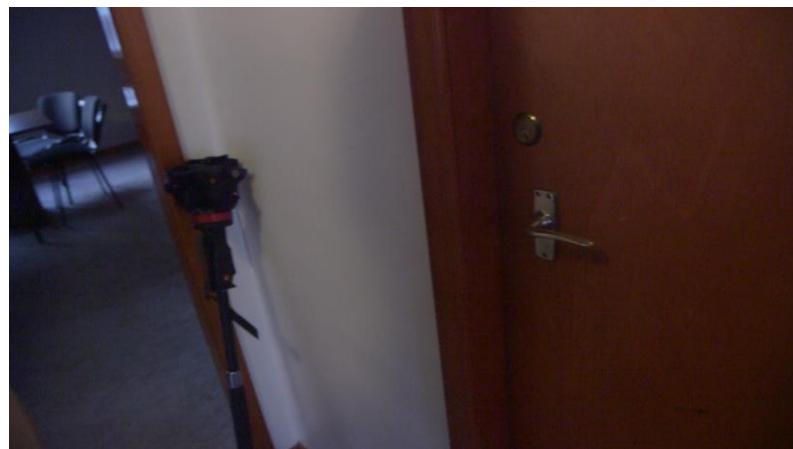


Figure 43 - A tripod was used to mount the camera for filming

4.10 LIGHTING

Once the camera was mounted on the tripod, lighting had to be set up, since the office and the hallways were dark, all of the lights were on and the footage weren't overexposed with the lights being switched on. Lighting is important through the filming process as techniques that were performed in each shot will provide a more realistic lighting environment. Most of the footage with the lighting has appeared fine.



Figure 44 Footage with lighting

4.11 ACTORS AND CREW

Throughout filming and designing the video project, assistance was required to film the footage. My friend has given me his camera and tripod for us to film the project, especially filming all the scenes while moving and staying still and filming each take multiple times and assures that everything is still in frame, and since I am directing and have written the screenplay for the short film, I will direct my movement while the camera motion was operated by the camera man.

An acting role was required in the production and the main character is in all of the shots throughout filming, since I was directing this short film I decided to act in front of the camera because I know what I want, I know how to get the shots that I require, my character is always moving around such as walking upstairs, opening doors and sitting down on the chair in the office, and making a cup of tea, the process is physically demanding. And before we started rolling the camera I used hand gestures or shouting ACTION! Then I would pause for about 3 seconds and then begin the action. And then shouting CUT! Or STOP! To stop filming

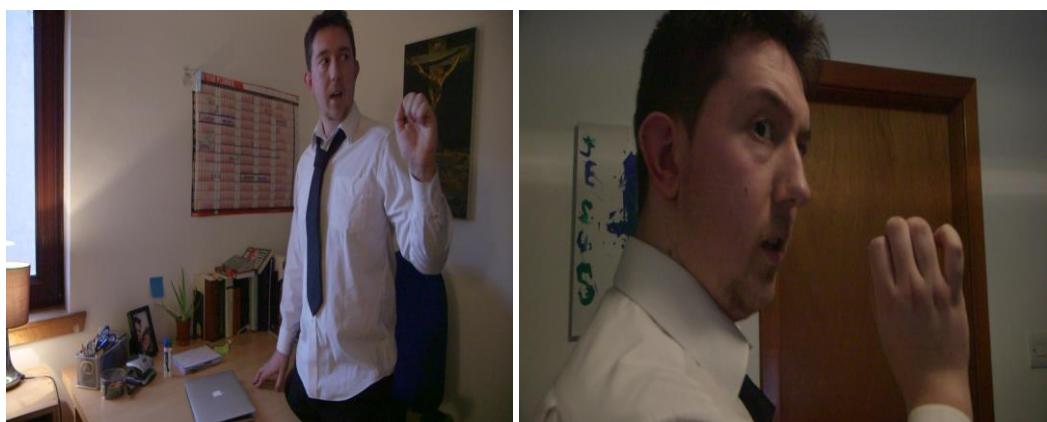


Figure 45 - use of hand gestures to alert the cameraman to start rolling film

4.12 OUTDOOR LOCATION SHOOTING

Outdoor location was used for filming, the problem with that was that outdoor filming depends on the weather which can be a problem in the project plan. During the time I was filming was during February which was really cold and the skies were grey, a lot of outdoor locations where considered while filming. In Fraserburgh there were two locations we took in consideration. Plan A was the Fraserburgh beach which I used for filming during my module in the first semester Audio and Visual Production which was great for landscape scenes, plan B was the waters of Philorth which was nice and quiet and no one can walk in any of the shots by mistake and filming can be done error-free, me and my cameraman came to an agreement to go to the waters of Philorth to get the outdoor locations shot.



Figure 46 Plan A shooting Location (Fraserburgh Beach)

A problem occurred unfortunately the outdoor footage was corrupted and where not backed up which was a problem while I was trying to follow the storyboards so plan B was to just use the indoor footage and change the dialogue so the entire film was indoors and I was running out of time for performing reshoots of the scenes which was a shame because the weather was nice during the time when I started filming the outdoor location scenes.





Figure 47 Plan B Shooting Location Waters of Philorth

4.13 THAT'S A WRAP

Once filming has concluded, all the upstairs and downstairs was cleaned up and left exactly where it was when I walked into the office. The camera and the tripod was placed back in its bags carefully. The footage from the camera was transferred from the SD card to laptop and then backed up on my USB drive, the next step was reviewing the footage and then placing the clips all together in Premiere Pro, along with an audio soundtrack, voice clips from Audacity and titles for the captions in Premiere Pro.

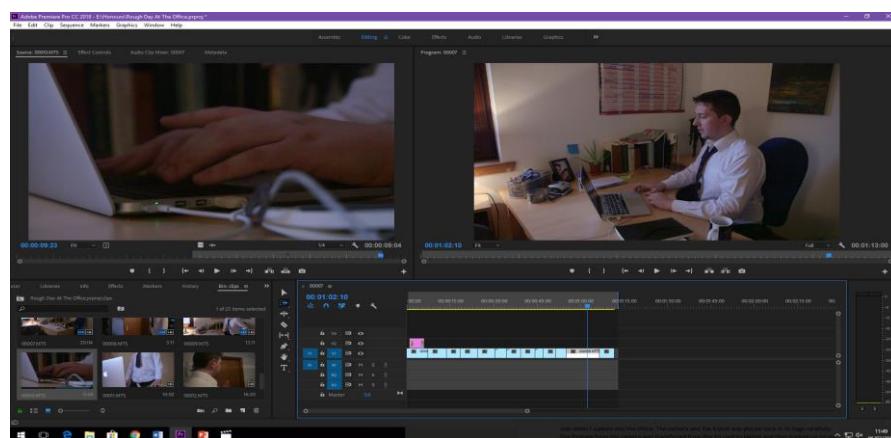


Figure 48 - editing the footage in Premiere Pro

4.14 AUDACITY SOUND DESIGN

For the narration of the video project I have used Audacity to design the sound needed in the video I spoke through the microphone of my headset (which was discussed in the background research/literature review chapter) to create the sound the raw sound clip had an irritating ringing sound in the background when I spoke so how I reduced the sound was using one of the Audacity features was noise reduction. So how I reduced the sound was to select the portion of my sound which contains all the noise and no signal which is at the start and the end of the track. Then I chose Effect > Noise Reduction then clicked on Get Noise Profile. Audacity learns from this selection of what the noise sounds like, so it will know what to filter out later.

Afterwards I clicked on CTRL + A to select the entire sound clip then went back to effects and clicked on repeat sound reduction then clicked OK afterwards so roughly the entire background sound will have been reduced so my voice is clearer.

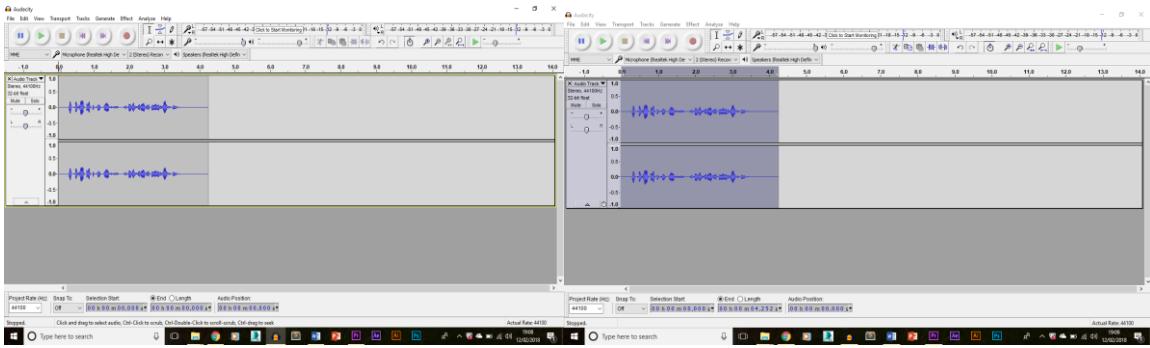


Figure 49 Before and After Noise Reduction

Afterwards I used the amplifier which changes the volume of my audio clip. Amplify always preserves the relative volumes of the track. I went on Effect > Amplify it will come up with an Amplify where you can reduce or increase the volume of the dB for Amplification, increasing the volume of the audio clip for the amplifier will help for the narration since its nice and loud and will act as an enhancement for people with hearing impairments.

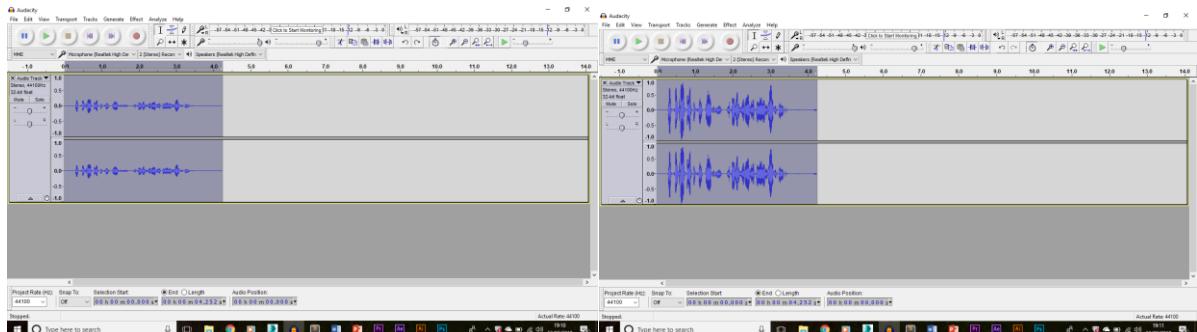


Figure 50 Before and After Amplify effect

Now for compressing the audio in audacity which reduces the dynamic range of audio. The main purposes of reducing the dynamic range is to permit the audio to be amplified further (without clipping) than would be otherwise possible. While going on Effect > Compressor it will display a graph in front of me, this graph will change as I adjust the Threshold and Ratio sliders, reflecting those settings. This won't reflect any changes in any of the other controls but however they will affect how the audio sounds after the effect has been applied.

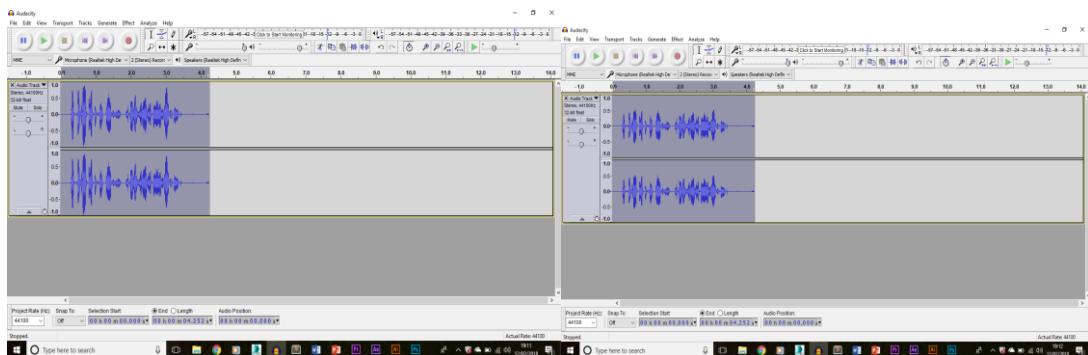


Figure 51 Before and After Compressor effect

Now the other tools I have used for my audio tracks is the normalize effect which sets the peak amplitude of a single track, make multiple tracks have the same peak amplitude and equalize the balance of the left and right channels of my audio tracks, going on Effect > Normalize a message will appear clicking on OK will normalize the track.

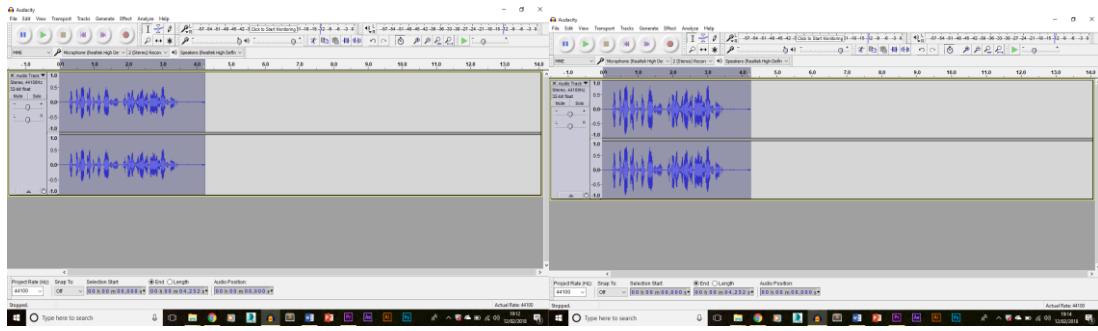


Figure 52 Before and After Normalize effect

All of the audio clips in Audacity are exported as WAV files while comparing WAV and MP3s the reason why that I have chosen to export my soundtracks as WAVs because WAV files are lossless, uncompressed and broadcast CD quality music files which is handy as the speaking in the background of my video project needs to be clear and to blend with the background soundtrack as well. I will be using an MP3 audio file for the background soundtrack.

4.15 VIDEO EDITING

With all the video footage finally captured and all the audio is edited to a suitable standard. It was time to start putting the video project together, with the use of Adobe Premier Pro I have created separate bins to be more organized and that my assets aren't a mess I imported all of my audio and visual clips into the appropriate bins and started to insert my first clip into the sequence.

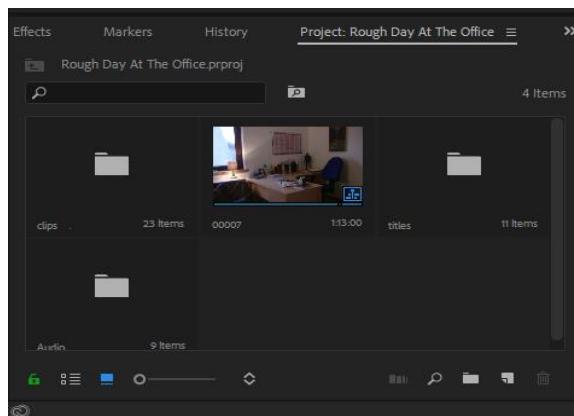


Figure 53 Project Bins for all of my content

4.16 FIRST CUT

Before moving onto the final product of my video project I made a rough cut of what the short film will look like I was trying to make the video project at least 2 minutes long, the first cut presented was a small run through of the video without the use of colour correction and grading and without the background soundtrack.

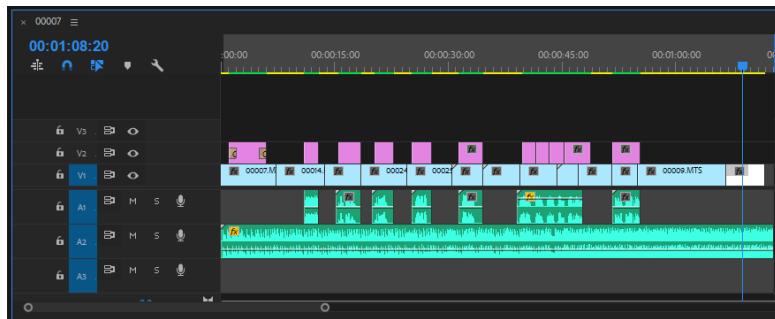


Figure 54 Rough Cut Running Time

4.17 FINAL CUT

After the rough cut it was time to make the final version of my video project with all of the editing techniques at my disposal, the titles in Premiere Pro act as captions to what the narrator is saying so people with audible impairments can read the text at the bottom of the screen

4.18 DEPLOY AND RENDER

Rendering was important before deploying my video because the rendering option in Premiere Pro creates previews, which a cached video file on my hard drive allows myself to playback on my edit in real time to see if it runs smoothly. During the playback there will be three different colour bars on my sequence timeline the green means that the render preview is smooth on the clips, the yellow is still OK but could still mean some minor issues and the red means that are some major problems and need some tweaking.

To deploy final video I went to export the video scrolled through the entire time length so it renders then exported the project as an mp4 (ensuring that the H.264 is selected) then clicked on export this has taken some time and finally the mp4 is exported on the appropriate folder name.

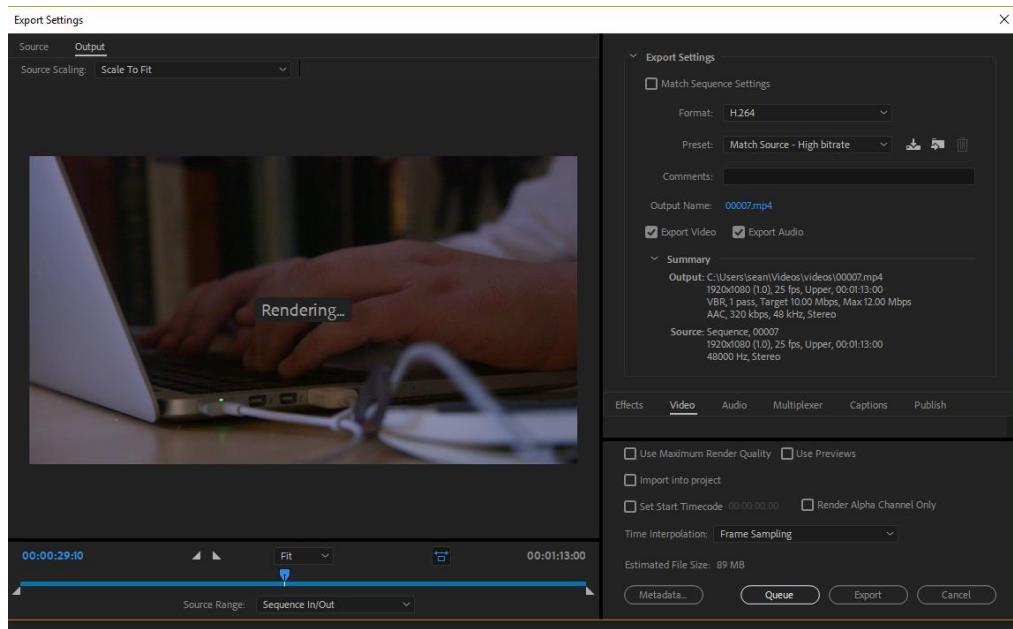


Figure 55 Rendering and Deploying the video

CHAPTER 5: IMPLEMENTATION/POST-PRODUCTION

In this project a lot of planning has been made to ensure that I am on track and for completing all of the required tasks at the beginning of the first semester when I began my honours project was to create a Gantt Chart filled with the tasks that was needed to do with a milestone comment at the end to tell me what I should accomplish at the end of week. This Gantt chart was very important because throughout the entire video project there is a lot of tasks that had to be done. Some of the tasks were completed on time but some of the other tasks unfortunately were not due to illnesses or conflicts with other of my coursework deadlines. The schedule allowed a broad overview of the tasks in a sequential order and acts as a step by step tells me what I need to do to work through the video project.

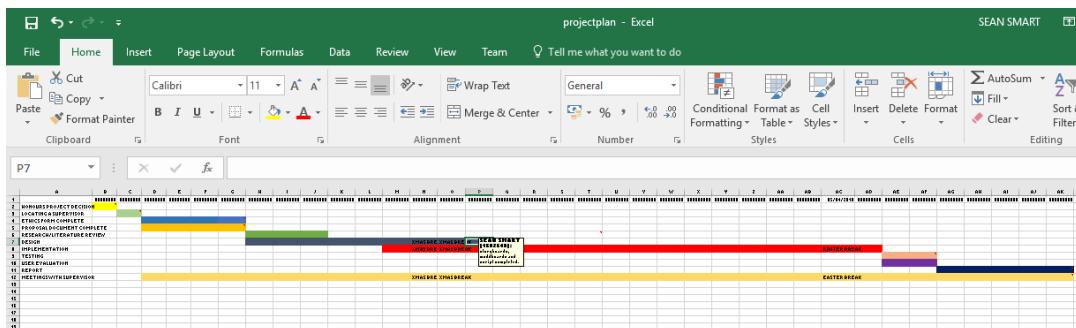


Figure 56 - Project Plan for the whole video project

Writing up a script can take roughly less than a week and drawing up the storyboards as well now getting a schedule to film everything was a little difficult because of whether my film crew where available to film and due to weather conditions filming would end up being delayed (this has happened during the process), editing the sound took time as well to ensure the sound is loud and clear and to be imported to Premiere pro OK as long as everything was placed together before I can test out the video before the official deadline.

5.1 HARDWARE AND FILE BACK-UPS

Most of the hardware used has been discussed in Chapter 2, for the use of software used for producing the final cut of the video project and also what was required a very powerful computer system for the software to run smoothly. I balance my time between my laptop and the RGU computer labs for developing the product. Personally I preferred using the computer labs at the university as they are a lot more powerful and run a lot faster as my laptop contains a lot of files that have slowed it down and sometimes will crash which has been a problem. The lab computers had a fast rendering time and has everything that I needed and I have closer contact to the staff if I ever needed assistance.

Use of backup was very important in case of corrupt data or loss of portable device. I had three backup systems to support me while going through the implementation of the video which was my laptop, the lab computers and a USB drive I had an incident where my laptop Premiere Pro file crashed and lost all of my files which could have been disastrous because luckily I still had my work on a USB drive and the documentation luckily wasn't affected.

5.2 SOFTWARE USE

The various software which I have discussed are used in the RGU lab computers. I do have the latest version of Premiere Pro at home so I can work from home instead of travelling 40 miles to the lab computers in Aberdeen and I also have Audacity on my laptop too. Which is great for me as it allows me to focus on my project and completing the tasks.

5.3 POST-PRODUCTION

The final stage of the video projects creation was Post-production. Where all of the visual and audio content are all put together. In Premiere Pro the sequence was displayed with all the required content and the editing has begun with the colour correction and placing the titles on the screen at the precise timing, all files will take a while rendering with the amount of content that have been inserted into the Premiere Pro file, while the exporting will also take a lot of time.



Figure 57 - captions used in the video project

For captioning the final video, I had to take in account of what kind of font I will use and especially the colour for the captions as well. The font must be clear so the target audience that have audible impairments can read the text clearly and enhances accessibility.

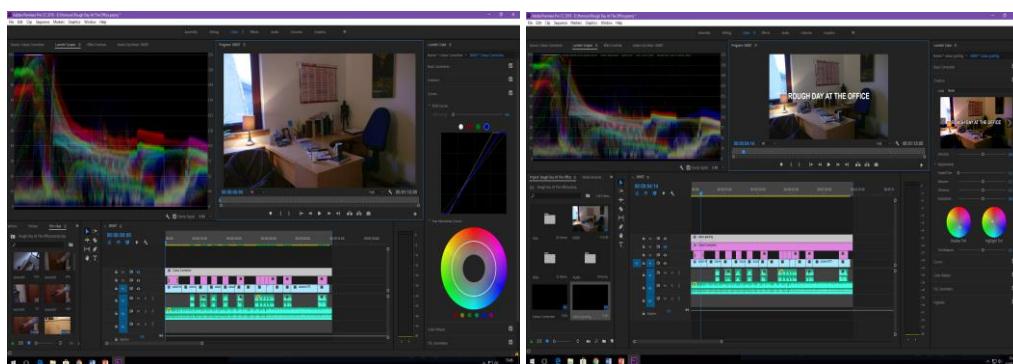


Figure 58 - colour correction/colour grading process

5.4 SOUNDTRACK

In this project a music track has been inserted during post-production to accompany the video so the viewers will not be watching the video, despite the video to have audio narration the use of a background music can convey the mood as most viewers could be put off or easily bored without

any music in the background of the video. In my spare time when I make short videos I like using movie scores that have been composed by Hans Zimmer (The Dark Knight Trilogy, Inception, Interstellar, Man Of Steel, Batman V Superman and the Lion King) Now choosing a suitable soundtrack has been the most difficult part as most music have very strict copyright laws when taking content without asking for permission. So looking for background sound that is copyright free was the key. I managed to find a track that is copyright free and the music had a happy and cheery theme to it. The Audio Library is the best YouTube channel is well known for use of copyright-free music.



Figure 59 - Use of Copyright free music for the video project.

5.5 TITLE

A way to attract the audience's attention was to create a title for the audience which sounds interesting but ensuring that it is not too long or too short. I used a single title in Premiere Pro which appears in the first shot while the video project opens. The title had to be engaging so the name of my short video project was named "Rough Day at the Office" the title felt humorous and would make the audience want to know what I meant with the title. The title fades in and appears on the monitor for a few seconds than fades out to move onto the next clip so it appears smooth instead of appearing then disappearing which doesn't look nice to watch on the screen. Other than that I feel the title seemed appropriate to the theme that I was going for while implementing the final cut.

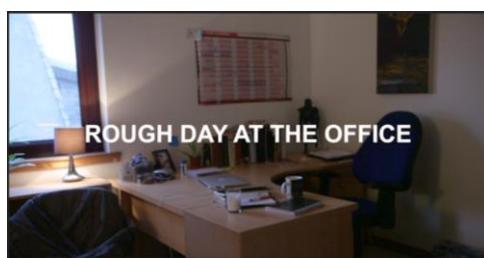


Figure 60 - title appearing in the opening scene

CHAPTER 6: TESTING/EVALUATION

6.1 MONITOR RESOLUTION TESTING

Now once the video is exported as an mp4 (the reasoning of this is that it is compressible and does not take up a lot of storage space.) the video is deployed onto the selected file location on the computer now I went through the playback to ensure that all of the footage is there and that it is in the direction that I wanted from the start of production. I played the video in many multiple devices to ensure that it works on all devices, examples of the devices used is the desktop lab computers at the university lab rooms, a small laptop monitor, a tablet and then finally a smart phone. While playing the video I checked to see if all of the captions were in the video, the audio narration is clear and that everyone can understand what I am saying so the music soundtrack doesn't block out the narration.

When it came to filming I had to take care of anything that can be breakable or to watch my footing while going up the stairs (I have tripped during takes but wasn't severely injured) and ensuring that while filming that I don't break anything in the office especially the Mac used that I don't push any buttons that could lose some work on there. After filming the upstairs scenes me and my friend holding the camera had a break and looked through the footage to see which was OK to use and what needed reshoots, then again after we filmed the downstairs scenes we had a break and looked over the footage to see if everything was OK.

6.2 USER EVALUATION

When it came to testing the video to the public, how I was going to do it was important, so what I did was posted the video as an unlisted YouTube link and create an User Evaluation for my audience to write down their personal opinions about the overall video project and if it is a good demonstration of an enhancement for people that may suffer from visual or audible/hearing impairments. There will be technical and personal sections for my participants to write down their thoughts in detail or reply with a simple yes or no.

Response from the users have been mostly positive and have praised the editing, film workflow and the live action shots being filmed well through the camera and the soundtrack was well received as it was known as a cheery and happy theme. However there were some negative feedback regards of titles in the video while not major the users agreed that the titles were a little too big and the white colour may not have been a good choice by that can be simply fixed by changing the colour and reducing the size of the text to something smaller on the screen, some audio appeared slightly muffled but all of my users but can understand what I am saying fine. My users have given me explanations why the captions and audio were effective in the project.

In terms in the personal section of the user evaluation. My users seemed to have enjoyed watching the video and felt it would suitable for a more mature audience from ages 20 and above, everyone agreed that the audio and captions are used well but felt some minor tweaks would make the project an overall improvement, the minor hiccup was the subtitles but can be easily fixed. Given the responses that were given all were generally positive, it would appear that the final cut of the video has been quite successful and I'm glad the overall reaction from everyone was positive.

CHAPTER 7: CONCLUSION

In this chapter, this will be about reflecting on the work that I have done throughout the year long project, also about what I have learned while doing the research and if I were to do this kind of project again what would I have done differently.

While performing the background research I have learned about all kinds of enhancements and what other technologies are out there which have inspired this project. Everyone loves videos and everyone should have an enjoyable experience while going to the movies especially those with visual or hearing impairments especially the use of closed captioning software and the use of audio narration in the background. There are effective software that allowed me to implement an ideal solution with the captions and audio narration considered and I liked to perform a research project in something that I was very interested in. Videos technology have improved over the years to overcome any accessibility issues so that all audiences are considered. There are very impressive solutions in other papers which helps people with hearing impairments and visual impairments that have been displayed by creating a video or an interface and testing it out with the public to gather data and write down what went well and what can be improved the next time.

Having past experience with audio and visual production, learning about more cinematic techniques and looking back at my past university modules which involves creating short videos have been effective and gave me the tools to implement a multimedia product which can let people with accessibility issues access the product straightforward like implementing and inserting closed captions and the use of background narration which are the key enhancements in this project. The use of other techniques and styles from other movies impacted this project because they were major influences and I watch a lot of movies in my spare time, then I will adapt the cinematic styles into my video project. I have learned a lot about the technologies such as hardware and software of audio and visual production and how I could use these into my project.

7.1 SELF EVALUATION

The primary objective in my honours project was to design, develop and produce a multimedia product that will let people with accessibility issues such as visual and hearing impairments access this product. The process was as challenging as I anticipated because there was a lot of things that were need to be considered, like how was I going to do this, where will I get the necessary technology to aid me in the production process, why am I doing this and what am I going to achieve out of this project once it is complete and deployed. I have overcome a lot of obstacles throughout the project by writing up multiple drafts of the script so that everyone and especially myself can understand what is happening and what the plot of the short video was, drawing up storyboards to understand what shots I will require was an iterative and frustrating process because it was hard to try and find a location for the location and trying to make the drawings clear and that it makes sense while following through them while filming. Filming however has been difficult than anticipated when it came to weather and doing multiple takes over again until I was satisfied and ensuring is backed up in case of corruption or a loss of data ever occurred. I felt that I have did the best that I could and have learned a lot about techniques and the research has been interesting and helped a lot throughout the project.

7.2 ADDITIONAL COMMENTS

Despite feeling proud of the whole project and the result, I honestly felt I could have done better and took more time in looking through research and planning the filming schedules and felt I should have had better time handling skills when it came to working on the video project and juggling my other university modules and work. I had a great plan for this project, the script was fine for me and my storyboards aided me through the process but as I had stated earlier in the design chapter I have lost some shots that were not backed up and had caused an impact on this project and the chances of reshooting have been slim and would take up too many time. If I had backed up the footage in another USB flash drive, this crisis would have been avoided. I felt I was rushing this project a little bit so I could get everything completed on time for the date of submission and to focus on other of my modules at University.

Another aspect that I would have like to have taken the time to focus was the editing the audio in Audacity for the narration in my video project, I did that I could to make sure the sound was muffled and reduced as much of the irritating background noises so that the audio is clear and that the audience can understand what I was saying, I also felt I should have taken more time on the editing in premiere Pro instead of rushing it by placing the clips in and randomly putting in the right colour correction and colour grading tools where I should have taken my time and chose something which could have been more effective.

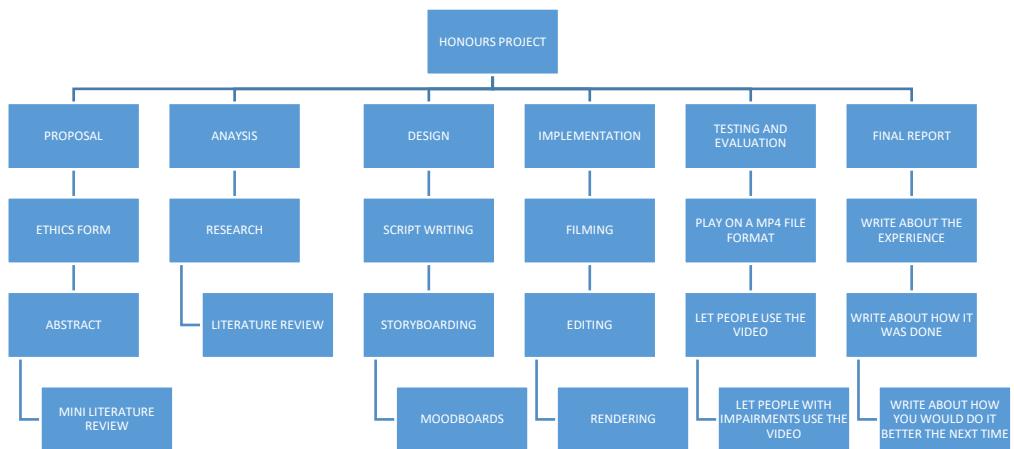
Now, if I was ever to restart the project or to perform another video project which was similar to this one, I would have started straight away after the first lecture of the honours project module, look over carefully the analysis of context which I have gone through over and over again, took the time to research the appropriate papers which will help with the project, look over my storyboards to know if even the director (myself) will understand, and while filming take my time so the shots are good for editing later on and to plan out the film schedule so it works for the crew involved during production and for editing look over each clip carefully to see what will fit into the final cu and what won't. Hopefully taking my time instead of rushing which I was bad for in school and further education would benefit my future projects in Digital Media

Overall I had enjoyed doing this project and learned a lot about the technology that is out there and I am truly thankful for those who had helped me and encouraged me to keep going when I doubted myself and hope that this video could help anyone that have visual or hearing difficulties.

A handwritten signature in black ink, appearing to read "Womash", is written diagonally across the page.

APPENDIX A: PROJECT PLAN

- 1) Perform big literature research on impairments/how people with impairments access multimedia/how digital media can help people with impairments etc.
 - 2) Identify the relevant technologies to perform the project with the suitable software and techniques
 - 3) Identify the requirements and produce a detailed project specification
 - 4) Design the project (use of storyboards, mood boards, methodologies and techniques)
 - 5) Implement the design, deploy and then test the video to ensure it is presentable
 - 6) User evaluation with users who are visually/audibly impaired and gather the data
 - 7) Write the overall report



APPENDIX B: SCRIPT

HONOURS PROJECT: ROUGH DAY AT THE OFFICE

Written by

Sean Smart

Based On, If Any

A SHORT FILM: A BLIND EYE

FADE IN:

INT. OFFICE - DAY

A man walks down the stairs and prepares a cup of tea. He pours the milk into the tea and stirs the mug, the man puts his watch on and puts on his tie, the man's name is Steven

NARRATOR

This is Steven and he is about to start his day and he has a very interesting routine and he has a very specific way of doing things. He starts the day with a cup of tea and places the sugar in before the milk and stirs it together. He puts on his favourite watch and puts on his favourite tie before starting the day.

Steven huffs and relaxes onto his chair.

He starts typing away on his laptop.

NARRATOR

Steven finishes his tea and Prepares to start his work his Boss wants him to finish his Report by the end of the day, Steven is nervous because he hasn't Yet started, Steven starts typing up His report and felt it was time for a Break.

EXT. THE PARK - DAY

Steven has a walk down by the river and looks at the water he sits on the bench and has a packed lunch that he has made himself.

NARRATOR

During his break Steven has a Walk down by the river and looks at the water, he sits down on The bench and eats his packed lunch He made for himself thinking about How he is going to finish that report That his boss wants him to finish. He then Finishes his lunch and heads back to the Office

EXT. THE PARK - DAY

Steven returns to his house and goes to his bedroom

NARRATOR

After a long day at the office Steven returns
Home and has a big glass of milk and calls it
A night. He closes his eyes until he realizes
He hasn't sent his report to his boss via email.

Steven's eyes open quickly

Fade Out

The end.

Script Influence:

<https://www.youtube.com/watch?v=YRFo186tuHo&t=221s>

APPENDIX C: USER EVALUATION FORM

Project Name	Rough Day at the Office
Created By	Sean Smart (1602648)
Date	13/02/18

YouTube Link:

<https://www.youtube.com/watch?v=biHQX3aSndU&feature=youtu.be>

TECHNICAL	COMMENTS
<p>Did you feel that the video was well edited and well put together?</p> <ul style="list-style-type: none"> • In terms of footage • Audio elements (soundtrack/narration) • Video elements (text/video/colours) • Was it handled professionally? 	
<p>Did the video have a good flow to it?</p> <ul style="list-style-type: none"> • Did the editing feel smooth while moving from one clip to the other? • Was the process rough or uncomfortable while watching the video? 	
<p>Where the live action shots filmed well through the camera?</p> <ul style="list-style-type: none"> • Such as angling? • Positioning? • Where any footage necessary to show? 	
<p>Was the audio narration well edited?</p> <ul style="list-style-type: none"> • Did you understand what I was saying? • Was I speaking too fast or too slow? • Does it blend well with the background track? • Did anything sound muffled? • Was I too loud or too quiet? 	
<p>Was the closed captions well placed?</p> <ul style="list-style-type: none"> • Are they too big or too small? • Can you read them OK? • Would the use of colour in the text be more efficient to see clearer? • Was the positioning of the text placed appropriately? 	
Any other thoughts? (additional comments)	

PERSONAL	COMMENTS
<p>Did you enjoy the video?</p> <ul style="list-style-type: none"> • Was it fun to watch? • Was the video humorous? • Do you think it will be appropriate to audiences of all ages? 	
<p>Was the background soundtrack appropriate?</p> <ul style="list-style-type: none"> • Did it feel nice to listen too? • Was it boring or inappropriate for use? • Was the soundtrack relevant to the final product? 	
<p>What could be improved?</p> <ul style="list-style-type: none"> • In terms of editing? • In terms of filming? • In terms of audio narration? • In terms of titles in the video? 	
<p>Do you think the use of the audio narration will enhance the accessibility to those with visual impairments and will let them watch the video without any problems?</p>	
<p>Do you think the use of the titles in the video will enhance the accessibility to those with audible/hearing impairments and will let them watch the video without any problems?</p>	
<p>How would you rate this video? 1-10</p> <ul style="list-style-type: none"> • In terms of editing? • In terms of filming? • In terms of audio narration? • In terms of titles in the video? 	
<p>Any other thoughts? (additional comments)</p>	

APPENDIX D: ETHICS FORM



STUDENT PROJECT ETHICAL REVIEW (SPER) FORM

The aim of the University's *Research Ethics Policy* is to establish and promote good ethical practice in the conduct of academic research. The questionnaire is intended to enable researchers to undertake an initial self-assessment of ethical issues in their research. Ethical conduct is not primarily a matter of following fixed rules; it depends on researchers developing a considered, flexible and thoughtful practice.

The questionnaire aims to engage researchers discursively with the ethical dimensions of their work and potential ethical issues, and the main focus of any subsequent review is not to 'approve' or 'disapprove' of a project but to make sure that this process has taken place.

The *Research Ethics Policy* is available at
www.intranet.rgu.ac.uk/credo/staff/page.cfm?pgc=7060

Student Name	SEAN SMART		
Supervisor	RUGER MIDGEMOTT		
Project Title	MAKING MULTIMEDIA ACCESS STRAIGHTFORWARD		
Course of Study	DIGITAL MEDIA (DESIGN, DEVELOPMENT, PRODUCTION)		
School/Department	ROBERT GORDON UNIVERSITY : SIRIAN WOOD BUILDING		

Part 1 : Descriptive Questions

1	Does the research involve, or does information in the research relate to:	Yes	No
	(a) individual human subjects	✓	
	(b) groups (e.g. families, communities, crowds)	✓	✓
	(c) organisations		✓
	(d) animals?		✓
	Please provide further details:		
2	Will the research deal with information which is private or confidential?	Yes	No
	Please provide further details:		

Part 2: The Impact of the Research

3	In the process of doing the research, is there any potential for harm to be done to, or costs to be imposed on	Yes	No
	(a) research participants?	<input checked="" type="checkbox"/>	
	(b) research subjects?	<input checked="" type="checkbox"/>	
	(c) you, as the researcher?	<input checked="" type="checkbox"/>	
	(d) third parties?	<input type="checkbox"/>	
	Please state what you believe are the implications of the research:		
4	When the research is complete, could negative consequences follow:	Yes	No
	(a) for research subjects	<input checked="" type="checkbox"/>	
	(b) or elsewhere?	<input checked="" type="checkbox"/>	
	Please state what you believe are the consequences of the research:		

Part 3: Ethical Procedures

5	Does the research require informed consent or approval from:	Yes	No
	(a) research participants?	<input checked="" type="checkbox"/>	
	(b) research subjects	<input checked="" type="checkbox"/>	
	(c) external bodies	<input type="checkbox"/>	
If you answered yes to any of the above, please explain your answer:			
6	Are there reasons why research subjects may need safeguards or protection?	Yes	No
	If you answered yes to the above, please state the reasons and indicate the measures to be	<input checked="" type="checkbox"/>	
7	Has PVG membership status been considered?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	(a) PVG membership is not required.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	(b) PVG membership is required for working with children.	<input checked="" type="checkbox"/>	
	(c) PVG membership is required for working with protected adults.	<input checked="" type="checkbox"/>	
	(d) PVG membership is required for working with both children and protected	<input checked="" type="checkbox"/>	
If you answered yes to (b), (c) or (d) above, please give details:			
8	Are specified procedures or safeguards required for recording, management, or storage of data?	Yes	No
	If you answered yes to the above, please outline the likely undertakings:	<input checked="" type="checkbox"/>	

Part 4: The Research Relationship

9	Does the research require you to give or make undertakings to research participants or subjects about the use of data?	Yes	No
	If you answered yes to the above, please outline the likely undertakings:		
10	Is the research likely to be affected by the relationship with a sponsor, funder or employer?	Yes	No
	If you answered yes to the above, please identify how the research may be affected:		

Part 5: Other Issues

11	Are there any other ethical issues not covered by this form which you believe you should raise?	Yes	No

Statement by Student

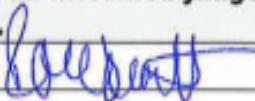
I believe that the information I have given in this form is correct, and that I have addressed the ethical issues as fully as possible at this stage.

Signature		Date	20/10/17
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If any ethical issues arise during the course of the research, students should complete a further Student Project Ethical Review (SPER) form.

The Research Ethics Policy is available at
www.intranet.rgu.ac.uk/credo/staff/page.cfm?pge=7060

Part 6: To be completed by the supervisor			
12	Does the research have potentially negative implications for the University? If you answered yes to the above, please explain your answer:	Yes	No <input checked="" type="checkbox"/>
13	Are any potential conflicts of interest likely to arise in the course of the research? If you answered yes to the above, please identify the potential conflicts:	Yes	No <input checked="" type="checkbox"/>
14	Are you satisfied that the student has engaged adequately with the ethical implications of the work? [In signifying agreement, supervisors are accepting part of the ethical responsibility for the project] If you answered no to the above, please identify the potential issues:	Yes <input checked="" type="checkbox"/>	No
15	Appraisal: Please select one of the following		
	The research project should proceed in its present form – no further action is required <input checked="" type="checkbox"/>		
	The research project requires ethical approval by the School Ethics Review Panel		
	The research project needs to be returned to the student for modification prior to further action		
	The research project requires ethical review by an external body. If this applies please give details		
	Title of External Body providing ethical review		
	Address of External Body		
	Anticipated date when External Body may consider project		

Affirmation by Supervisor			
I have read the student's responses and have discussed ethical issues arising with the student. I can confirm that, to the best of my understanding, the information presented by the student is correct and appropriate to allow an informed judgement on whether further ethical approval is required.			
Signature		Date	20/10/17

APPENDIX E: PROJECT LOG

Date	Description	Comments
28/09/2017	Start of Academic Year	1 st day back to University during the summer holidays and the start of the Honour's Year
02/10/2017	Locating a suitable supervisor	Finding a supervisor has been tough as it has been first come, first served and all the staff that I had for lecturers last year have been booked quickly but luckily I have find a supervisor
09/10/2017	Discussing my idea to my supervisor	While meeting my supervisor for the first time, I have discussed deeply and pitched my project idea while my supervisor gave me feedback on what was good and what wouldn't work.
16/10/2017	Research for my project	Planning had to begin on how I was going to do this but looking up the databases the University library has recommended such as Google Scholar, ACM database etc.
23/10/2017	Working through my project proposal	Submission was due in a week time so I worked through the template containing a project plan, mini literature review and the ethical issues regarding the project
30/10/2017	Complete project proposal and signed ethics form for submission that week	Submission was for the 3 rd of November and myself and my supervisor double

		checked that everything was fine for submission
06/11/2017	Begin the report work through analysis of context	Analysis had to be carried out before building anything so I looked up videos and articles of how people with visual and audible impairments behave around technology. I sent links to my supervisor on videos for feedback
13/11/2017	Begin the literature review for the report	Research can begin by looking up the technology such as captions and audio tools in software and multimedia projects
20/11/2017	Searching through appropriate databases for papers relevant to the project	Looked up papers through a combined search through all databases some search results were pretty high numbers which was a concern to me and my supervisor
27/11/2017	More research for the literature review	The process was iterative for locating the proper papers that were related to the project
04/12/2017	Double checking that literature review is fine with supervisor	Once a draft has been completed my supervisor said that a little more work on audio narration was needed in my review
11/12/2017	Finish literature review before going off for the Christmas break	Final draft was complete and inserted into my dissertation document
18/12/2017	Christmas break/ time off Honours work	No work was done during the holidays
25/12/2017	Christmas break/ time off Honours work	No work was done during the holidays

01/01/2018	Write up the script	After the two week break and with the analysis chapter complete it was time to design the video (Pre-Production) and write up the script thanks to a template that I have found on the internet to make the script look professional like it was an actual movie script
08/01/2018	Write up storyboards	Drawing up storyboards which I have used n Moodle was tricky as I needed to know what shots I want and what is happening in these shots with a short and precise description
08/01/2018	Continue with storyboards	Two pieces of paper containing the storyboards has been completed and Production can begin
15/01/2018	Filming can begin	A friend of mine who has done a media internship has aided me in filming and we started the upstairs and down stairs scenes, unfortunately we lost the outdoor footage which got corrupted so a shorter cut will be developed
22/01/2018	Put together a rough cut with the footage	A small minute and a half cut was developed without the audio and text enhancements
29/01/2018	Work on the design section of the report, get ready for the 2 nd semester	Felt a little behind and forgot about the document so I wrote up the section of my design enlisting all

		what I did and a description of my script and storyboards were included
05/02/2018	Putting together the final cut	Now moving on to the Post-Production to add in all of my editing elements which will be included
12/02/2018	Continue with the editing of the final cut	Colour correction/Grading has been included and the runtime is around 2 minutes long
19/02/2018	Produce the audio narration in Audacity	Using the script by me, a microphone built in headset and Audacity software I began to record my lines
26/02/2018	Continue with the sound design in Audacity	More audio was to be recorded as audio felt muffled
05/03/2018	Post Production adding the subtitles	Using the titles in Premiere pro aided me in adding text for the video project
12/03/2018	Write up implementation, testing and evaluation section of the report	Once the implementation was complete it time to write up how implementation took place in the project
19/03/2018	Final video complete, user evaluation can begin to gather results for my evaluation write up	It was time to write up an user evaluation form and sent out to recruits for testing and evaluation
26/03/2018	Write up results for the evaluation section	After testing was carried out the results were written up and the short video receive mostly positive reviews during evaluation
02/04/2018	Easter Break, start the poster for demonstration	Poster design began a week earlier for me and a first draft has

		been designed and sent to my supervisor for formative feedback
09/04/2018	Begin poster	Design of the final draft of my poster has begun after feedback given from my supervisor
16/04/2018	Submission of poster	Poster and a newly written abstract has been sent to the degree show for the assessed poster/demonstration
23/04/2018	Get ready for poster/demonstration of video	Poster/demonstration began on the 24 th and 25 th April and I wrote a script of what I was going to say and what questions will be asked during the demo
30/04/2018	Double check my final report before submission and wrap up the Honour's project before exam.	04 th of May was the deadline for the final report and while I have wrote up alongside it during the year I had to double check to avoid spelling errors and that I myself understand what I have written

APPENDIX F: MEETINGS

23/10/17

meeting 2

research problem = fine, goal to create video / investigate how easy

for impairment access to digital media

2nd sentence = simulate visual / audio impairment
and observe the results (how + evaluate + draw conclusion)

* implementable

key words = straightforward = no clever straightforward for material

demonstrating = no (part of the project)

understanding = no difficulty in understanding cause or use information

Project title = fine

(User / audience / Motivation = Audience?

Audience = impaired from non-impaired

project plan = not saying how elements are looking for work

- 1) perform brief literature review on impairments / how digital
- 2) identifying relevant technologies to perform the project
- 3) identify requirements / detailed project specification
- 4) Design the project (foregrounds / techniques / methodology)
- 5) Implement the design / first video prototype is presentable
- 6) User evaluation with users visually / auditory impaired
- 7) gather the data
- 8) write the report

Acknowledgements = four line sentence : issues with travelling (have)

* user may have difficulties with disabilities

* solutions have been produced

* paper will investigate whether a one possible solution

* evaluate results / what are they saying about which will relate back to usability

* how we can enhance accessibility

Literature / lev

This LIR to gather evidence

producing outcome of next question

marshall credibility

Meeting 3

30/10/17

Proposal is Fine

Ethics is fine

Lit. Review ~~has~~ clashes with design stage

Lit. Review must be done first = Analysis

Lit. Review + Design in wrong direction (swap)

Report to be considered during Easter break

Recognising different techniques

(consider search terms with impairment issues (audio/visual sense))

Terms with video production = subtitles/audio description

Clear about results = 100000 returns (add/subtract search terms)

Set out terms + identify database engine

Google Scholar doesn't mean access to entire paper

(similar papers... only significantly enhance Lit. Review)

needed a copy when asked questions

making sure everything is done in a procedural way

putting in the hours -

background material = while doing Lit. Review (10 mins max.)

08/11/17

Meeting 4

Library = subject based databases → starting point
= ACM, IEEE, Springerlink (Journals, textbooks)
* need access to search terms

- = Possibility = more info
- = Video = less info (cutting down to things)
- = Google scholar = specific
- = list of search terms and authors (run searches)
- = decision relevance (date)
- = judgement on relevance
- = prior bibliography

* Library websites → resources → database links → subject based
= Should be chosen in the library.
= Search terms + database = hits = 100 of papers = how to narrow (20 papers)
= make notes

20/11/17

Meeting

Combined key words to narrow down the list of papers

L/R = Talking through the process

= Elements included (use of C4H format)

o Terms of reference

o Referring (formulating / going about it, ideas)

o Summarising paper in various points

o Addressing specific point

o Background research

o Consider use of commercial products (Nets, learning technology)

o P/S (non function / function)

o Accessibility context

o What will it do / how will it be used) * Special people

Plan = combined search

= complete AOC (what software/hardware)

= detailed a Project SPC.

= start the design

27/11/17

Meeting

Search
structure overlap = results from the word (and)

relevant paper = search terms

reducing the number of papers = more manageable
= citations
= ordered and presented

◦ narrowing down

AOL = report what material is available out there

= terms of technology : focus used

= solve the problem similar to yours

= look at same subject area / similarity of sites / youtube videos

= look at similar technology that is used

= going to be similar to the problem in the big section

= unite what is important about research used in deliverable

= learning from the resources

= scope to elaborate

P/S = Good

→ more specific

→ what to produce

FR = more specific

NFR = breaking down

VR = specified : how ? .

Specify the requirements

✓ what does it do ; how is it important to deliverable / what to take (A of context)

✗ Usability requirements are important

Meeting

2018

12/02/18

Intro is OK

Project aims (need rewording) investigate technologies that can be used

UX of issues LEPSI

- Look over project aims + project specification
- Absence of analysis of context
- Project specification (separate chapter (use no issues))
- Implementation (justification)
- Appendices can go into one of the chapters
- Show rough cut

Meeting

19/02/2018

analysis of
Discussion of context.

F most of the research is fine but needs detail of what the softwares really are
and what it does

- Implementation section is fine
- Testing section is fine
- User Evaluation needs to be more specific
- r Video footage is fine,
- Work on more of the analysis of context.

APPENDIX G: POWERPOINT SLIDES

Making multimedia access more straightforward

SEAN SMART 1602648 (HONOURS PROJECT)
DIGITAL MEDIA (DESIGN, DEVELOPMENT AND PRODUCTION)

1

MOTIVATION

- ▶ Massive interest of movies and television
- ▶ Use of interest in an experimental environment
- ▶ How can technology that can enhance accessibility be important when it comes to movies
- ▶ A short video which contains enhancements for the visually impaired and the audibly impaired

2

EXAMPLES OF ENHANCEMENTS



3

Information Gathering

- ▶ Relevant use of literature
- ▶ Appropriate use of resources
- ▶ Aid from professional teaching staff
- ▶ Research work related to the project

4

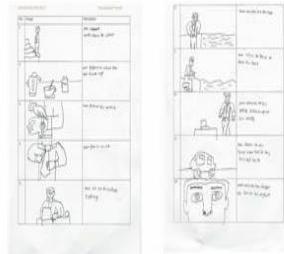
DESIGN METHODOLOGY

Agile Methodology
Allows requirements to change



DESIGN

► Drawn up storyboards



6

Implementation and Testing

- Premiere Pro
- Audacity
- Participants questionnaire



7

Evaluation and Conclusion

- User response is positive – well edited and good quality of production
- Time management
- Next video project – TBC
- Future – Practice editing skills and learn more about the technologies out there

8

APPENDIX H: POSTER



School of Computing Science and Digital Media

SUMMARY OF RESEARCH

The research aims to investigate how to use technologies that are out there and to enhance the experience of users that have an impairment such as visual or audible (hearing impairment) and how they can access multimedia straightforward, especially when they are watching movies on the television. The research has been carried out to explore what kind of hardware and software have been used to solve the problem and solutions have been implemented many times in the past. The data being gathered in this project will determine if this video will be accessible for everyone with impairments.

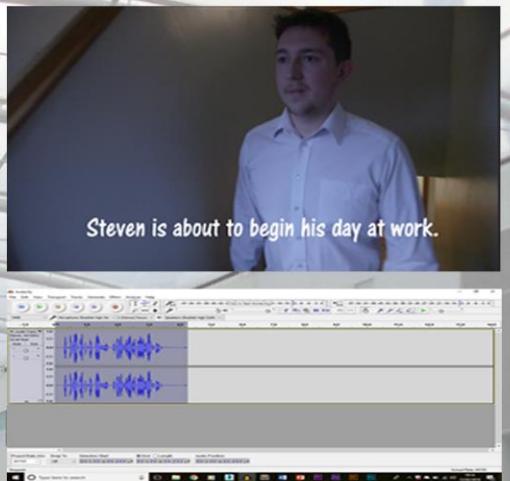
This project involves supervision from the professional and lecturing staff at Robert Gordon University School of Digital Media and Computing Science in Aberdeen. and meetings have been ran weekly.



This project aims to investigate an ideal solution to make multimedia access more straightforward. This project involves creating a short film but using technologies (Audio Narration and Captions) software (Adobe Premiere Pro and Audacity) for enhancing the user's experience whether they can watch the video and understand what is going on while viewing.



following images of how the project will be done through using narration and captions



Previous solutions for this short video project was the use of technologies which involved screen readers, larger monitors, audio narration and captions/subtitles, this project also involved learning from the resources given to carry out the experiment, the images below are examples of the technology used in audio and visual implementation.



The image on the left shows the short video in post-production and adding the use of text and audio which acts as an enhancement for the video. and data gathered has been through user evaluation receiving feedback on what went well and what needed improved on.

RESULTS

Most of my participants agree that this short video is suitable and accessible for people with visual and audible impairments and thoroughly enjoy the short video.

Student Name: Sean Smart

Student ID: 1602648 Course: Digital Media

APPENDIX I: PROJECT SPECIFICATION/ DETAILED PROJECT PROPOSAL

First Name:	SEAN
Last Name:	SMART
Student Number:	1602648
Supervisor:	ROGER McDERMOTT

Defining your Project

1.1 Detailed research question/problem

Help: Your detailed research question is the statement of a problem within the computing domain, which you will address in your project. Refining the research question involves narrowing down an initial question until it is answerable using a primary research method(s) that you will conduct during the time of your project. The refined research question must not be so general that it is answerable with a yes or no answer. It must not be so broad that you would be unable to achieve a solution during your project. The key to this is BEING SPECIFIC: Narrow down the method or technology you will use, narrow down the group that the question refers to (localize a general question) if the project is still 'too big', can you think of a way to work on a part of the problem? Avoid using words that cannot be measured, by you, without a huge research budget e.g. 'effects on society', 'effects on business'. *Example:* The initial question "Does cloud computing effect business" needs narrowing down (*for a start the answer is yes*) What is meant by cloud computing? Or 'effect'? Or 'business', in this question? Refining this first question will involve narrowing it down to something you, personally, can measure. A refined version of this question might be: "Does implementing a cloud based voting system improve the speed of decision making in a small company in Aberdeen?" This refined question is implementable: You can now identify a small company to work with, document their current decision making processes, implement a cloud based voting system, compare decision making speeds over a limited time period (say 1 month) and evaluate your findings. *A small piece of genuinely new knowledge is produced.*

How can we make accessing a multimedia product more straightforward for those whose who impairments?

This will be an interesting topic to go over as it will come up with an ideal solution of how we can help those with impairments either visual or audio to access a multimedia product straightforward.

The goal is to create a video and then investigate people with any of these impairments access to digital media.

for an experiment I will simulate with people with impairments to watch and listen to the video and then the results will be observed, the data will then be evaluated and finally a conclusion will be drawn

1.2 Keywords

Help: Include up to 6 keywords separated by a semi-colon; what keywords are appropriate to describe your project in an online database like Google Scholar? Keywords should include the general research area and the specific technologies you will be working with. *Example:* A project that proposes a novel way of visualising large amounts of twitter feed data may have the keywords: Data visualisation; twitter; hashtags; database design; graphics libraries.

Visualisations; Data Evaluation; Accessibility; Video Enhancements; Information Retrieval; Communication

1.3 Project title

Help: The project title is a statement based on your detailed research question. For example, the research question '*to what extent does a mobile application reduce the number of errors made in class registers at RGU in comparison to current paper based registers*' may be stated in the project title: "*A Wi-Fi driven mobile application for large group registers using iBeacons*".

Making multimedia access straightforward

1.4 Client, Audience and Motivation:

Help: Why is this project important? To whom is this project important? A project must address a question/problem that generates a small piece of new knowledge/solution. This new knowledge/solution must be important to a named group or to a specific client (such as a company, an academic audience, policy makers, people with disabilities) to make it worthwhile carrying out. This is the ***motivation*** for your project. In this section you should address who will benefit from your findings and how they will benefit. Example: If you intend to demonstrate that a mobile application that automates class registers at RGU will be more efficient than paper based registers - the group who would be interested in knowing/applying these findings would be both academic and administrative staff at RGU and they would benefit by time saved and a reduction in their administrative workload. If you are making a business case for an organization explain how the organisation will benefit from your findings.

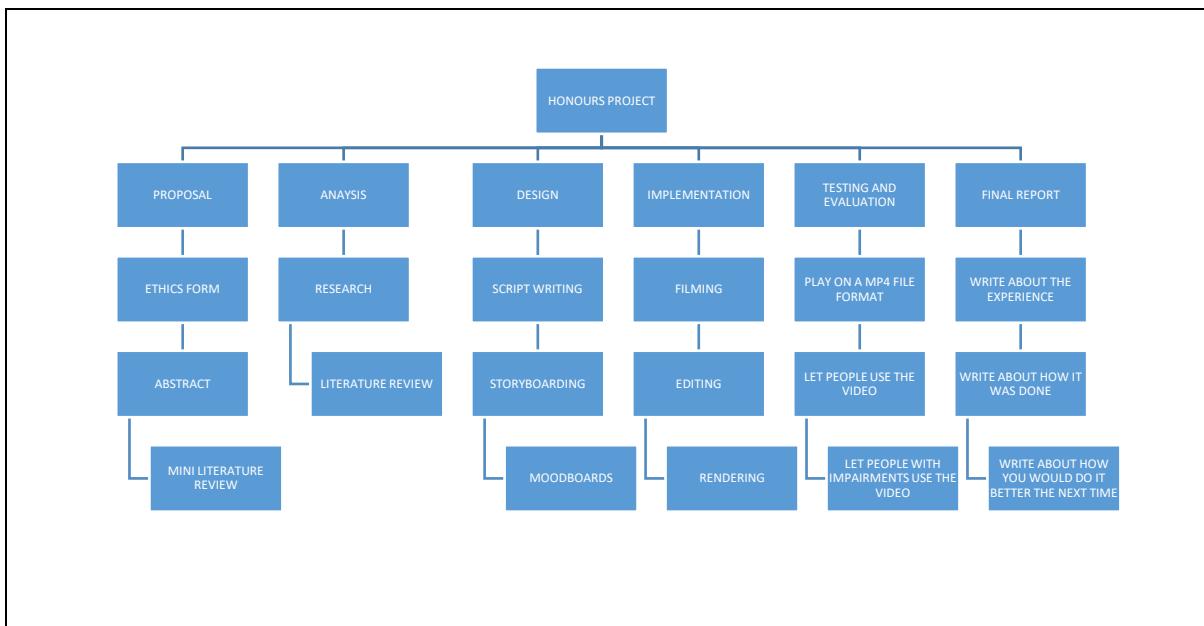
I feel that this project is important to me as I want to understand how people with different disabilities function and want to write a paper on it, I am curious on how we can make things straightforward and simple for people who tend to have difficulties accessing information and want to come up with a theory on how I can make accessing anything multimedia easier for people with impairments
The audience is towards those with or without impairments I want to investigate on how I can allow people with impairment issues have an easy, fun and smooth experience while watching a video on TV, tablet or phone without struggling or feel a negative emotion with the project and I am curious on what I come up with.

1.5 Project Plan

Help: This is the project plan as to how you will go about achieving the objectives of the project. It must include the methods you plan to use such as for example experiments, applications or software demonstrators, process models, surveys, analysis of generated data ...

Example: In the class register example above "to what extent does a mobile application reduce the number of errors made in class registers at RGU in comparison to current paper based registers" - the research plan may involve: 1) Collecting and analysing paper based registers in a given class on five occasions. 2) Identifying the error rate average on these occasions 3) Designing and implementing a mobile application that automatically records attendance in class. 4) Deploying the application in the class on five occasions. 5) Identifying the error rate average of the mobile application on these occasions. 6) Comparison of data and summary of findings.

- 8) Perform big literature research on impairments/how people with impairments access multimedia/how digital media can help people with impairments etc.
- 9) Identify the relevant technologies to perform the project with the suitable software and techniques
- 10) Identify the requirements and produce a detailed project specification
- 11) Design the project (use of storyboards, mood boards, methodologies and techniques)
- 12) Implement the design, deploy and then test the video to ensure it is presentable
- 13) User evaluation with users who are visually/audibly impaired and gather the data
- 14) Write the overall report



This is the end of section one.

Section Two: abstract and initial literature review

2.1 Abstract

Help: An abstract is a short summary of the project that enables others to know if your report is relevant to them without reading the whole report. It is usually written retrospectively so that it can include findings and results. It is fully expected that you will rewrite your abstract when you come to write your final paper. For now, you should write an abstract of about 250 words that define the project described in section one. Before writing your abstract you MUST read some abstracts from conference or journal papers on *Google Scholar* or from *portal.acm.org* (to understand their style) and then provide your own abstract that outlines what your question is and what you 'did' to answer it.

Use of computer products has become one of the most common things to have when it comes to design, development and production in digital media.

However there are users that may have difficulties with disabilities when using the product whether it is a video, website or a graphic when it comes to things such as text, images, colours and the navigation of a product. Things to be taken in account are for audiences when it comes to impairments. Videos have been used for a lot of things in computing such as advertising, attracting audiences and for entertainment, when it comes to visual and audio impairments videos can be quite difficult to access.

Accessibility either it is blindness, deafness and physical impairments to using multimedia on a computer or other technology has been quite a challenge recently. Solutions have produced in universities or other research groups by surveying the data which will relate back to usability.

There are alternative solutions to video access such as subtitles for the audibly impairment, sound and larger monitors for those who visually impaired, this project will compare the results with a regular human being whose has good visual and audible ability and a human with visually or audio impairments

This paper will investigate if there is a solution to make using multimedia products more straightforward the results and then is later compared and ourselves understand aspects of how we can enhance accessibility where the research can benefit to others with impairments in the foreseeable future.

2.2 Initial/Mini Literature Review (500 words maximum)

Help: A literature review is a select analysis of current existing research, which is relevant to your topic, showing how it relates to your investigation. It explains and justifies how your investigation may help answer some of the questions or gaps in this area of research. A literature review is not a straightforward summary of everything you have read on the topic and it is not a chronological description of what was discovered in your field. Use your literature review to:

- compare and contrast different authors' views on an issue
- criticise aspects of methodology, note areas in which authors are in disagreement
- highlight exemplary studies
- highlight gaps in research
- show how your study relates to previous studies

This literature review is too understand whether is there is a way to make accessing multimedia straightforward for those that have a disability such as blindness, deafness or physically impaired and to come up with a solution or an idea to address the issue. Today, derived terms such as 'accessibility' and 'universal access' have a broader meaning which is not limited to specific contexts and specific tools but interprets "the global requirement of coping with diversity"[1] the quote is referred in Accessibility of Educational Multimedia: in Search of Specific Standards paper and applies to all fields of modern social life, including information and communication technology. In context of the emerging information society universal access resurfaces as a critical quality target since in this framework disadvantaged or excluded groups, including the disabled and the elderly face the danger of further marginalization, with the advent of the digital computer, and its broad penetration, disabled and elderly people face serious problems in accessing computer devices.

According to Clark [2] There are a number of practical issues relating to effective provision of accessible multimedia. Knowledge and awareness of accessibility issues remains low among web and multimedia developers, although the situation has undoubtedly improved in recent years. The time required to implement accessibility features can be significant, and even more so if done retrospectively. At the same time, while general principles of accessible multimedia are widely accepted, there is a lack of solid research based guidelines in may more specific aspects of accessible multimedia design.

The first article disagrees on the fact that there is a lot of solutions for getting people to access multimedia products such as websites, videos or anything relevant, however the second article has said that there are practical issues relating to accessing multimedia and they have said to have the knowledge and awareness of accessibility issues that remain among development

The second article (Using multimedia to enhance the accessibility of the learning environment for disabled students: reflections from the Skills for Access project) have an approach for the issue of accessibility to help, given a set of accessibility guidelines, may try to apply inappropriate accessibility solutions such as using a video in a modern language class to test the ability to listen and understand the spoken language would be an accessibility issue. The developer would ask what would be the barriers to using resource for its purpose or how might specific learning difficulties or other cognitive impairments affect the ability to use the resource.

Both articles tend to want to understand the accessibility of how people would be able to access anything multimedia based and how to make the experience straightforward and simple for everyone to use, both articles have agreed on the fact that there are massive improvement for people with accessibility issues to access a product, though additionally implementing features due take a long time and also the goal is to use multimedia to be as easy as possible regardless of personal access needs.

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file://nas-csdm.rgu.ac.uk/csdm-H/students/16/1602648/Downloads/article_45307.pdf

2.3 Relevant professional, social, ethical, security and legal issues to the project

While reading some articles and resources for references, I must be careful that work is not too similar while typing it up on a word document to avoid copyright
Asking questions where people might take offense or misunderstand the question being asked
Looking for inspiration while by looking up papers but ensuring I do not copy someone else's work.
While filming outdoors which could aggravate other people who don't like a camera in their face
Filming other people without their consent even by accident
Injuring myself while filming

2.4 Bibliography (key texts for your literature review)

Help: Please provide references, in correct Harvard style, for at least three key texts that have informed your literature review. If you are implementing an application, select texts, which demonstrate how other researchers have tackled similar implementations? The references should be recent and sufficiently technical or academic. Your markers will be looking for you to identify technical reports, conference papers, journal papers, and recent textbooks. Avoid *Wikipedia* entries, newspaper reports that do not cite sources, and general or introductory texts.

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CHAPTER 8: RESOURCES/REFERENCES

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