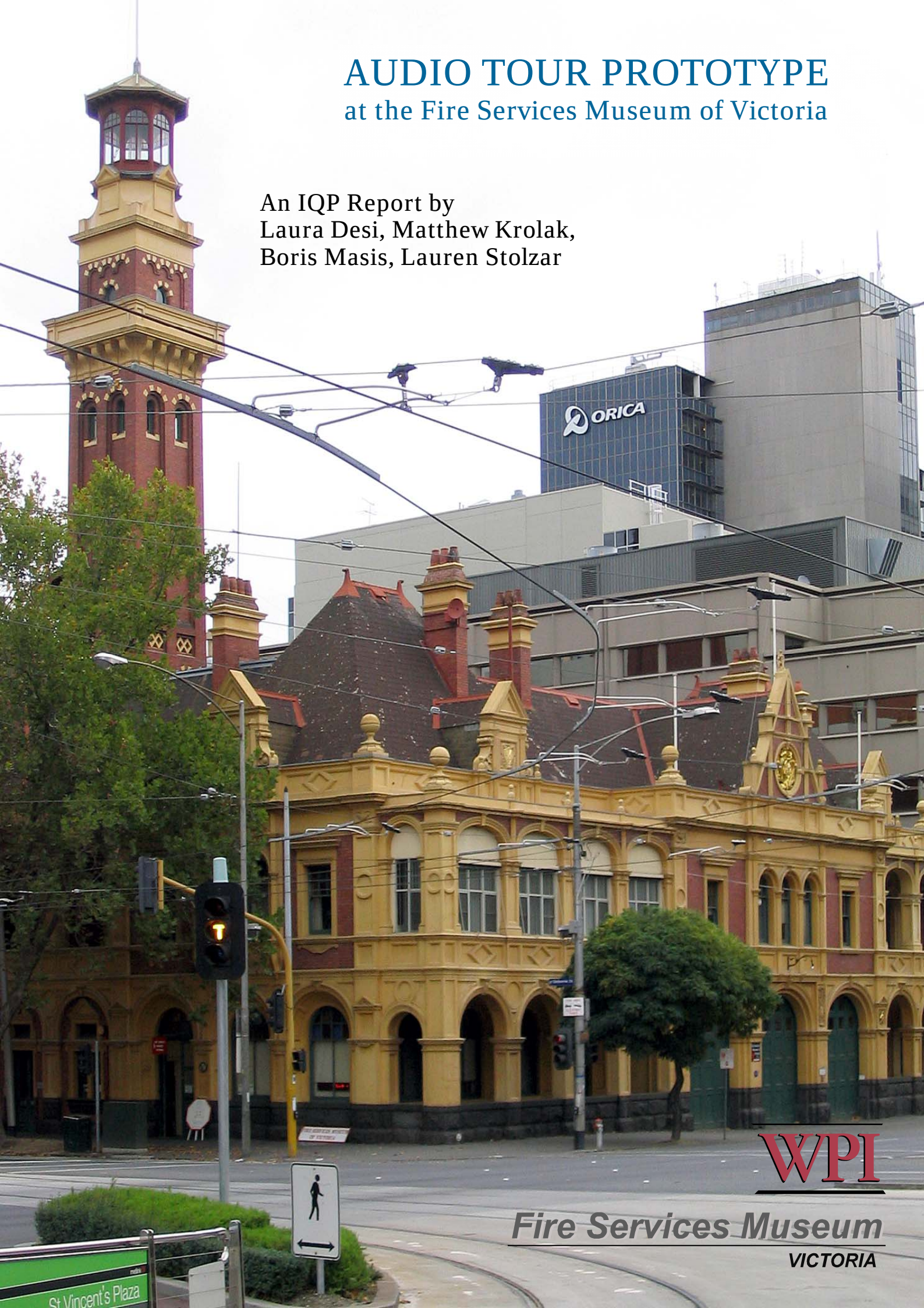
AUDIO TOUR PROTOTYPE

at the Fire Services Museum of Victoria

An IQP Report by
Laura Desi, Matthew Krolak,
Boris Masis, Lauren Stolzar



WPI

Fire Services Museum
VICTORIA

Project Number : KALA041

AUDIO TOUR PROTOTYPE FOR THE FIRE SERVICES MUSEUM

Fire Services Museum of Victoria, Australia

An Interactive Qualifying Project Report
submitted to the Faculty
of the

WORCESTER POLYTECHNIC INSTITUTE

In partial fulfilment of the requirements for the
Degree of Bachelor of Science

By

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Abstract

Our group ensured the continuing growth of the Fire Services Museum of Victoria, Australia by creating an audio tour prototype. We completed a full production cycle, conducting recorded interviews with firefighters, postproduction work, and a demonstration of the prototype. We ensured the continued development of the system through the creation of a “project center” with Deakin University. Deakin students and professors will build on our work as well as initiate a number of additional projects proposed in our report.

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Executive Summary

The Fire Services Museum of Victoria (FSMV) collects and displays the history and artifacts of the fire services throughout the state of Victoria, Australia. Approximately twelve retired fire fighters and fire service personnel operate the museum on a volunteer basis. These volunteers lead tours through the museum relating stories about the museum's artifacts to the patrons. The volunteers also oversee all operations of the museum. Currently the museum contains over 4,000 artifacts on exhibit through traditional display units. The difficulty faced by the museum prior to this project is that it lacked a multimedia presentation system that would allow it to further expand its audience and add value for its patrons.

An audio tour system would educate the visitors on the history of the artifacts from a personal and historical perspective. This would provide a captivating experience for the visitor, similar to the guided tours given by volunteers. Approximately six to eight volunteers lead such tours on each of the two days a week the museum operates. However, there are often times when museum patrons prefer to walk independently through the museum or have to do so because there are not enough volunteers to lead all of the patrons on tours.

The goal of this project was to create a prototype of an audio tour system that would serve in these types of situations. The proposed system allows a patron to choose a track on an MP3 player that correlates to an artifact in the museum,

and a volunteer's voice will be heard describing the artifact's significance. This project is expected to help the museum flourish by laying the foundation for a system which will provide patrons with an artifact's historical and personal contexts and maintain or increase the levels of patron satisfaction.

The initial step in developing the audio tour prototype was to create a schematic for organizing the interview content. We developed a naming convention to ensure that all artifacts or topics discussed by the interviewees were included and easily differentiable. Once we had a categorization system in place, we conducted interviews with ten current FSMV volunteers. The interviewees were chosen based on their background in the fire services, knowledge of the history of the artifacts in the museum, and clarity of speech.

We recorded these candidates using a high quality microphone to capture the audio component, as well as two digital camcorders for video footage. The video footage was used only for archival purposes. The interviewer and cameraman followed a detailed interview protocol for all interviews conducted. We used this protocol to ensure that the interviews were conducted in a time efficient manner and that all steps of the procedure were completed. The protocol also provides future interviewers, particularly a student group completing the audio tour system, with a reference document.

After successfully conducting the interviews, we created the prototype of the audio tour by selecting the most relevant recordings, editing these audio recordings, and loading the files to a hardware audio player. We chose the audio

clips based on content, clarity, and relevance. The goal was to create professional quality audio tracks that conveyed the historical significance of the museum artifacts and included stories from the FSMV volunteers. As such, the audio tracks would serve to show the museum the potential offered by a full-scale implementation. We edited all tracks to remove unnecessary stutters, word fillers, and background noises that diminish the quality of the audio recording. Loading the audio onto a hardware device finalized the creation of the prototype, and allowed museum volunteers to examine the proposed system.

As a non-profit organization with a limited budget, the museum expressed the need to obtain funding for the production of the prototype. We were very successful in meeting this requirement through the submission of proposals for corporate sponsorship with local rental agencies. These organizations were very responsive and supported the project significantly.

Upon the completion of the audio tour prototype, we assessed the satisfaction of the museum volunteers with the proposed audio tour. We found responses to be very positive and are confident that a full-scale implementation based on the groundwork of this project would be of great benefit to the museum.

We recognized from the onset that our group would create a prototype of an audio tour system, not an implemented and working solution. Aiming for the latter would have been unrealistic given the seven week timeframe. We also realized, however, that to create a prototype without a plan for a full implementation would of limited use to the museum.

We took two steps towards ensuring that our prototype would be implemented in future work. The first was the recruitment of a local student volunteer whom we involved in the production process and who remains as a project-related contact in Melbourne. The second and highly significant step was the establishment of a close relationship between the museum and professors at Deakin University. This relationship signifies the beginning of a project center at the museum, managed by Deakin professors and staffed by students of the university. These students will work towards implementing a full audio tour system at the museum as well as initiating a number of additional projects proposed in this document.

Introduction

Let's get started.

Fire Services Museum
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1 Introduction

People have come to expect more from their everyday activities as technology continues to improve and evolve. Museums, which were once places of very limited interaction, are now implementing new technologies to meet the challenge of captivating their visitors. Systems such as interactive multimedia displays and audio tours are now widely used in museums.

The Fire Services Museum of Victoria (FSMV) is the largest fire memorabilia museum in Australia. The FSMV realizes that modern technology is necessary to allow it to stay competitive within the museum landscape as well as expand its visitor base. However, the museum had not previously made use of such technology, relying exclusively on volunteer guides to provide context for their visitors.

The San Francisco Maritime National Park Association likewise did not make use of modern exhibit technology prior to the year 2000. In that year the National Park implemented an audio tour at their USS Pampanito exhibit. The audio tour allows visitors to hear excerpts from 16 interviews conducted with veterans of the World War II submarine (Antenna Audio, 2004, USS Pampanito). The audio tour puts the history of the submarine in context and brings the visitor right into daily life aboard the Pampanito.

Our project addressed several key issues to develop a prototype of an audio tour

at the FSMV with a similar impact as the one implemented by the San Francisco Maritime National Park Association. This document deals primarily with the logistics of creating an effective audio tour prototype and oral history archive, and also covers design and planning for the continuation of our efforts.

We recognize that a prototype of an audio tour system is not beneficial to the museum until a full-scale implementation is performed. Thus, the goal of this project was not only to create a prototype, but also to develop a continuity plan for future completion of the audio tour. At the center of this plan is the relationship we established between the museum and professors and students of Deakin University. This plan will ensure that the effort to modernize the museum will be an ongoing and successful process.

Literature Review and Background

A couple things you should know.

Fire Services Museum
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2 Literature Review and Background

The goal of this project was to create a multimedia archive and presentation system. We researched the FSMV, museums and their visitors, oral history, audio and video interviews, archiving technology, and presentation technology so that we could better understand the social context and concepts related to this project. This background will also be important in grounding future student groups in the same basic understanding of our project.

2.1 Fire Services Museum Victoria

It was important for use to familiarize ourselves with the layout and exhibits of the Fire Services Museum of Victoria since our project aimed to augment tours of these exhibits. The physical layout and history of the building, as well as the number and type of exhibits were all taken into consideration. The FSMV is a small museum compared to some of the better-known museums such as the National Gallery and the Museum of Modern Art, also both in Melbourne, Australia. The exhibit space consists of eight separate rooms connected by two hallways on the ground floor of what used to be the Eastern Hill Fire Station (Fred Kerr, 25 Mar. 2004). Though the space wasn't originally designed to house a museum, the large number of artifacts on exhibit and occasional display boards keep the museum patrons' attention. The museum provides pamphlets that contain a floor plan for the visitors (See Figure 1).

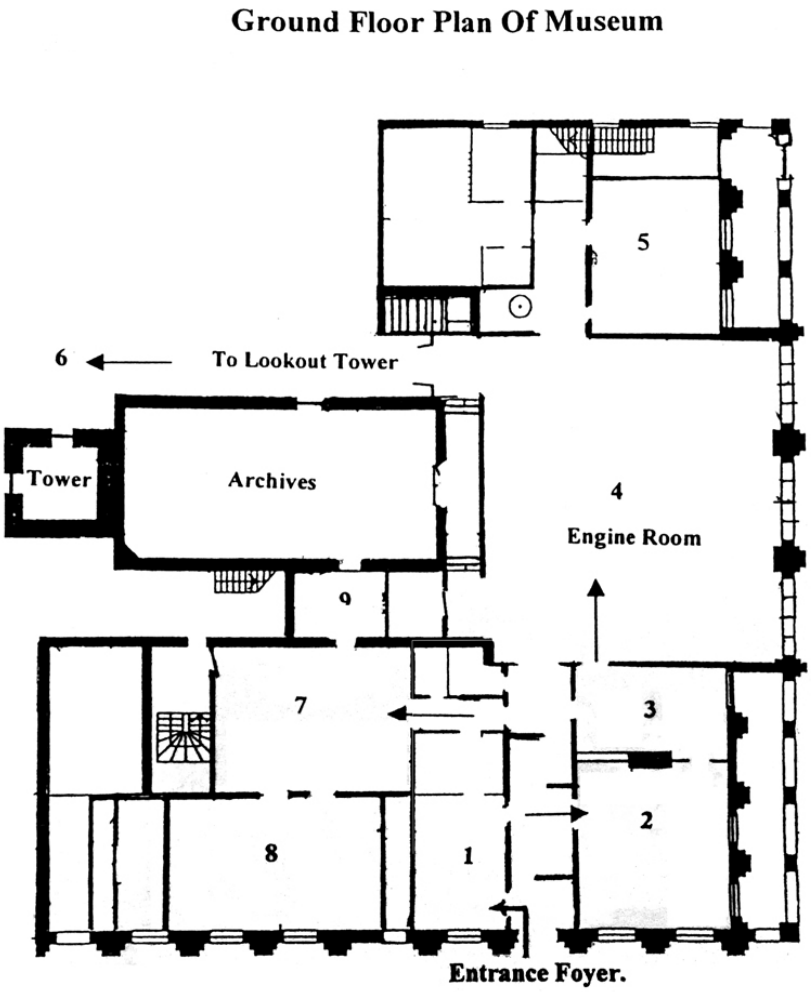

Figure 1: FSMV Floor Plan
(Source: National Fire Services Museum, 2004, National Fire Services Museum)

There are currently twelve active volunteers involved with the FSMV (Fred Kerr, 3/19/04, personal communication). These volunteers have all been involved with the fire services in some way, and many are retired fire fighters for the Metropolitan Fire Brigade (MFB), Country Fire Authority (CFA), or Port Melbourne Fire Authority who wish to remain part of the fire services. There are a few who were involved in the special services department of the fire brigade, and held jobs such as a fire investigator (Mike McCumisky, 3/31/04,

personal communication).

These volunteers maintain the museum, keeping it in order. Five of the volunteers are board members for the FSMV who oversee the museum's operations. Some of the offices held by volunteers are President, Treasurer, Secretary, Historian, Curator, and Display Coordinator. In addition, the volunteers lead the tours through the museum. The volunteers describe the history of the museum artifacts and also add their personal recollections on their involvement with the fire services. They also perform some upkeep tasks, such as polishing all the brass in the museum weekly, continuously updating and adjusting displays, and running the fire engines on a regular basis to maintain their mobility (Fred Kerr, 3/19/04, personal communication

2.2 Museums and Their Visitors

This section discusses what motivates people to visit museums. We researched how museums appeal to visitors and their perceived value to visitors to help us develop the audio tour in a way that would appeal to a broad audience.

2.2.1 The Museum/Audience Relationship

The relationship between museums and their visitors is undergoing a period of rapid change in response to changing perceptions of museums' value in society. In the book *Museums and the Interpretation of Visual Culture* Eilean Hooper-Greenhill (2001) states:

> The biggest challenge facing museums at the present time is the re-conceptualization of the museum/audience relationship. After almost a century of rather remote relationships between museums and the public, museums today are seeking ways to embrace their visitors more closely. As museums are increasingly expected to provide socially inclusive environments for life-long learning this need for closeness to audiences is rapidly becoming more pressing (p. 1).

According to Hooper-Greenhill, museums were perceived as educational institutions with important and far-reaching social roles during the second half of the nineteenth century (2001, p. 2). However, museums' approach to education was based on formal instructional methods and the conviction that placing objects on display was sufficient to ensure learning. Museums are only now trying to identify ways to reconnect with their audiences. This desire to reconnect with audiences has led museums to dramatically alter the methods and content used in teaching and learning.

The Prado Museum in Madrid is one museum that has taken action to reconnect with their audience (Madrid Museum Tours, 2004). This well-known art museum offers five different privately guided tours through the museum. A guide leads each of the tours providing extensive knowledge in the subject area of the visitors' interest. This sort of storytelling approach allows the visitors to be uniquely connected to the museum's content in a social setting.

These personal interactions are a type of storytelling where one person seeks to convey to another a series of events along with the personal significance of these events (National Storytelling Association, 2004, What is a Telling?). These

events are significant because they are a fundamental type of human interaction. Such interactions, though seeming at first to be passive on the part of the listener, are more involved. Stories must be interpreted and require the use of active imagination by the listener and, therefore, involve active participation of both the teller and listener. Many virtual and augmented interactions are modeled after personal interactions, which is not surprising since this type of communication is the most intuitive for humans.

The FSMV has a similar presentation method that is also very effective. The museum utilizes retired fire fighters who act as guides and a source of living history, rather than maintaining the 'place item on display and learning takes place' paradigm. This shows that the museum understands that learning is more effective with inter-personal methods of communication.

2.2.2 Appeal to Visitors

Museum visits are often short, irregular, and infrequent, so it is difficult for museums to determine what is pleasing to their visitors. Furthermore, it is hard to appeal to visitors because each patron has varying interests, abilities, and methods of understanding and appreciating the artifact or work being viewed. Yenawine (1999, p. 5) wrote that visual learning is a long process; it takes time to understand and appreciate an exhibit. When viewing works in an art museum many visitors do not have a strong understanding of who the artist is or what the painting portrays. Therefore, the visitor's background and knowledge

of the art and artifacts will be a factor affecting the appeal, or lack thereof, of the museum.

Museums can increase visitor satisfaction by engaging patrons, ensuring that they enjoy the learning process. Goulding (2000) wrote that "fun must be part of the experience" (p. 263), and Screven believes museums should present questions to the visitor so they have to search for an answer. Screven states:

> To achieve both visitor attention and communication, exhibitions need goal-directed and discovery activities (e.g., making predictions, completing a task, resolving a question) that reward appropriate attention (1993, Making exhibitions work, paragraph 4).

Questions such as, 'What is this painting expressing?' or 'How was this artifact used years ago?' make the visitor feel engaged. Museums should act as 'enablers' to the past and should be intellectually accessible and culturally relevant to their audience. People want to feel that the information is related to them, and that they are a part of the museum in some way. If museum employees involve visitors in the experience, visitors will most likely enjoy the experience to a greater extent (Goulding, 2000, p. 263). Multimedia presentations and hands-on exhibits can be used to effectively prompt visitors to consider these types of questions.

The American Institute of Physics researched the effectiveness of these 'engaging exhibits', such as interactive exhibits at the Exploritorium in San Francisco, CA. They found that:

> The exhibits in these museums present natural phenomena, technological innovations and scientific ideas in ways that prompt visitors, interacting with them, to ask themselves questions and reinforce their own learning. Exhibits are designed to isolate a piece of nature or a concept from the complex world so that a visitor has a chance to poke at, fiddle with, and thereby begin to comprehend it (Semper, 1990, Role in Public Education).

In the creation of a history presentation system, it is necessary to understand these factors that influence visitors' feelings about museums, as well as leverage presentation technologies to enhance the visitors' experiences.

2.2.3 Educational Value of Museums

Comprehensive thoughts on the educational value of presentation methods within museums and their place in society were expressed as early as 1853 when Henry Cole stated:

> Indeed, a Museum presents probably the only effectual means of educating the adult, who cannot be expected to go to school like the youth, and the necessity for teaching the grown man is quite as great as that of training the child. By proper arrangements a Museum may be made in the highest degree instructional. If it be connected with lectures, and means are taken to point out its uses and applications, it becomes elevated from being a mere unintelligible lounge for idlers into an impressive schoolroom for everyone (Minihan, 1977, p. 112).

Cole states that the museum should be an institution that strives for effective teaching. He also makes the distinction between different target audiences by differentiating between the needs and abilities of children and adults. This topic

applies to the FSMV, which attracts a variety of individuals such as tourists, history buffs, and school children.

An important aspect of educating a wide audience is using several different presentation methods, each of which may appeal to a different portion of the visiting population. Organizations such as established museums can increase their educational potential by augmenting their current exhibits. Augmented reality aims to add value to real world experiences by presenting additional information that would otherwise be unavailable to the user (Bederson, 1995, Abstract).

Bederson (1995, Audio Augmented Reality Prototype) proposes a system that adds value in the form of digital content, while minimizing impact on other behaviors. He stresses the importance of the social aspects of the museum and learning experiences by way of another example. He explains that CDs and live performances offer much of the same content, but the social context of a live concert offers greater value to the patron, while virtual interactions remove some value by replacing the real world with a fictional one. In an augmented reality system each display or exhibit in the museum contains a transmitter that "tells" the handset of the patron what content to present (See Figure 2). This allows the visitor to wander about the museum without the constraints of an ordered walking tour. This system also allows visitors to interact with others, perhaps friends or new acquaintances, without having the visitor lose their place in the audio tour.

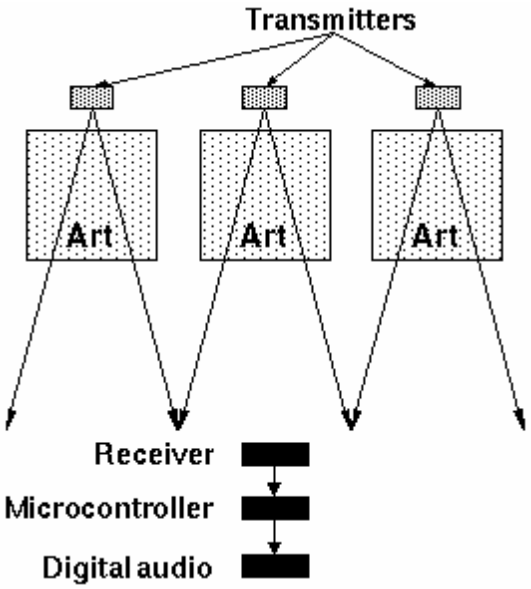

Figure 2: Schematic for Augmented Reality Prototype

(Source: Bederson, 1995, Audio Augmented Reality Prototype)

2.2.4 Meeting the Needs of Visitors

Some of the factors that contribute to an individual or a group deciding to attend a museum are expectations, perceived costs and benefits, marketing, and previous experiences. However, the patron's interactions with the museum's exhibits, guides, and other patrons ultimately define the museum experience (Bederson, 1995, Abstract). Accordingly, the central issue of how visiting a museum is unique from other educational or entertainment activities is the nature of the interactions experienced during the visit. We intended to replicate the important aspects of this unique event in our tour by understanding how patrons interact with the museum and how these interactions are unique to the museum experience.

Behavioral research comparing different age groups in museums has shown several trends. Some of the more universally agreed upon results of this research are:

- Family visits to museums tend to be informal, unstructured occasions, rarely planned more than a day in advance, which provide a pleasant opportunity for members to strengthen family ties.
- Museum patrons behave like window-shoppers, browsing until they see something that attracts them.
- Adults are most likely to choose the area to explore, but children are more likely to select individual exhibits.
- Behavior and learning is influenced by the type of exhibit and by the stage in the visit at which an exhibit is encountered.
- Families come to museums with their own agendas, but these are likely to include learning in an informal environment (i.e., combining entertainment and education).
- Children are more likely to interact with exhibits than adults, and adults are more likely to read exhibit labels (Dierking, 1994, pp. 57-72).

A museum that caters to a variety of age groups is faced with the challenge of meeting the needs of each age group concurrently (Dierking, 1994, p. 75). Even small details such as the colors used in an exhibit, the presence (or absence) of exhibit labels, or the location of the exhibit relative to the layout of the whole museum can have an impact on the type of patrons that are attracted. Combining a museum's goals of education and preservation with display of items creates a very challenging environment for the museum management.

2.3 Oral History

One of the goals of our project that is important to the FSMV is to preserve the oral history of the retired firefighters of Victoria. The oral history from the firefighters differs from the artifacts in the museum because the firefighters' stories provide visitors with a social and historical context in which to understand Victoria's fire history (Thompson, 1978, pp. 1-18). Thompson found that including people who were involved in an event and having them discuss their personal experiences during radio broadcasts of the event boosted listener interest and encouraged those in the community to become interested in the history of their community. Thompson (1978) concludes from this that it is the human voice that adds meaning and context to history, and thus the presence of someone talking about a particular topic is enough to "breathe life into history" (p. 15).

This emphasis on the human voice as a means of bringing history to life is especially important to the FSMV. As we seek to archive and present the oral history of the fire service personnel, we must consider how effective the human voice is, and how to maintain that effectiveness when the fire service members are no longer able to speak in person.

2.4 Video Interviews

We planned to use both audio and video recording to collect the retired firefighters' oral histories, so the basic issues involved in doing such recordings were researched. The issues covered in this section are the use of background, foreground, as well as framing while shooting the video interviews and interview

considerations such as the interviewee's comfort and wardrobe.

2.4.1 Video

The three main compositional considerations when framing a scene for video are the foreground, background, and frame (See Figure 3). The foreground of the scene refers to the primary object of interest to the viewer, in this case the interviewee, while the background includes anything else visible behind the primary object of interest. Not all foreground or background elements may be visually interesting or relevant to the interview, and a choice needs to be made about how much of each to include in the shot. Framing involves the camera operator zooming in or out, or the repositioning of the camera to include different portions of the scene.

Figure 3: Framing
Left Photo: Poor Framing
Right Photo: Correct Framing
(Source; Media College, 2004b, Framing)

2.4.1.1 Background

When filming, the choice of background greatly affects the overall appearance of the resulting footage (Dexter, 2004, Backgrounds). The main considerations for the background are that it should be visually appealing, visually appropriate, and not distracting. A wide range of backdrops can be used so long as the audience is not confused or distracted by the choice of backgrounds. One simple

method for finding an appropriate backdrop is to use a background that relates to the interview. An example would be having a fire truck in the background when interviewing a firefighter.

Backgrounds that distract the viewer from the content of the footage should be avoided (Media College, 2004b, Composition/Backgrounds). Items that appear to be coming out of the interviewee's head, signs where some letters are obscured forming a new word, or backgrounds that contain too many separate elements can all be distracting. Limiting bright or reflective objects in the field of view will also help to reduce distractions; these objects will tend to focus the viewer's attention away from the interviewee.

In Figure 4 a man in a white shirt walking behind the couple draws the viewer's attention away from the couple being photographed (Example Three of Digital Alterations, 2004). The white shirt is bright and the position of the man separates the couple in the photograph. Figure 5 shows the effect of removing the distraction from the background.

Figure 4: Distracting Background **Figure 5: Distracting Background Removed**
(Source: Example Three of Digital Alterations, 2004)

Careful attention should be paid to lighting, as a visually appealing background can appear unpleasant on film if not lit properly (Film and Video Lighting for

Low-Budgets, 2000). It is best to choose an under lit background rather than one that is over lit. Adding lights to reach appropriate lighting levels is easier than trying to decrease the amount of natural light reaching a background. The background should be lit so that it is about the same brightness as the foreground, which ensures that neither element of the shot is distracting.

2.4.1.2 Foreground

The foreground (interviewee) should be visually distinguishable from the background, though it is not appropriate to over-light the foreground to accomplish this. Over-lighting the foreground makes the interviewees seem to pop off the screen. It is more visually pleasing to light the subject and background with roughly the same light intensity and accomplish foreground/ background separation using other methods.

The visual separation between the foreground and the rest of the scene is important. This means that the interviewee should be easily distinguished as the focus of attention in the shot. In black and white footage a light shining on the back of the interviewee's head and shoulders (known as a back-light) was often used. This light created highlights on the top of the head and shoulders, which exaggerated the border between foreground and background. This technique is still used, but is no longer necessary as separation can be accomplished using color and focus. By placing the interviewee as close to the camera as is convenient, and keeping the background as far from the camera as is convenient, it is possible to throw the background slightly out of focus. This will naturally draw the viewers' attention to the interviewee.

2.4.1.3 Framing

The position of the interviewee in relationship to the rest of the frame affects the quality of the recorded product. The interviewee should look into the frame, meaning there should be more space on the side that he is looking towards. Media College (2004b, Framing) suggests that severe profile shots are not appropriate, and instead, both of the interviewee's eyes should always be visible. When doing close-ups, the interviewee's nose should be placed in the center of the shot.

Using one shot throughout the interview may bore the audience, or could leave out important aspects of the interview (Dexter, 2004, Framing). The cameraman varies the frame in most interviews to keep the recording interesting. Different frames are appropriate for different situations, such as wide angles while the interviewer is asking a question, or tight shots for intense or intimate parts of the interview.

2.4.2 Audio

In an audio recording the microphone acts as a transducer, converting acoustic sound waves into an electrical signal (Shure, 2004, Critical Distance and Microphone Placement). Once the microphone captures the audio signal, it can be recorded, modified, amplified, or transmitted. Many different types of microphones with different recording properties exist, however no microphone can distinguish between desirable sounds and undesirable noise. Therefore, understanding the different types of microphones and their properties is critical

in choosing a microphone that will pick up as much of the desirable sound and as little of the noise as possible. For a detailed explanation of microphone types and their appropriate uses, please refer to Appendix R.

2.4.3 Interviewee Considerations

The interviewee is the single most important element of the interview process, and appropriate measures should be taken to ensure that the interviewees are able to present themselves to the best of their ability, and that they are represented well on film. The quality of the interviewee's performance is an important concern and can be improved by ensuring that the interviewees are comfortable during the recording process. The interviewees' appearance affects the visual quality of the recorded footage.

2.4.3.1 Interviewee Comfort

The interviewee's comfort must be taken into account to ensure that the interview goes as smoothly as possible, and that the interviewee gives a good performance. The chair and the lights used during an interview can rapidly cause an interviewee to become uncomfortable (Dexter, 2004, The Interviewee's Chair). Pauses in the interview caused by the interviewee repositioning himself will be distracting to the audience and will detract from the overall value of the footage. Similarly, any props or written material can become a distraction if the interviewee begins to fidget with them.

The chair that the interviewee sits in affects the interviewee's comfort and posture. The best chair to use for an interview is one that is "quiet, comfortable, dark colored, and appropriate to the location" (Dexter, 2004, The Interviewee's

Chair). Chairs that are not appropriate are those that swivel, are armless, too large (ex. a couch), or too comfortable (ex. a club chair). These chairs allow too large of a range of motion for the interviewee, and if they swivel in the chair or slouch on the couch, the interviewee may fall out of frame during recording.

Lighting considerations for the interviewee extend beyond proper lighting. Many lights used in TV and film give off a lot of heat, and this can become uncomfortable for the interviewee. To reduce this effect, lights can be pointed at and bounced off of reflectors, indirectly lighting the subject.

2.4.3.2 Interviewee Wardrobe

If the interviewee has a dark complexion, light clothing should be avoided. Thin stripes, reds, dark glasses, and caps should all be avoided, as they can negatively impact the footage (Media College, 2004b, General Tips/Clothing; Dexter, 2004, Wardrobe). Glasses and caps in particular will obscure parts of the interviewee's face or cast unflattering shadows.

When deciding whether an interviewee's wardrobe is appropriate, it is also important to consider the interviewee's feelings. Commenting on an interviewee's clothing could make the interviewee self-conscious or hostile towards the interviewer. Therefore, the negative impact of a poor wardrobe should be weighed against an interview not going well because the interviewee was offended.

2.5 Archiving and Presentation Technology Considerations

There are three main factors to consider when selecting a multimedia archiving or presentation format; quality, longevity, and predicted portability. (Boris Masis, 04/05/2004, personal communication) Attaining the highest possible quality video and audio is without a doubt a very high priority. The time and effort-intensive nature of multimedia archiving means that it is not a process that can be easily repeated. Thus, when archiving is done, it must be done to the best extent possible, as well as in a way that is visually and aurally presentable. High quality captures also mean that the archive is more likely to last a longer period of time. Specifically, the archive will remain presentable for a greater number of years.

The second major consideration in the selection of an archiving or presentation format is longevity. Though a high quality capture means that the video and audio look good, it must also be ensured that they are stored in a format that does not degrade significantly over time. Format degradation has been a significant problem with various past multimedia formats. Magnetic Tape, in particular, is estimated to be good for only 10-20 years before significant degradation begins to occur (Bogart, 1995, Life Expectancy: How Long Will Magnetic Media Last?). Generally this means that any data stored on magnetic tape is rendered unusable after this timeframe. On the other hand, various optical media such as high-grade CD or DVD disks have an estimated longevity of up to 100 years according to manufacturers (Weber, 1993, Paragraph 9).

The third major consideration of any format is predicted portability. Specifically, this refers to the likelihood that the chosen media can be easily accessed for a number of years in the future. Though the media may not have physically degraded, it can none the less be useless if no method for reading it exists some number of years down the line. For example, it is becoming difficult to come across playback mechanisms for betamax video tapes, 8 track audio tapes, or laser disks, though none of the formats are very old in years (Boris Masis, 04/05/2004, personal communication).

A discussion of the technologies we chose for this project and their characteristics relative to the considerations above can be found in section 4.3

Methods

How we did it.

Fire Services Museum
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3 Methods

This project focused on the development of a prototype audio tour. Our objectives were to capture living history, create a prototype audio tour, and develop a plan for the full implementation of the audio tour. To complete these objectives we performed interviews, organized the interview content, developed the audio tour, obtained additional volunteers, searched for funding, and assessed the volunteers' satisfaction with the prototype we created.

3.1 Performing Interviews

Interviews were conducted to capture the personal and historical recollections of the fire service personnel. The three steps we used to perform the interviews were: we selected individual firefighters to record, established a protocol for recording living history, and determined the most appropriate techniques for collecting living history. Using these steps we were able to properly capture the living history, which was the focus of our project and an essential part of the FSMV.

3.1.1 Selecting Interview Candidates

We first identified individuals from whom we should collect living history. We selected candidates who were readily available and also captivating to the visitors of the FSMV. Moss outlines a detailed procedure for selecting interview candidates in his book Oral History Program Manual (1974, pp. 24-27). In determining who should be interviewed Moss says we should divide the

available population by topic. The topical approach was most appropriate, as many of the firefighters were in service together, and therefore had similar experiences.

We then determined which firefighters were likely to provide the best information. First, we composed a list of all the active volunteers within the FSMV along with a brief description of each volunteer's background in the fire services. This list was created with the help of Fred Kerr, the president of the FSMV, as well as Mike and Barbara McCumisky, two FSMV volunteers. We then chose ten volunteers from this list and contacted them in order to schedule interviews. We determined ten was an appropriate number of people to interview based on the fact that we could borrow some of the filming and lighting equipment for only one week. We completed two interviews per day for five days, which was the maximum amount we could perform without sacrificing content due to time constraints.

The top ten volunteers were chosen largely based on their expertise within the fire services and knowledge of the artifacts in the FSMV. For example, we were certain to choose at least one volunteer from the CFA and one volunteer from the MFB to be interviewed. We wanted to ensure we had a broad range of interviewees who could talk about different artifacts in the museum. We then scheduled the interviews by placing a personal phone call to each of the volunteers.

3.1.2 Creating Living History Collection Protocol

Once we selected the retired firefighters, we decided on a general protocol to create the living history capture. We used informal interviews that allowed the firefighters to speak freely about a topic or artifact as our means of acquiring the living history. Refer to Appendix B to view our complete interview protocol.

3.1.3 Choosing Living History Collection Techniques

There were two types of media available to us with which to collect the living history that the retired firemen had to offer: audio and video. A number of factors were considered in the selection of appropriate audio and video recording formats. These factors included funding (discussed in section 3.5) and technical considerations (discussed in section 2.5). We also had to consider the comfort level of the retired firefighters with the various technologies (Ritchie, 1995, pp. 110-112). While many younger people are used to video cameras, some of the retired firefighters were not immediately comfortable in front of cameras. Special attention was paid to ensuring a comfortable and non-threatening environment for the firefighters; these aspects are discussed in Appendix B.

3.2 Organizing Interview Content

One of the consequences of the broad scope of our project was that we were not able to develop a fully implemented audio tour system. Rather, we only developed a prototype audio tour system, and consequently all of the recorded

material we produced during our time in Melbourne was carefully organized to make it accessible to whoever continues our work. We developed a categorization scheme and a file and structure naming convention to accomplish this. The file and naming structure provides an intuitive method for browsing recorded material and locating items based on general criteria such as interviewee name or recording date.

3.2.1 Developing a Categorization Scheme

We carefully looked at the logistical issues of creating an audio tour to avoid serious problems with organization later due to the large number of artifacts in the museum. While recording interviews we encountered interviewees referring to specific items in the museum, and likewise when we compiled the audio tour we also needed to reference specific items in the museum. For smaller collections it might be possible to reference each object with a text description, but with so many items in the museum, and so many of them similar in description, this sort of categorization would be prone to incorrect references and ambiguities.

We created a categorization scheme for our own use because museum had no indexing or categorization scheme in place to reference distinct items. We devised a hierarchal system for generating unique numbers that reference individual items in the museum.

3.2.2 Developing a Naming Convention

Each interview session generated recorded video; processing this video resulted in a number of smaller video and audio segments, which needed to be named according to an organized naming convention. The naming convention was based on the interviewee's name, the date the interview was performed, or the topic that the interviewee spoke about. Our final decision was made based on the naming convention that resulted in the fewest ambiguities and file duplication.

3.3 Developing the Audio Tour

We developed the prototype audio tour when the interviews of the firefighters were recorded and organized in a logical fashion. To develop the prototype, we first selected the recordings that would be used and then worked on the postproduction process.

3.3.1 Selecting the Recordings

Audio recordings were selected based on their potential interest to museum patrons. This potential interest was defined as a mix of the recording's relevance to museum artifacts, the clarity and quality of speech, as well as the recording's technical qualities. The first and most important round of recording selection took place during the interview session when the technical operator noted recordings of particular interest. (See Appendix B)

3.3.2 Postproduction

Postproduction describes the process of working with content after the recording session. In this step we edited and formatted the captured tour content for use in an audio tour. Audio was captured audio using an automated software process. This process allowed us to capture desired audio clips only (those marked as good during the recording.) The process also ensured swift and accurate naming and organization of captured audio.

We edited captured audio using non-linear audio-video editing software. This software allowed for a number of functions including noise reduction, the trimming and combination of audio segments as well as the overlay of background audio content. The technical postproduction process is described in Appendix M.

3.4 Obtaining Additional Volunteers

Student volunteers we sought for two reasons. We attempted to locate museum studies students to provide us with the necessary expertise in the area of applying for grants. Film students were desired as local contacts that would be familiar with the project and could aide in the continuing development of the audio tour.

We sought volunteers using two methods: posting flyers at local universities (See Appendix D) and contacting professors at these universities. Deakin University, located in the greater Melbourne area, has a graduate program in Museum Studies that includes grant writing as part of its curriculum. We

posted flyers in the center of campus to solicit help from these Museum Studies students. We also posted flyers for film students at Victorian College of the Arts, Deakin University, and the RMIT University (RMIT). In addition to posting flyers at local universities, we also contacted six professors at these universities for assistance in obtaining student volunteers.

3.5 Obtaining Additional Funding

The FSMV, which is operated as a non-profit organization, explicitly identified the need for addressing project-related funding as a topic of concern. We researched corporate sponsorship and internal funding to meet this need.

3.5.1 Corporate Sponsorship

We contacted five organizations to help us create the prototype of the audio tour system: Lemac, Open Channel, FireVision, Michaels Camera, and the Academic Technology Center (ATC). Members of our group visited the ATC and Michaels Camera and made personal contact prior to proposing sponsorship. Open Channel, Lemac, and FireVision were contacted through e-mail and telephone conversations. Proposals for sponsorship were submitted to Michaels Camera, Open Channel, and Lemac (See Appendix P).

3.5.2 Internal Funding

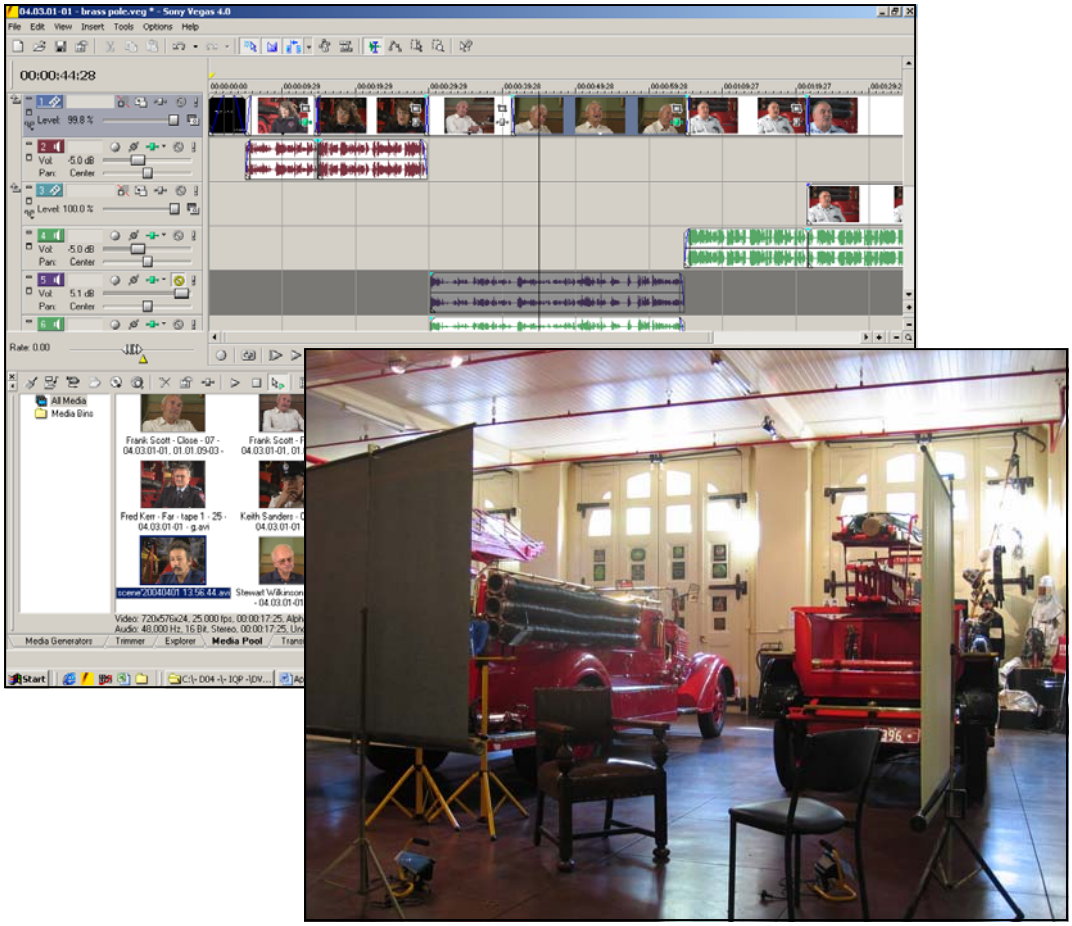
We spoke to Fred Kerr, President of the FSMV, and Bryan Robertson, Treasurer of the FSMV, about internal funding options. Talking with these individuals provided us with information regarding the financial background of the museum

and the probability that museum will be able to assist with the production costs of creating the audio tour prototype.

3.6 Assessing the Prototype

After the prototype was created, we assessed the volunteer satisfaction with the content. Volunteer satisfaction with the proposed system was vital to the project's success. Volunteers who are unsatisfied with their portrayal in the audio tour prototype system may lose morale or feel less inclined to volunteer at the museum. Likewise, future participation of volunteers in the archive would be less likely if current volunteers were unhappy with the prototype.

Volunteer satisfaction was measured via a small focus group. We invited four FSMV staff to participate in the discussion. These volunteers were chosen based on their background in the FSMV and also involvement with the creation of the audio tour. We began by briefly describing the goals of our project. We then explained the purpose of the discussion and how it was going to be run, presented the edited audio tracks, and asked for feedback. The discussion was largely open-ended with a few prompting questions intended to move discussion along, touching on topics of the prototype's effectiveness, the volunteer's general perceptions, and suggestions regarding the prototype. We used this discussion to help the volunteers understand the purpose of the audio tour prototype, as well as to ensure that the volunteers were satisfied with the product.



Results

What got done.

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4 Results

Results were produced for the following topics: interviews conducted, organizing of the information gathered, technologies used, development of the audio tour, addition of volunteers to the museum, search for funding, and the assessment of the implementation of the audio tour.

4.1 Performing Interviews

One of our objectives was to interview a variety of retired firefighters. This was very important in the development of the prototype audio tour and the establishment of an oral history archive. The details of our living history capture can be found below.

4.1.1 Interview Candidates Chosen

Since the museum represents the fire services throughout the entire state of Victoria, we interviewed people who were associated with as many different brigades as possible, such as the MFB, CFA, as well as Port Melbourne Fire Brigade. Barbara McCumisky, a volunteer at the FSMV as well as their Historian, provided us with a list of FSMV volunteers who she thought would be able to provide the most valuable interviews, as well as a brief description of each candidate. After speaking with each candidate, we were able to generate a preliminary list of volunteers whom we planned to interview. This group of

interviewees gave us a wide variety of experiences to use for the audio tour.

This preliminary list included nine volunteers, however one did not show up for his interview, and two other volunteers were added at the last minute. The final list of volunteers included Geoff Annal, Bill Bayley, Len Greaney, Fred Kerr (Figure 12), Barbara McCumisky, Mike McCumisky, Bryan Robertson, Keith Sanders (Figure 13), Frank Scott (Figure 14), and Stewart Wilkinson.

Figure 6: Fred Kerr

Figure 7: Keith Sanders

Figure 8: Frank Scott

Frank Scott was particularly interesting, as he is one of six firefighters who have ever received the MFB Valor Medal, of which only two recipients are currently living. We were also able to interview Bryan Robertson, who is the Treasurer of the FSMV as well as a current MFB firefighter.

4.1.2 Interview Procedure Effectiveness

The quality of the stories that we obtained from the firefighters relied greatly on the interview procedure, and as we performed more interviews the procedure was refined to fit time constraints and to keep the interviewees content. We found that adjusting the camera and microphone just prior to the recorded session took too much time and inconvenienced the interviewees. By sitting with

the interviewees and discussing the interview procedures as soon as they arrived, we had the opportunity to make these adjustments for each individual interviewee without inconvenience. As more interviews were performed, we found that going on a tour with the interviewee was not always necessary. If an interviewee was very familiar with the museum, we spoke briefly with them about which artifacts interested them rather than having them walk through the museum with us.

The part of the procedure that some of the interviewees had difficulty following was our practice of pausing the camera briefly between the different segments of the interview. The interviewees were often very enthusiastic, and talked about multiple artifacts or multiple personal recollections in a single segment. We tried to make it easier for the interviewees by instructing them to tell the interviewer when they had completed a thought on a particular topic. Occasionally, an interviewee would still continue speaking about multiple topics, and as a result a few of our tapes have no breaks and were more difficult to divide into segments.

Overall this procedure worked well for our group, as well as for the interviewees. The interviews were run on schedule, with the exception of one interview where Fred Kerr had many stories to tell, and as a result, his interview lasted longer than the time allotted. Though he was the only interviewee to exceed the allotted time, we found it useful to have time between interviews for accommodating unforeseen events such as this.

4.2 Organizing Interview Content

We developed a naming convention that could then be used to categorize all video clips from our interviews. This allowed us to organize the video clips, both for our group and for any future groups or volunteers that might need to work with our data. We did not need to modify the categorization scheme that we had developed initially, and did not foresee any circumstances under which the system would need to be substantially changed.

4.2.1 Categorization Scheme

Our categorization scheme was the direct result of considering what type of organizational system would be helpful for the museum. We determined that since the museum has so many artifacts, many of them similar in nature, it would be confusing to have the organizational system by item, and instead decided on a categorical organization scheme. This allowed fast reference both for us and for the museum in the future.

We started by identifying all of the general categories of items in the museum, and then grouped those categories based on their similarities. This pile sort generated eight major categories, each of which was numbered from 1 to 8. Each top-level category was then resorted to generate subsections. We recognized that this list would not exhaustively cover every item the museum might ever contain or that interviewees might ever mention, and as a result we went through each category and added additional items as they were mentioned. The final categorization structure, which we established, can be found in Appendix G.

This categorization scheme was used to generate unique ID numbers for all of the major items in the museum at the time of this project. The ID numbers were generated by placing each item in the museum in the most relevant major category, then concatenating the category numbers from highest level down to the lowest level, and then numbering each item in the category. For example, a ladder fire truck might be placed in the "ladder truck (#3)" secondary subsection of the "fire truck (#1)" subsection of the "equipment (#1)" major category. If this was the first item placed in this category, then its unique ID would be 01.01.03-01. Subsequent items would be labeled 01.01.03-02, 01.01.03-03, and so on. Please see Appendix L for more information on how to use our categorization scheme.

4.2.2 Naming Convention

We used our naming convention to organize the audio and video that we collected through the interviews into broad groups based on the interviewee and date, and allowed us to rapidly find a particular interview quickly. The naming convention refers to the folder and file name structure, which consisted of top-level folders that contained all of the files from each interview. These top-level folders' names were generated by concatenating the name of the interviewee with the date on which the interview was conducted. The names for of the files in these top-level folders were generated by concatenating the interviewee's name, the date of the interview, and a unique ID number which was generated using our categorization scheme.

4.3 Selected Technologies

There are many technologies that can be used for creating an audio tour prototype. This section focuses on the selected technologies used in our project.

4.3.1 Audio Tour

Several companies offer audio tour devices and services; these devices are mostly MP3 digital audio players with modifications such as keypads. There are many advantages to using a digital format, such as MP3, over an analog format like cassette tape recordings. Digital formats provide high quality audio, the ability to make perfect backup copies, and the ability to randomly access content.

Specifically, using the MP3 digital audio format as well as hardware MP3 audio players made a lot of sense in the context of our given project for the following reasons:

- MP3 is a high quality format that provides near CD-quality audio at low bit rates. 64kbit/s is acceptable for clear voice playback
- Hardware MP3 players are cheap. Consumer 64mb devices (enough storage space for over 2 hours of voice recording at 64kbit/s) cost around $100 US
- MP3 is a standard format that is widely used. Support for reading and editing of MP3 files is likely to be available for some time.

4.3.2 Multimedia Archive

Digital video was used to archive the interviewees' historical and personal recollections. Digital video (DV) is a format that combines high-resolution video and high fidelity audio in an affordable and relatively usable package. This format was chosen as the rich media archiving technology used in our FSMV project.

Digital Video and the miniDV tapes on which it is recorded have certain important properties that were considered in the selection process. Specifically:

- The format is affordable. Digital Video cameras are well below $1000 US. One hour MiniDV blank tapes cost approximately $5 US.
- Digital Video provides high quality video recording. DV offers approximately 500 lines of video resolution in contrast to the 250 lines offered by VHS (Canon, 2004).
- DV offers high quality audio recording. The format can record 48 kHz, 16 bit CD-quality audio.
- Digital Video is a consumer standard. It is expected that devices for reading and copying miniDV tapes will be available for a considerable time due to the format's standing as an industry standard.
- Digital Video can be made to have good longevity. Specifically, though the miniDV tapes themselves are magnetic and have an approximate 10-year lifespan, the digital nature of the format means that a perfect copy (without quality loss) can be easily made for backup purposes.

- Non-linear video editing of digital video and audio can be done relatively easily.

4.4 Developing the Audio Tour

Our intent in creating an audio tour prototype was to show the museum the possibilities of what could be achieved through a full-scale implementation. A successful audio tour would allow the FSMV to service larger numbers of visitors while reducing their dependence on volunteer guides, without undermining the importance of the volunteers. We developed five demonstration audio tracks for the audio tour prototype. These tracks varied in length between under a minute to over six minutes in length. The technical process of developing the audio tour is discussed in Appendix M.

We loaded the edited tracks onto a demonstration audio tour unit obtained from TourMate Systems as well as onto a consumer MP3 player. The results from an informal discussion with the FSMV volunteers regarding the merits of the prototype and the potential of a full scale audio tour implementation are discussed in section 4.7, Assessing the Prototype.

4.5 Obtaining Additional Volunteers

We searched for film students, museum studies students, and professors to assist with various tasks to help the continued development of the audio tour system at the FSMV. This section reviews the results of our efforts in this area.

4.5.1 Film Students

When we originally began searching for film students to help us with capturing living history, we were hoping to involve them in as much production work as possible, particularly in the filming of the interviews. However, responses were not received for two weeks after posting flyers at the local universities. After that two-week period, there was a significant increase in project interest. The responses received were from all three universities where flyers had been posted. It is difficult to explain why there was a two week delay, though some possibilities are that the flyers were posted during an exam period, the flyers were blocked by other flyers (which were later removed), the students called over the Easter holiday when they had free time, or that a few students became interested in the project and passed the information along to their friends. We asked a volunteer who was helping us with the editing of the audio and video footage why he did not respond immediately to our flyer (Pablo Vasconcelos, 4/20/04, personal communication). He stated that he did not notice the flyer we posted right away. Once he copied the information from the flyer down, he forgot about it for a couple of days because he was very busy. He contacted us two weeks and two days following the date we posted flyers at his university.

We had three interested film students from whom we received e-mails and phone calls. We immediately responded to these contacts and attempted to arrange one-on-one meetings with them to determine their levels of commitment, their filming and editing experience, as well as their enthusiasm for the project. When determining who to ask to work with us, we looked more

at each person's enthusiasm, as this was the feature we felt would best determine whether the person would continue to work with the museum once our part of the project had been completed. Of the three original contacts, only one attended the one-on–one meetings that were arranged. Pablo Vasconcelos (Figure 13) was very excited about the project and willing to help in any way possible. He had a lot of experience with 35mm film, although he had no experience with digital video.

Figure 9: Pablo Vasconcelos

By the time we had begun to work with Pablo, filming had been completed. This forced us to reevaluate how to best use his services. Instead of having Pablo help with filming, we had him work with us to assist in the capturing of the video footage. In this way Pablo became familiarized with the organization system we had developed as well as with some of the software tools we used in the capture process. Pablo was also briefed on some general information pertaining to our project. He was generally very enthusiastic and may be used as a contact on a limited basis for future work (see Appendix E).

4.5.2 Museum Studies Students

Our search for museum studies students to help with grant writing was not successful. We posted flyers at Deakin University, which is the only university in the area with a museum studies program, but received no calls pertaining to the flyers. The lack of interest from Deakin students could be due to many factors. It may be that the program is too small or that they are graduate students rather than undergraduates, and they are no longer looking for volunteer opportunities but rather paid positions. Also, the locations where the flyers were posted might not have been well-trafficked areas.

4.5.3 University Professors

Professors from Deakin University, RMIT, and University of Melbourne were contacted for the purpose of establishing relationships between their respective universities and the museum. Six department heads for museum studies and film programs were initially contacted, and asked to pass an e-mail containing a project description and proposal to any professors in their department who might have been able to help us. The response rate was low, as we did not receive any replies from either the University of Melbourne or Monash University.

We did however hear back from David Ritchie, Torika Bolatagici, and Daniel Armstrong from Deakin University and Stephen Skok from RMIT. We established meetings with these professors with the immediate goal of obtaining students to help us develop our audio tour prototype. Unfortunately, university

students were in the middle of their semester at the time that these meetings took place, making it highly unlikely that any of our contacts would have been able to find any students with the free time to assist us in the near future.

Stephen Skok did not foresee a useful relationship between the FSMV and his department. He felt that the types of projects we offered, in particular the audio tour, did not fit RMIT's students' educational background. However, he provided another contact, Professor Simon Embury, who he felt we should speak with. An e-mail was sent to Professor Embury detailing the proposed projects (see Appendix F) however no definitive reply was received.

Professor David Ritchie from Deakin University was very interested in our descriptions of proposed work. Discussions with Professor Ritchie as well as additional Deakin professors lead to the beginnings of an FSMV-Deakin project center, the details of which are explained below.

4.5.4 Project Centers

One of the problems that needed to be solved early in this project was that a full implementation of an audio tour could not be completed within the seven-week duration of the project. To address this issue, an emphasis was placed on establishing an infrastructure that would allow the museum to continue the development of our work following the prototype. Though our contacts at Deakin University were unable to provide any immediate help in terms of student volunteers or interns, they did express significant interest in developing a sustainable relationship with the museum.

We met with Professor David Ritchie and Professor Torika Bolatagici who are film and photography lecturers at Deakin. We discussed the possibility of setting up a formal relationship with the FSMV which would supply the museum with students who could work on a number of mutually beneficial projects. Additionally, if projects needed to be completed outside of the film and photography fields, professors in the related field could be contacted with the goal of establishing student project groups from those areas of study.

A second meeting was arranged between the Deakin professors and Fred Kerr to discuss specific projects that could be completed at the FSMV. At this meeting, four project proposals were presented to Professor Ritchie, including the implementation of the audio tour system. These proposals were generated from the ideas of Fred Kerr, Barbara McCumisky, Mike McCumisky, David Russell, and our group. They can be seen in Appendix F. Fred Kerr and David Ritchie went over these proposals together, established a formal contact, and discussed future plans. Both parties were very excited about the opportunities presented by the relationship and are working in the direction of a formal project center arrangement.

4.6 Obtaining Funding

The FSMV is a non-profit organization run strictly by volunteers, and funding is an important issue. The two main financial concerns that arose as the result of our project were funding the creation of our audio tour prototype and funding the full implementation of the audio tour. These two parts were handled

separately, with the latter consisting largely of research for future work. We looked at the museum's existing financial situation and then investigated options outside of the museum's current network to fund the project.

4.6.1 Grants

Grants were initially considered as a method for funding the audio tour prototype and the full implementation of the audio tour. We contacted several resources for help in grant writing. We were unable to obtain a museum studies student to assist us with grant writing (as previously mentioned in section 4.5.2), and we did not have any success contacting a museum studies professor or the Museums Australia organization.

We contacted Professor Margaret Birtley, a museum studies professor from Deakin University, who had assisted the 2003 IQP group from the FSMV with their project, and asked to meet with her and discuss funding options for the FSMV. She was unable to meet with us, but she referred us to Museums Australia.

Museums Australia is a national organization that provides many professional services to participating museums and also promotes the role of museums in society (Museums Australia, 2004, About Us). This organization has individual state offices; their Victoria office is at the Melbourne Museum. We called the Melbourne Museum and asked if it was possible to meet with a representative of the museum to learn more about the grants that are available to museums in the Melbourne area and the writing process involved. Unfortunately, they said they

were unable to help us on the topic of grants.

We lacked knowledge of grant writing and time to learn the skill to complete the applications successfully. Because of this, we chose not to pursue grants as a funding option for the audio tour system. Refer to funding section of the recommendations chapter (6.2.1) for future strategies in obtaining grants.

4.6.2 Corporate Sponsorship

Corporate sponsorship was considered as an option for both the production of the audio tour prototype, and as a method for funding the complete audio tour system. Corporate sponsorship proved to be very effective for the funding of the prototype, and is promising for future work in funding a full-scale implementation.

Appendix P describes the specific details of our corporate sponsorship initiatives. Overall, we were able to obtain video, audio, and lighting equipment from three organizations free of charge.

Corporate sponsorship is also a viable option for full scale implementation of the audio tour because companies are often looking for ways to advertise their products as well as engage in philanthropy. We recommend the use of MP3 players as the type of device to deliver the audio tour to the FSMV visitors. There are many companies that produce acceptable devices and have been identified as potential corporate sponsors.

We contacted four Australian based companies that sell the types of MP3 players

that would be ideal for a full-scale project. JNC, one of the companies that we contacted, expressed a strong interest in the audio tour. We wrote and submitted a formal proposal for review, but received no formal reply to date. Appendix O contains the proposal we created as well as the full contact information for the corporate sponsors identified to aid in future work. Section 6.2.1 discusses how to pursue this funding option further.

4.6.3 Internal Funding

The large majority of the funding and equipment necessary for the production of the audio tour system prototype was provided by corporate sponsors. The FSMV was able to supply all of the additional funds. Many of these expenditures were investments in equipment which will be beneficial for future student work at the museum.

The question of funding a full-scale implementation internally was also brought up. Fred Kerr stated that the associated costs were not necessarily prohibitive, thus this option should also be kept in mind during future project work.

4.7 Assessing the Prototype

We conducted an informal group discussion with the FSMV volunteers from whom we gathered feedback on our audio tour prototype. The four volunteers chosen to participate were Fred Kerr, Mike McCumisky, Barbara McCumisky, and Ron Barker. Fred Kerr was chosen because he is the President of the FSMV as well as our liaison and a part of our audio tour prototype so his opinion was valued highly. Mike and Barbara are both active volunteers, and were also

interviewees for the prototype. A few of their stories and recollections were presented on the prototype audio tour. They were included in the group discussion to ensure they were satisfied with how they were portrayed on the prototype. Ron Barker is also an active volunteer for the FSMV, however he was not interviewed for the prototype audio tour. He was unaware of how the interviews were conducted and what type of information was collected from the volunteers. For this reason, his impression of the prototype was somewhat representative of the other volunteers who were not interviewed and was thus of interest to us.

We presented five audio tracks at the group discussion and all the volunteers present were very pleased with the prototype. In particular, they liked how multiple people spoke on a single audio segment. Fred also mentioned that the segments including personal experiences were very captivating.

This discussion also allowed the volunteers to think about the implementation of the prototype. All the volunteers present felt an audio tour would be helpful to the museum. Mike and Barbara thought it would be a great tool to assist visitors through the museum when it was short-staffed. Ron thought the prototype was great, but children would not be able to use the devices when implemented. Barbara also started a conversation on types of headphones for the implementation, specifically a headphone with disposable ear covers for hygienic purposes. The feedback gained from this discussion indicated to us that the museum was ready for and excited by an audio tour system.

Conclusions

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5 Conclusions

We have come to a number of conclusions on both the effectiveness and outcomes of our project in relation to the archive system, the audio tour, funding, and student volunteers. These conclusions are detailed below.

5.1 Archive System

The development of a multimedia oral history archive and accompanying organizational system and guide has set up a system that the museum should be able to use for many years. The developed system is expandable to meet the future needs of the FSMV. Additionally, the digital videotapes that contain the interview footage have been left at the museum for future use. Possible uses for the footage are discussed in Section 6.2.

5.2 Audio Tour

The development of the audio tour system prototype went smoothly overall, and it was generally well received by the FSMV volunteers (see section 4.7). The prototype has increased volunteer interest towards future implementation. The volunteers have begun to think about how implementation could occur and how the audio tour could help the museum.

The process of creating the prototype was successful. We gathered a large amount of usable content from the interviews, and the postproduction editing process went well. We feel that the equipment and methods set forth in this document will produce results of more than adequate quality for the purposes of a portable audio tour. We see a lot of potential for the full implementation of the audio tour.

5.3 Funding

The two major funding-related goals of our project were to obtain enough funding to develop the audio tour prototype and to research opportunities for the future implementation of a full-scale version of the audio tour. Our search for funding had mixed results, and we have reached a number of conclusions about the most appropriate funding methods.

We initially planned to fund the development and implementation of our project through grant money by using the grant-writing guide in the 2003 Fire Services Museum IQP. After some research we concluded that due to time and resource restrictions and our lack of familiarity with grant proposal writing it was unlikely that we would be able to successfully apply for much grant money, if any. The length of the grant process made it even less likely that we would receive any money in time to fund the prototype of the audio tour.

Based on our experiences and research on grants, we have concluded that success in receiving grant money will require dedicated and skilled staff. For this reason we have also concluded that grant money would not have been an appropriate method for funding the development of the prototype audio tour, though we feel that grants would still be a valuable option for funding a full implementation of our audio tour.

Another option for funding both the prototype development and the full implementation was corporate sponsorship. We used corporate sponsorship extensively for obtaining equipment directly from a supplier without the need

for direct funds. We found that many corporations were more than willing to loan video equipment at little or no cost. We also found that larger corporations were interested in making more substantial contributions, and from this we have concluded that corporate sponsorship could be a very powerful tool in obtaining the equipment needed to bring the audio tour to completion. Contacts were made with various MP3 player hardware manufacturers as referenced in Appendix O.

We also found that the FSMV was able to partially fund small projects themselves. We found this particularly useful, as we could make small purchases without having to search for corporate sponsors or apply for grants, which allowed us to work efficiently. Based on the results of our discussions with the FSMV staff we have concluded that while self-funding is an option, and useful at times, other funding methods such as corporate sponsorship or grants are preferable, particularly if students are able to follow through on the applications.

5.4 Student Volunteers

Immediately after arriving in Melbourne, we realized that while we could begin this project and develop a prototype, continuing efforts would be needed to fully an audio tour. For this task we turned to local universities to recruit students. We found that with little effort we could find local students who would be able to help us with our tasks; however these relationships were not sufficient to guarantee the completion of the audio tour. We concluded that establishing relationships with professors who have an interest in the museum would be a

more sustainable relationship, as these professors could advise student groups at the museum on an ongoing basis.

5.4.1 Film Students

In general, film students from local universities seemed very willing to help, both with filming and editing. However, without direct supervision from professors, it is unlikely that students, specifically our volunteer from RMIT, will work independently in our absence. Thus, film students are helpful on a short-term basis, however not as replacements for a defined university-operated project group.

5.4.2 Museum Studies Students

Though we were not able to obtain any help from museum studies students, we feel it is important that an effort continues to be made to bring them in. These students would bring an understanding of grant writing that most people do not possess. For recommendations on how to get museum studies students involved, please see Section 6.3.

Recommendations

"Never look back."

Bryan "Robbo" Robertson

Fire Services Museum
VICTORIA

WPI

6 Recommendations

At the completion of our seven weeks in Melbourne the prototype audio tour was finished and considerable effort was put into establishing contacts and recruiting volunteers to continue our work, thus meeting the stated goals of this IQP. Throughout this document we have stressed that due to time restrictions we would not be able to provide a complete audio tour solution. Instead, we have focused on delivering a prototype as well as the infrastructure to later implement the audio tour.

Our work was largely preparatory for the full implementation of the audio tour, and it now falls to the museum to follow through with the project's execution. We have carefully detailed how the museum can build on our work by using the methods presented in earlier chapters and the contacts that we have made. It is important that the museum continues to build the audio tour, archive interviews, and maintain relationships with local universities and corporate donors.

6.1 Archive Recommendations

The two elements of the archive, the digital content and the organization scheme, can be extended by the museum for use in future projects. Since the organization system we developed was a generic indexing scheme, the museum could employ it in any number of ways, including inventory control, internal referencing of documents, or insurance paperwork.

Along with the indexing scheme, we have left the museum with the digital videotapes that we recorded during the interview process. Due to the rich content, we expect that the museum can use these tapes for a variety of purposes. The simplest use would be to maintain the tapes as an archive available for researchers or academics.

The museum should continue to film fire service personnel when possible to build on the current archive. Future additions to the archive could include recordings of firefighters from states or countries outside of Victoria and Australia. These additional recordings will also allow the tour to be updated as exhibits within the museum change provided that student volunteers are available for the production process. In addition, we recommend that the tapes be employed in the completion of the audio tour and also future video and public relations projects as described in Appendix F.

6.2 Audio Tour Recommendations

If the museum wishes to implement a full audio tour system, they will need to ensure that work continues as outlined in this report, superficially in the areas of attaining the necessary funding as well as ensuring the completion of a professional-quality audio tour.

6.2.1 Funding

There are three general methods of funding available to the museum for future projects: corporate sponsorship, grants, and internal funding. We recommend that the museum make the best use of each funding method as appropriate for each project.

6.2.1.1 Corporate Sponsorship

Corporate sponsorship is recommended for projects such as the audio tour where a specific product or range of products has been identified. This funding option allows the museum to directly obtain the necessary equipment from the manufacturer. Obtaining funding for a full audio tour implementation was not part of our project goal. It was impractical to attempt to receive funding for a project that does not have a defined group of people working to bring it to completion.

We did, however, work very hard to establish a continuity plan for future student groups to take over where we left off. To help these future efforts we explored the possibility of corporate sponsorship for a full audio tour system implementation. Appendix O discusses our research into a number of corporate sponsorship opportunities and the outcomes of these efforts. Our recommendations for obtaining full corporate sponsorship are based largely on these efforts as well as our experience with funding the prototype (See in Appendix P).

We believe it to be quite realistic to obtain corporate sponsorship for a full audio tour implementation at the FSMV. As mentioned in Appendix O, only 20 MP3 players are necessary for an initial implementation, which comes to an original equipment manufacturer cost of approximately A$1,000.

This is not a significant sum for most large corporations. A number of benefits will be provided to the company in addition to those associated with general

philanthropy. Between five to seven thousand visitors attend the FSMV each year (Fred Kerr, 25 Mar. 2004, personal communication) and the MP3 players donated will be circulated to a large portion of these visitors. Such an arrangement would not only increase brand recognition, but will also let museum visitors spend an extensive amount of time, likely a half hour to one hour, using the company's products.

The key to obtaining sponsorship is to present the proposed product professionally. If companies are convinced that their products will be put to good use, sponsorship is considerably more likely. We recommend that a DVD-video disc with high quality multimedia content be sent to potential sponsors. The DVD should feature a walk-through the museum with an audio tour unit similar to the video produced for our final presentation (see Appendix Q). The video should be accompanied by a well-formatted written document detailing FSMV-related facts and figures, visitor numbers in particular, as well as information related to the proposed audio tour. Another possibility worth exploring is offering the audio tour free of charge for general admission tickets, which would greatly increase tour unit circulation.

Whenever corporate sponsorship is obtained, it is important that contact is maintained with the sponsoring agency. This will allow the sponsoring agency to see that their investment in the museum has been acknowledged. If corporate sponsorship is obtained, we recommend that the corporation is acknowledged is in the form of a sponsorship board or plaque, displayed at the museum.

6.2.1.2 Grants

Grants can be a valuable resource for the FSMV. Museum studies students are particularly well suited for the task of applying for and writing grant proposals. The students would be able to articulate the need for funding in a way which grant-giving corporations would be receptive towards. Grants could then be applied to individual projects, such as the audio tour and the associated maintenance costs. We recommend pursuing grants if volunteers, such as university students, with grant writing experience are available. Detailed information on available grants can be found in the 2003 WPI Fire Services Museum IQP report.

6.2.1.3 Internal Funding

Internal funding is a third viable funding option. The FSMV is generally able to fund smaller expenditures, and may be able to provide the necessary funds for a project such as a full implementation of the audio tour system. The tour unit cost of approximately A$2,000 retail is not necessarily prohibitive. Furthermore, if visitors are charged a small fee for the use of the audio tour, this cost could be recuperated fairly quickly.

6.2.2 Full-Scale Implementation

The completion of a full-scale audio tour, based on our prototype, is included as a suggested project for future student groups in Appendix F. We have developed a number of recommendations for this full-scale implementation based on the experience we acquired while working on the prototype.

The first step towards an implementation should be the comprehensive research of existing audio tour systems. Our group performed some of this research, however it was not exhaustive. We recommend that the students working on a full-scale implementation continue this research and follow the examples of successful systems closely.

After the existing material is reviewed, additional interviews may be conducted to gather further audio tour content. We recommend interviewing existing MFB and CFA personnel in particular. These interviews may provide interesting information in the modern context and may also help build ties between current MFB/CFA personnel and the museum.

We also recommend that audio "lead-ins" be recorded before each track on the audio tour. These lead-ins can provide information such as the track number and the name of the item that will be discussed. We recommend utilizing local radio talent for this job. Most likely, students will be happy to do this work for the recognition involved.

The final implementation of the audio tour, like the prototype, should be completed using MP3 audio devices. The devices can be either consumer MP3 players or devices specifically designed for audio tours. Audio tour players are typically expensive, have proprietary audio loading mechanisms, but feature a keypad for easy track number entry. Consumer MP3 player devices are typically significantly cheaper and feature industry standard audio loading mechanisms. However, these types of players lack a keypad. Due to the relatively small scale

of the museum, a consumer-end MP3 device would be more cost effective than a device made for the sole purpose of audio tours.

The headphone graphic developed for the prototype and included on the attached DVD disk can be used for the visual markers signifying audio tour content within the museum. Specifically, we recommend that a number representing the associated track be inserted in the middle of the graphic.

The recognition of corporate sponsors of the audio tour system will also need to be made. The sponsorship proposals included in Appendix P reference the recognition that has been promised to sponsors of the audio tour prototype. This recognition includes mentioning the company in the final track of the audio tour as well as the placing the corporate logo onto a sponsorship plaque. These steps must be taken during the creation of a full audio tour system. We also recommended that future corporate sponsors be recognized in the same manner.

6.3 Volunteer Recommendations

We recommend that the museum continue to work with the professors who were established as contacts through our work. The contact information for these professors can be found in Appendix E. By maintaining these relationships, the museum will have the option to bring in as many students as needed. The guidance that professors will provide to their students ensures that the museum will not have to worry about directly supervising the students' work. This will allow the museum staff to continue their normal operations,

while having work done on projects that the museum might not otherwise be able to undertake.

6.4 Future Projects

We established contact with professors at both Deakin University and RMIT, and it is important that these relationships are maintained. Specifically, we recommend that the FSMV build on the relationship started with Deakin University and continue moving towards a formalized project center arrangement.

Many of responsibilities in developing the relationship fall on the Deakin professors; particularly arousing student interest and formalizing a procedure for obtaining credit on behalf of the students. The museum should help in any way possible, however. A meeting between Boris Masis of the current IQP group and interested students at Deakin has been arranged. This is one step towards developing the project center, and the museum should follow up with any other similar opportunities in the future.

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Appendices

Y'all come back now y'hear?

Fire Services Museum
VICTORIA

WPI

Appendix A: Sponsor Description

The Fire Services Museum of Victoria (FSMV) (2004, Museum) was founded in 1972 to spread knowledge about the history of firefighting in Victoria. The FSMV currently has two locations: the museum, and the restoration workshop. Both locations are open to the public, though the restoration workshop requires a booking ahead of time.

The FSMV is a private, non-profit museum funded by donations from outside sponsors and individuals. Specifically, the museum currently receives A$10,000 a year from Metropolitan Fire Brigade and A$5,000 from the Country Fire Authority (Fred C. Kerr, February 11, 2004, personal communication). Also, individuals can become members of the museum, which creates additional funding. Every employee of the museum is a volunteer, which helps to conserve funding for restoration and purchase of fire equipment.

As a non-profit organization, all the donations that the FSMV receive are used to help restore the equipment in the museum or to maintain the location of the museum.

There are currently 180 people registered as volunteers with the FSMV, however, there are only 12 who regularly work there. Mr. Fred C. Kerr is currently the President of the FSMV and has been volunteering there for the past 12 years.

Appendix B: Interview Session Protocol

Two people conducted the interview session. The primary role of the first person was to be the interviewer, while the second person performed the technical and support tasks related to the interview.

Interview Succession of Events:

1. Technical Operator: Arrange and test studio (lighting, sound, video, set) equipment prior to arrival of interviewee. Prepare and label appropriate videotapes and paper interview materials.
2. Interviewer: Explain general interview procedure and set environment to the interviewee upon their arrival. This explanation should be performed within the actual set (the location of the recoded interview).
3. Technical Operator: Adjust and test studio equipment to match physical qualities of interviewee.
4. Interviewer: Lead interviewee on a tour of the museum. Notes regarding the artifacts that the interviewee wishes to discuss are made at this point.
5. Interviewer and Technical Operator: Conduct the recorded interview.
    a. Interviewer: Prompt the interviewee on the next topic to be discussed based on previous notes.
    b. Technical Operator: Record each topic discussed, stopping the camera between topics.
    c. Technical Operator: Categorize each topic discussed.
    d. Technical Operator: Take still-frame photographs of interviewee at the end of the interview session.
6. Interviewer and Technical Operator: Thank the interviewee.

Interviewer Responsibilities:

- Welcome and calm the interviewee by familiarizing him or her with the set and procedure that will be followed. Provide the interviewee with hospitality items (e.g. tea, coffee).
- Note the interviewee's importance in the creation of the audio tour system.
- Lead the interviewee on a tour of the museum and note the items the interviewee took an interest in for later use in the recorded session.
- Prompt the interviewee on the topics to discuss during the recorded interview.
- Control the flow and progression of the interview.

Notes on the Interviewer Position:

Welcoming and calming the interviewee was extremely important in the interview procedure. This allowed for the interviewee to become familiarized and comfortable with the possibly intimidating setting as well as gain a better understanding of what the interview would consist of.

On occasion, the interviewee stated that they did not have any knowledge to provide for the interview. The interviewees would then try to refer us to other volunteers rather than speaking about an artefact or story themselves. When this was encountered, the interviewer attempted to calm the volunteer and express that anything the volunteer could say would be very beneficial for the

creation of the audio tour system. Noting that the recoded media would be edited also helped in calming and relaxing the volunteers.

After conducting several interviews following our original protocol, we found that if the interviewee took notes during the museum tour, he/she felt obligated to use these notes during the recorded-interview. Reading from a sheet of paper causes the interviewee to look down rather than at the interviewer and also created additional movements and noise. The interview protocol was adjusted at this point such that only the interviewer took notes on the items of relevance during the tour and later used these notes to prompt the interviewee.

Technical Operator Responsibilities:

- Ensure proper placement of video, lighting, and sound equipment for each interview candidate.
- Operate camera equipment and monitor audio levels during recording.
- Ensure appropriate recording conditions by monitoring and addressing problems such as outside noise and light.
- Categorize topics discussed during the interview (topic identification, quality of segment, problems encountered, relevant notes) see Appendix L.
- Signify the start of each new topic discussion verbally to the interviewer and interviewee.

Notes on the Technical Operator position:

The technical operator maintained minimal contact with the interviewee. The only real contact was during the setup of the microphone and the thank-you at the end of the session. This is done so that the interviewee addresses his/her responses to the interviewer and not to the camera/technical operator.

A simple system was used to communicate between the technical operator and the interviewer. The goal of the system was to let the interviewer know when the technical operator was ready to record the next topic segment. The need for breaks between topics is discussed in Appendix C. These breaks were also used to perform any necessary technical adjustments. The communication system consisted of a simple verbal "ready" statement spoken by the technical operator, which let the interviewer know that the cameras were recording the next segment.

Appendix C: Technical Production Notes

This document describes the equipment we used in the creation of the audio tour system prototype. The source of each piece of equipment is listed in parentheses. Relevant notes regarding each category of equipment are also made.

Video Recording Equipment:

- Sony DCR-PC9 NTSC MiniDV Camcorder (WPI)
- Panasonic PAL MiniDV Camcorder (FireVision)
- 2 Tripods (1 Personal, 1 FireVision)
- Sony Trinitron multi-input display monitor (FireVision)
- Various power cables and surge protectors (FSMV)

Notes on Video Recording:

The two video cameras were setup in parallel, one capturing a tight angle from the neck up, while the second camera was zoomed further out, capturing video from the torso. Both cameras were white-balanced in attempt to match color-reproduction, though postproduction adjustments were nonetheless required. The display monitor was very useful for setting focus and framing for the recording.

Both cameras were paused between item descriptions to create purposeful breaks in tape time code. These breaks in time code were interpreted by software at the time of capture to split the capture in accordance to the item discussed. (See Appendix M)

Photo Equipment:

- Canon A70 Digital Camera (Personal)

Notes on Photo Equipment:

Still-frame photos were taken of each interview candidate following the interview. These photos are included in the attached DVD.

Audio Recording Equipment:

- Shure SM84A Lavaliere Microphone XLR (WPI)
- XLR Dual Input Box (WPI)
- Generic Unidirectional Dynamic Microphone (FireVision)
- Microphone Stand (FSMV)
- Sennheiser PX 200 Headphones (Personal)
- Various Audio Cables and Plug Adapters (WPI and FSMV)

Notes on Audio Equipment:

The audio recorded via microphone was split and fed to each of the two cameras recording the scene. The idea was to create identical audio channels on both cameras that would be used in postproduction to sync video streams (see Appendix M).

The idea worked fairly well, although it was later noticed that the cheap splitters used tended to introduce hiss, so further testing is recommended before this method is used again.

The Shure Lavaliere microphone was broken halfway through the shoot. The microphone box was taped to the chair in which the interviewee sat and the head of the microphone was clipped on to the interviewee. Thus, if an interviewee stood up by accident he/she pulled out the microphone cord from the head. The replacement dynamic microphone was poorly suited for recording voice from a distance. Audio recorded with this microphone requires extensive post-processing (see Appendix M).

Lighting Equipment:

- Redhead Lighting Kit (FireVision)
- 2 Dual-Lamp 500W Work Lights with Stands (FSMV)
- 2 150W Work Lights (FSMV)
- 2 White Projection Screens (FSMV)
- Assorted Lighting Gels (FSMV)

Notes on Lighting Equipment:

The white projection screens made available by the museum worked very well as reflector screens. The 500W work lights provided more than ample lighting when reflected off these screens. The professional Redhead Lighting Kit provided by FireVision was nice due to its barn doors. However, the kit went

largely unused due to the ample lighting provided by the assorted work lights. Assorted gels were used to match daylight color temperature.

Postproduction Equipment:

- Super power-“smokey” desktop PC (FSMV)
  - P IV 2.8 GHz
  - 1.0GB Ram
  - 120GB Hard drive
  - Pioneer DVD-R 105
  - SoundBlaster Audigy w/Firewire & Firewire cable
  - 17” KTX monitor
- Software package on Super power-“smokey” PC (FSMV)
  - Windows 2000
  - Office 2003
  - Sony Vegas 4.0

  - Assorted relevant software
- Sony miniDV PAL PC10E camera for PAL video capture (Lemac)
- Sony miniDV PAL PC104E camera for NTSC video capture (Michaels)

Notes on Postproduction Equipment:

The PC located at the museum is a powerful machine well suited for the task of editing audio and video content. All of the current editing work is located on this computer. An additional 80GB hard drive was sent in for warranty service and should be available by the end of May 2005. The computer used had been purchased for a separate project, and may still be used for it in the future. Thus it is beneficial to keep the editing setup mobile. The DVD-R in the system will be useful for backing up/moving project files. Appendix M discusses the naming convention that abides by the 64-character file limit present when archiving to optical media.

The Sony DCR-PC9 NTSC camera provided by WPI was not available during video capture. Corporate sponsorship was obtained from Lemac and Michaels for the use of cameras to capture recorded content. Appendix M discusses capturing NTSC footage using a PAL camera.

Appendix D: Example Flier for Soliciting Volunteers

Seeking Film Students Immediately!

- Work in a Fun, Fast Paced environment with American Students
- Great Volunteering Experience

Dates:
March 25th-May 4th

Qualifications:
- DV Video
- Lighting
- Sound Design
- Software NLE

Job Description:
Four American Students are looking for additional team members to help work on documentary project with a museum in Melbourne. Work with team on setup, lighting, sound, and editing. Full production cycle, exciting opportunity! Will provide all equipment.

Contact Lauren at 04 0061 6970 or email ourgroup@wpi.edu

Appendix E: List of Contacts and Resources

Deakin University

Name: David Ritchie
Position: Lecturer
Center: School of Communication & Creative Arts
Area: Faculty of Arts
Campus: Burwood
Telephone: +61 3 925 17655
E-mail: dritchie@deakin.edu.au
Comments: Professor Ritchie was very interested in developing a year-round project center at the FSMV. He was our main contact within Deakin.

Name: Daniel Armstrong
Position: Associate Lecturer
Center: School of Communication & Creative Arts
Area: Faculty of Arts
Campus: Burwood
Telephone: +61 3 925 17656
E-mail: danielar@deakin.edu.au
Comments: Professor Armstrong likewise expressed significant interest in the establishment of a Deakin project center at the FSMV. He also notified students regarding the opportunities available and setup the first meeting between the students and the FSMV.

Name: Torika Bolatagici
Position: Associate Lecturer
Center: School of Communication & Creative Arts
Area: Faculty of Arts
Campus: Burwood
Telephone: +61 3 924 46956
E-mail: torika@deakin.edu.au
Comments: Torika participated in the Deakin-FSMV discussions with along with Professors Ritchie and Armstrong.

Royal Melbourne Institute of Technology

Name: Stephen Skok

Position: Position Program Coordinator

Organizational Unit: Faculty of Art, Design and Communication Creative Media (VET)

Campus: City Campus

E-mail: stephen.skok@rmit.edu.au

Comments: Matt and Boris met with Professor Skok who provided additional contacts within RMIT.

Name: Simon Embury

Position: Program Leader

Organizational Unit: Faculty of Art, Design and Communication Creative Media (VET)

Campus: City Campus

E-mail: simon.embury@rmit.edu.au

Comments: Boris spoke with Professor Embury on the telephone. Professor Embury seemed interested in the FSMV project opportunities and requested full information by e-mail which is included in Appendix F.

Name: Pablo Vasconcelos

Position: Student

Telephone: S3069490@student.rmit.edu.au

Comments: Pablo was our student volunteer who came to the museum on several occasions and observed the video capture process. Pablo has formal training in film as well as still photography. He was very willing to learn anything he did not already know and can be used as a local contact for some project related topics.

Audio/Visual Contacts

Name: Fiona O'Connell

Organization: Open Channel

Title: Facilities & Client Services Coordinator

E-mail: fionao@openchannel.org.au

URL: www.openchannel.org.au

Comments: Fiona O'Connell was very friendly and responsive to an equipment-rental sponsorship request as described in Appendix P

Name: Ben Cunningham

Organization: Lemac

E-mail: bcunningham@lemac.com.au

URL: http://www.lemac.com.au

Comments: Ben Cunningham is in charge of sponsorship-related activities at Lemac. He chose to provide sponsorship very quickly over e-mail. Full details are in Appendix P

Name: Robert Sherlock

Organization: Michaels

URL: http://www.michaels.com.au

Comments: Only a brief conversation and a printout of our proposal were required to convince Michaels to rent us the equipment free of charge.

Name: Mike Hollander

Organization: FireVision, MFB

E-mail: mhollander@mfbb.vic.gov.au

Telephone: 03 9665 3856

Comments: Mike McCumisky had originally suggested contacting Mr. Hollander. Mike Hollander runs the FireVision TV studio and provided us with an additional camera, a lighting kit, display monitor, and a microphone, all free of charge for a week's rental See Appendix P for full details.

Name: Ron Birkett

Organization: Tour-Mate Systems

E-mail: pamron@bigpond.net.au

Telephone: 07 4057 8499

Mobile: 0417 668 418

URL: http://www.tourmate.com

Comments: Australian representative of the Tour-Mate systems Canada. Provided us with a demo audio tour unit.

Name: Paul Adamson

Organization: MFB

Telephone: 03 9665 3854

Comments: Paul Adamson was referred to as a possible contact for borrowing audio and video equipment. We were not able to get in contact with him however.

Resources

Name: David Nicholson

Organization: Metropolitan Fire Brigade

Position: Deputy Chief Fire Officer

E-mail: dnicholson@mfbb.vic.gov.au

Telephone: 03 9665 4241

Comments: David Nicholson was very helpful in setting us up with a fully equipped office space within the MFB. Mr. Nicholson holds a high position in the MFB and is very helpful to have as a contact individual. We highly recommend students contact him during any future projects.

Name: Mike and Barb McCumisky

Organization: FSMV

Position: Volunteers, members of the board

E-mail: firechaser@optusnet.com.au

Telephone: 0408 305 831

Comments: Mike and Barb are generally very helpful, and they are also the recommended e-mail contact within the museum. E-mails destined for Fred Kerr should be sent to Mike and Barbara's e-mail address.

Company: Officeworks

Sells: Office supplies

URL: http://www.officeworks.com.au

Comments: Office-Depot type store with locations close to the FSMV

Organization: Open Channel

Provided: Audio/Visual Equipment Rental

URL: http://www.openchannel.org.au

Comments: See Appendix P

Company: Michaels

Provided: Video Equipment Rental

URL: http://www.michaels.com.au

Comments: Michaels is a very reputable camera store with friendly and knowledgeable staff that are very willing to help out.

Company: LeMac

Provided: Video Equipment Rental

URL: http://www.lemac.com.au

Comments: See Appendix P

Company: JBHiFi

Sells: Audio/Visual Equipment

URL: http://www.jbhifi.com.au

Comments: We purchased our miniDV tapes here.

Company: JayCar

Sells: Electronics

URL: http://www.jaycar.com.au

Comments: Excellent store for electronic needs, larger selection than Radio Shack.

Company: Bunnings

Sells: Hardware

URL: http://www.bunnings.com.au

Comments: Bunnings is a hardware store similar to Home Depot. We bought all of our lighting equipment there.

Appendix F: Project Proposals

Deakin University and RMIT were contacted in the search of professors and students interested in project work at the Fire Services Museum of Victoria. Both institutions were provided with a written description of the museum and the project opportunities available.

The e-mail below, written to an RMIT creative media professor, details two specific project opportunities. The projects suggested are very specifically related to the professor's field of interest and clearly lay out the tasks and skills necessary for each project. This is done specifically because the RMIT creative media education paradigm (part of TAFE) seemed to be highly task-oriented, and professors generally wanted to know exactly what their students would do.

From: Boris Masis [boris@borism.net]
Sent: Thursday, April 22, 2004 8:36 PM
To: 'simon.embury@rmit.edu.au'
Subject: Information on Fire Services Museum Project

Mr. Embury,

We spoke on Tuesday regarding a project opportunity for students at the Fire Services Museum of Victoria. I apologize for the delay in sending you this e-mail, a couple of things requiring my attention had come up.

1. Background information on the Fire Services Museum and our student group:

Worcester Polytechnic Institute (WPI) in the United States conducts over-seas social science projects for undergraduate students (http://www.wpi.edu/Academics/Depts/IGSD/Projects/). There are four students working with the Fire Services Museum of Victorian Melbourne (http://www.alphalink.com.au/~fsmvic/) at present. The students can be contacted collectively by e-mailing ourgroup@wpi.edu.

The goal of the current project conducted by WPI (March – May 2004) is to create a prototype audio tour for the museum. A number of video and audio recorded

interviews have been conducted towards this goal. A second part of the project is to set up a year-round infrastructure of people who will work both with creating a full-scale implementation of the audio tour, as well as create a promotional video for the museum. The written reports of the current WPI group as well as groups from years past can be provided to aid in these proposed projects.

RMIT students and faculty would be a welcome addition to the team at the Fire Services Museum Victoria. The museum is a unique project site because it is an organization that utilizes the work done by students and is located just around the corner from RMIT. The WPI students will be in Melbourne until May 3rd 2004 and will be available to lead faculty or students through the museum and discuss project possibilities. Appointments can be scheduled by e-mailing ourgroup@wpi.edu.

2. Specific Information pertaining to the proposed projects:

Project A: Audio Tour Implementation

The WPI students have created an audio tour prototype for the museum that consists of a number of edited audio tracks as well as an extensive collection of captured but un-edited material. The goal of this project is to bring the audio tour prototype created by the WPI students to final implementation.

Tasks:

- edit existing audio content
- capture any additional content needed
- contact hardware manufacturers for sponsorship of audio player devices
- compress and load content on audio player devices
- conduct basic analysis of the success of audio tour (popularity, visitor/employee satisfaction)

Skills Required:

- strong information technology skills
- experience with digital non-linear audio editing (Sony Sound Forge, Sony Vegas)
- understanding of marketing principles and graphic design experience

Project B: Museum Promotional Video

All of the interviews conducted by the WPI group have been video recorded onto a total of twenty-two miniDV tapes. This video along with additional content need to be combined to create a promotional video for the Fire Services Museum of Victoria which can be shown at fairs and sent to schools.

Tasks:

- edit existing video content
- shoot additional content (within Fire Services Museum as well as Newport Workshops)
- export video to VHS tapes
- conduct basic analysis of the success of the effectiveness of the video

Skills Required:

- strong information technology skills
- experience with digital non-linear video editing (Sony Vegas)
- understanding of marketing principles

Both of these projects are targeted at students with extensive experience and skills. The projects are challenging, but they are also highly rewarding and an excellent opportunity to do real-world work. The recommended time commitment for each project is a group of four students for 2 months (full-time) or a group of two students for 4 months (full time).

Thus, the most practical way to run this would probably be to give students RMIT credit for the work (internship?). The students should also be able to work in a highly independent fashion with little management from the museum, but with specific guidance from RMIT professors (this is strongly suggested as it works quite well for the current WPI group). There is currently one RMIT student volunteer working under the direction of the WPI group on the audio tour project.

The Fire Services Museum is able to provide some space and equipment for the projects. This can be discussed in detail at a later point.

Please let me know if you are seriously considering these opportunities. If this is the case we should meet in person as soon as possible. Please give me a call at 040 616 970 (ask for Boris)

Thank you,

- Boris Masis

The graphical proposals for four projects included on the following pages were given to Deakin University professors. These proposals are significantly less detailed and cover a broader range of project topics. In our conversations with Deakin professors, we noticed a general interest in the creation of a “project center” and performing a number of projects, rather than a set of discrete tasks. These proposals reflect that general idea, and leave the development of the details up to the students and professors who choose to work on the projects.

Fire Services Museum
VICTORIA

Developing an Audio Tour at the Fire Services Museum of Victoria

Project Background and Description

A student project to create an audio tour for the Fire Services Museum of Victoria has produced a prototype of the desired system. The prototype consists of a number of edited audio tracks as well as an extensive collection of captured but un-edited material.

The goal of this project is to bring the audio tour prototype to reality within the museum. An extensive report and list of contacts and recommendations from the prior student group will be used as reference for this project.

Contact Information

Name	Fred Kerr President of the Fire Services Museum of Victoria		
Email	firechaser@optusnet.com.au	**Fax**	(03) 9662 2907
Phone	(03) 9662 2907	**Mobile**	0418 129 252
Address	39 Gisborne St. East Melbourne, VIC, 3002 Australia	**Web**	alphalink.com.au/~fsmvic

Museum Background

The Fire Services Museum of Victoria is a non-profit organisation dedicated to the preservation of Victoria's fire service heritage and the education of the public about the history of fire fighting within the State. The museum strives to represent the three fire service organisations of Victoria; the Metropolitan Fire Brigade (MFB), the Country Fire Authority (CFA), and the Department of Sustainability and Environment (DSE). The museum owns two campuses, one just outside of the Central Business District in Melbourne and one a train ride away in Newport. The city site is home to the museum itself while the Newport location is a storage and restoration compound for fire appliances and other vehicles. Overall, the museum's collection includes a year round display of fire vehicles, helmets, 18th century uniforms, badges, and models for a total of over 4,000 fire related items collected from around the world. Many dedicated volunteers contribute their time and talents to the museum. The location and assets of the museum create a tremendous opportunity for growth. This project is designed to be a part of efforts to develop and improve the museum.

Fire Services Museum
VICTORIA

Postcard Photography Project at the Fire Services Museum of Victoria

Project Background and Description

Students will work to create postcards for the Fire Services Museum of Victoria. The cards will feature some of the 85 fire engines housed at the Newport Restoration Workshop.

The students will photograph the fire engines in order to develop the postcards which will then be sold at the museum gift shop.

Contact Information

Name	Barb McCumisky Volunteer, Fire Services Museum of Victoria		
Email	firechaser@optusnet.com.au	**Fax**	(03) 9662 2907
Phone	(03) 9808 1659	**Mobile**	0408 305 831
Address	39 Gisborne St. East Melbourne, VIC, 3002 Australia	**Web**	alphalink.com.au/~fsmvic

Museum Background

The Fire Services Museum of Victoria is a non-profit organisation dedicated to the preservation of Victoria's fire service heritage and the education of the public about the history of fire fighting within the State. The museum strives to represent the three fire service organisations of Victoria; the Metropolitan Fire Brigade (MFB), the Country Fire Authority (CFA), and the Department of Sustainability and Environment (DSE). The museum owns two campuses, one just outside of the Central Business District in Melbourne and one a train ride away in Newport. The city site is home to the museum itself while the Newport location is a storage and restoration compound for fire appliances and other vehicles. Overall, the museum's collection includes a year round display of fire vehicles, helmets, 18th century uniforms, badges, and models for a total of over 4,000 fire related items collected from around the world. Many dedicated volunteers contribute their time and talents to the museum. The location and assets of the museum create a tremendous opportunity for growth. This project is designed to be a part of efforts to develop and improve the museum.

Fire Services Museum
VICTORIA

Promotional Video Project at the Fire Services Museum of Victoria

Project Background and Description

Students will be given the opportunity to develop a 5-10 minute video promoting the Fire Services Museum of Victoria. The video will be shown at fairs attended by the museum and may be mailed to schools.

The general goal of the video is to build interest in the museum and attract potential visitors. Students will work with existing video footage, as well as being given the opportunity to do additional filming.

Contact Information

Name	Fred Kerr President of the Fire Services Museum of Victoria		
Email	firechaser@optusnet.com.au	**Fax**	(03) 9662 2907
Phone	(03) 9662 2907	**Mobile**	0418 129 252
Address	39 Gisborne St. East Melbourne, VIC, 3002 Australia	**Web**	alphalink.com.au/~fsmvic

Museum Background

The Fire Services Museum of Victoria is a non-profit organisation dedicated to the preservation of Victoria's fire service heritage and the education of the public about the history of fire fighting within the State. The museum strives to represent the three fire service organisations of Victoria; the Metropolitan Fire Brigade (MFB), the Country Fire Authority (CFA), and the Department of Sustainability and Environment (DSE). The museum owns two campuses, one just outside of the Central Business District in Melbourne and one a train ride away in Newport. The city site is home to the museum itself while the Newport location is a storage and restoration compound for fire appliances and other vehicles. Overall, the museum's collection includes a year round display of fire vehicles, helmets, 18th century uniforms, badges, and models for a total of over 4,000 fire related items collected from around the world. Many dedicated volunteers contribute their time and talents to the museum. The location and assets of the museum create a tremendous opportunity for growth. This project is designed to be a part of efforts to develop and improve the museum.

Fire Services Museum
VICTORIA

Marketing and Museum Studies at the Fire Services Museum of Victoria

Project Background and Description

Students will be given the opportunity to work with the Fire Services Museum of Victoria to develop and implement a marketing plan.

Specifically, the museum is looking to increase the number of volunteers at the Fire Engine Restoration Workshop in Newport, as well as increase public interest in the museum itself. Experience in graphic design will be helpful for this project.

Contact Information

Name	Fred Kerr President of the Fire Services Museum of Victoria		
Email	firechaser@optusnet.com.au	**Fax**	(03) 9662 2907
Phone	(03) 9662 2907	**Mobile**	0418 129 252
Address	39 Gisborne St. East Melbourne, VIC, 3002 Australia	**Web**	alphalink.com.au/~fsmvic

Museum Background

The Fire Services Museum of Victoria is a non-profit organisation dedicated to the preservation of Victoria's fire service heritage and the education of the public about the history of fire fighting within the State. The museum strives to represent the three fire service organisations of Victoria; the Metropolitan Fire Brigade (MFB), the Country Fire Authority (CFA), and the Department of Sustainability and Environment (DSE). The museum owns two campuses, one just outside of the Central Business District in Melbourne and one a train ride away in Newport. The city site is home to the museum itself while the Newport location is a storage and restoration compound for fire appliances and other vehicles. Overall, the museum's collection includes a year round display of fire vehicles, helmets, 18th century uniforms, badges, and models for a total of over 4,000 fire related items collected from around the world. Many dedicated volunteers contribute their time and talents to the museum. The location and assets of the museum create a tremendous opportunity for growth. This project is designed to be a part of efforts to develop and improve the museum.

Appendix G: Categorization System

01 Personal and Historical Recollections
- 01.01 Personal Experiences
  - 01.01.01 Geoff Annal
    - 01.01.01-01 Experience in the Fire Services
    - 01.01.01-02 Working with the Special Services
    - 01.01.01-03 Ghosts In Melbourne Theaters
    - 01.01.01-04 General Thoughts
  - 01.01.02 Bill Bayley
    - 01.01.02-01 Experience in the Fire Services
  - 01.01.03 Len Greaney
    - 01.01.03-01 Experience in the Fire Services
    - 01.01.03-02 Humorous Personal Experiences
    - 01.01.03-03 Experiences using Breathing Apparatuses
    - 01.01.03-04 Experiences using Radio and Telephone
  - 01.01.04 Fred Kerr
    - 01.01.04-01 Experience in the Fire Services
    - 01.01.04-02 Living at the Fire Station
    - 01.01.04-03 Humorous Stories while in Fire Services
  - 01.01.05 Barb McCumisky
    - 01.01.05-01 Experience in the Fire Services
  - 01.01.06 Mike McCumisky
    - 01.01.06-01 Experience in the Fire Services
    - 01.01.06-02 Working With the Fire Fighters
  - 01.01.07 Bryan Robertson
    - 01.01.07-01 Experience in the Fire Services
    - 01.01.07-02 Fire Pole Story
    - 01.01.07-03 MFB History Recollections
  - 01.01.08 Keith Sanders
    - 01.01.08-01 Experience in the Fire Services
    - 01.01.08-02 Designer of the FSMV Badge
    - 01.01.08-03 Experience as Civil Aviator
  - 01.01.09 Frank Scott
    - 01.01.09-01 Experience in the Fire Services
    - 01.01.09-02 Personal Experience with Brass Helmet
    - 01.01.09-03 Personal Experience with Brass Pole
    - 01.01.09-04 Humorous Stories
  - 01.01.10 Stewart Wilkinson
    - 01.01.10-01 Experience in the Fire Services
- 01.02 Historical Recollections
  - 01.02.01 Events
    - 01.02.01-01 CFA/MFB Creation (1989)
    - 01.02.01-02 Situation at the Chief's Office
    - 01.02.01-03 Evolution of the Shift System
    - 01.02.01-04 Use of the Old Fire Horses
    - 01.02.01-05 Use of Bicycle to test Fire Alarms
  - 01.02.02 Fires
    - 01.02.02-01 Melbourne Club Fire
    - 01.02.02-02 Jail Fire
    - 01.02.02-03 The Great Fire (1897)

01.02.02-04 Cottages Fires
01.02.02-05 Chemical Fire
01.02.02-06 Mine Shaft Fire- Valour Medal Rescue
01.02.02-07 Federal Hotel Fire (1952)
01.02.02-08 Salvation Army Hostel Fire
01.02.03 Places
01.02.03-01 The Fire Services Museum
01.02.03-02 Port Melbourne Fire Authority
01.02.03-03 Special Services
01.02.03-04 Eastern Hill Fire Station
01.02.04 People
01.02.04-01 The Band
01.02.04-02 Sir Henry Killet
01.02.04-03 Bellinger

02 Equipment
02.01 Fire Engines
02.01.00 Blank
02.01.00-00 Non-FSMV
02.01.00-01 1938 Dodge (ER)
02.01.00-02 1914 Hotchkiss (ER)
02.01.00-03 1949 Leyland Comet (ER)
02.01.00-04 1911 Pierce Arrow (ER)
02.02 Life Support
02.02.01 Breathing Apparatuses
02.02.01-00 Non-FSMV
02.02.01-01 Salvus Breathing Apparatus Circa 1900 (ER)
02.02.01-02 Prata Breathing Apparatus
02.02.01-03 Smoke Jacket
02.02.02 Proximity Suits
02.02.02-00 Non-FSMV
02.02.02-01 Silver Proximity Suit (ER)
02.03 Alarm / Detection Systems
02.03.01 Switch Boards
02.03.01-00 Non-FSMV
02.03.01-01 Wooden Switch Board (WR)
02.03.02 Fire Alarm
02.03.02-00 Non-FSMV
02.03.02-01 Street Fire Alarms
02.03.02-02 Sprinkler Systems
02.03.03 Horns
02.03.03-00 Non-FSMV
02.03.03-01 Siebe Gorman & Company Ltd Horn (ER)
02.03.04 Key Cabinets
02.03.04-00 Non-FSMV
02.03.04-01 Wooden Key Cabinet (WR)
02.04 Pumps
02.04.01 Platform Pumps
02.04.01-00 Non-FSMV
02.04.01-01 Kingston Pump Shand Mason C 1830 (ER)

02.05 Carts
02.05.01 Hand Carts
02.05.01-00 Non-FSMV
02.05.01-011880 Leongatha Fire Brigade (ER)
02.05.02 Bicycles
02.05.02-00 Non-FSMV
02.05.02-01 MFB Alarm Bicycle C. 1890 (ER)
02.06 CFA Specific
02.06.01 Blank
02.06.01-00 Non-FSMV
02.06.01-01 Equipment Collection (CFAR)
02.07 Entrances Into and Exits from Fires
02.07.01 Blank
02.07.01-00 Non-FSMV
02.07.01-01Pompier Ladder
02.07.01-02 Jump Sheet
02.07.02 Miscellaneous Alarm/Detection Systems
02.07.02-00 Non-FSMV
02.07.02-01 Radio system
02.07.02-02 The Watchman's Clock

03 Uniforms
03.01 MFB
03.01.01 Helmets
03.01.01-01Chief Fire Helmets (CO)
03.01.01-02 Senior Officers Leather Helmet (CO)
03.01.01-03Fire Helmets Over Time (ER)
03.01.01-04 Pigskin & Leather Helmet, 1878 (IR)
03.01.01-05Fireman's Brass Helmet, 1870's (IR)
03.01.01-06 Singapore Fire Brigade, 2003 (IR)
03.01.02 Tops and Bottoms
03.01.02-01 2004 (EH)
03.01.02-02 Various Tunics (ER)
03.02 CFA
03.02.01 Uniforms
03.02.01-01 2002 (EH)
03.02.01-02 1930's Dress Uniforms (CFAR)
03.02.02 Patches
03.02.02-01 Patch Collection (CFAR)
03.03 Non MFB / CFA
03.03.01 Patches
03.03.01-01Patch Collection (IR)
03.03.02 Badges
03.03.02-01 161 UK Cap badges (IR)
03.03.03 Uniforms
03.03.03-01 Fireman Sun Insurance Office London, England, 1720's (IR)
03.03.03-02 Rome Firefighter, Italy, 2003 (IR)
03.03.03-03 Greek Uniform 1981 (IR)

03.03.03-04 District Officer Tunic, New Zealand, 1963 (IR)
03.03.03-05 Japanese Tunic and Helmet, 1934 (IR)
03.03.03-06 German Fighterfighter, 2000 (IR)
03.03.03-07 SDIS Paris Figherfighter, 2003 (IR)

04 Historical Parts Within the FSMV
- 04.01 Ceilings
  - 04.01.00 Blank
    - 04.01.00-01 Board Room (BR)
- 04.02 Floors
  - 04.02.01 Engine Room
    - 04.02.01-01 Brass Plate to Boiler Room (ER)
    - 04.02.01-02 Marble Staircase
  - 04.02.02 Stand Pipes
    - 04.02.02-01 Extended Stand Pipes
  - 04.02.03 Doors
    - 04.02.03-01 Brass Doors (IR)
  - 04.02.04 External Parts to FSMV
    - 04.02.04-01 Watch Tower
    - 04.02.04-02 Structure Attached to the Watch Tower
- 04.03 Installments
  - 04.03.01 Poles
    - 04.03.01-01 Fire Engine Room Brass Pole (ER)
- 04.04 Furniture
  - 04.04.01 Board Room
    - 04.04.01-01 Table (BR)
    - 04.04.01-02 Chairs (BR)
  - 04.04.02 Chief's Office
    - 04.04.02-01 Trophy Display Case
- 04.05 Manikins
  - 04.05.01 Board Room
    - 04.05.01-01Hon. Samuel Mauger 1857-1956 (BR)
    - 04.05.01-02 Sir Henry de Castres Kellet. 3rd Bt. (BR)
  - 04.05.02 Chief's Office
    - 04.05.02-01 Chief Officer.D.J.Stein 1891-1908 (CO)

05 Historical Documents
- 05.01 Coat of Arms
  - 05.01.00 Blank
    - 05.01.00-00 Non-FSMV
    - 05.01.00-01 MFB Coat of Arms (Audax Et Promptus) (EH)
- 05.02 Paintings
  - 05.02.00 Blank
    - 05.02.00-00 Non-FSMV
    - 05.02.00-01 1891-1991 Celebration of a Century (BR)
    - 05.02.00-02 E.V. Johnson 1978-1983
    - 05.02.00-03 E.C.M. Symes First Full Time President 1970-1977
    - 05.02.00-04 Queen Victoria 1837-1901 (BR)
    - 05.02.00-05 Saved (Copied by Officer Andrews) (IR)

05.02.01 Chief's Office
05.02.01-00 Non-FSMV
05.02.01-01 Chief Officer H. Lee 1908-1927 (CO)
05.02.01-02 Chief Officer D. Stein 1890-1908 (CO)
05.02.01-03 Chief Officer J. Wilkins 1927-1940 (CO)
05.02.01-04 Chief Officer J. Kemp 1940-1946 (CO)
05.02.01-05 Chief Officer L. Whitehead 1946-1958 (CO)
05.02.01-06 Chief Officer W. Aldridge 1958-1963 (CO)
05.02.01-07 Chief Officer J. Paterson 1963-1970 (CO)
05.02.01-08 Chief Fire Officer F. Tueno 1970-1974 (CO)
05.02.01-09 Chief Fire Officer N. Van Every 1974-1979 (CO)
05.02.01-10 Chief Fire Officer E. Osborne 1979-1982 (CO)

05.03 Photographs
05.03.00 Blank
05.03.00-00 Non-FSMV
05.03.00-01 To the Chief Officer. D.J.Stein Esq. J.P.
05.03.00-02 Photos of Fire Engines (ER)

05.04 Written Records
05.04.01 Occurrence Books
05.04.01-00 Non-FSMV
05.04.01-01 MFB Occurrence Book (WR)

05.05 Plaques/Marks
05.06.00 Blank
05.06.00-00 Non-FSMV
05.06.00-01 Insurance Company Plaques (ER)

06 Awards/Memorials

06.01 Certificates
06.01.01 CFA
06.01.01-00 Non-FSMV
06.01.01-01 Collection (CFAR)

06.02 Medals
06.02.00 Blank
06.02.00-00 Non-FSMV
06.02.00-01 Fire Officer Medals (CO)
06.02.00-02 Chief Officer Medals (CO)
06.02.00-03 Valour Medals (MR)
06.02.00-04 Long Service Awards (MR)

06.03 Trophies
06.03.01 Band
06.03.01-00 Non-FSMV
06.03.01-01 Seppelt Cup (CO)
06.03.01-02 Tanunda Band Competition 1936 (CO)
06.03.01-03 Tanuda Band Competition 1933(CO)
06.03.01-04 George Burges Trophy (CO)

06.04 Honorary Gifts
06.04.01 Blank
06.04.01-00 Non-FSMV
06.04.01-01 Presentation Smokers Stand (CO)

06.05 Memorial

06.05.00 Blank
06.05.00-01 Victorian Memorial to Firefighters (MR)

07 Miscellaneous
07.01 Artifacts
07.01.01 Structural Components
07.01.01-00 Non-FSMV
07.01.01-01 Wooden Water Main (CFAR)

08 Rooms in the FMSV
08.01 Board Room
08.01.01 Blank
08.01.01-01 Introduction
08.02 Chiefs Office
08.02.01 Blank
08.02.01-01 Introduction
08.03 Engine Room
08.03.01 Blank
08.03.01-01 Introduction
08.04 Watch Room
08.04.01 Blank
08.04.01-01 Introduction
08.05 International Room
08.05.01 Blank
08.05.01-01 Introduction
08.06 Medal Room
08.06.01 Blank
08.06.01-01 Introduction
08.07 CFA Room
08.07.01 Blank
08.07.01-01 Introduction

Appendix H: Invitation to be Interviewed

Introduction

Four students from Worcester Polytechnic Institute in the United States are working on a project with the Fire Services Museum of Victoria to develop an audio tour system. This system will be built using interviews conducted with individuals involved in the fire services. The audio tour is not meant to replace museum tour guides. Rather, it is meant to accommodate visitors when all guides are busy or unavailable.

You have been selected as a potential contributor because we believe you have many stories and experiences that would be of great interest to the museum visitors. We would greatly appreciate your support and participation in this project.

Interview Schedule

The interview process will consist of two halves: a non-recorded tour through the Fire Services Museum, and a video-recorded portion conducted in a room of the museum.

During the first half, the interviewee will be asked to lead the student project group through the museum, writing down items particularly relevant to their experience or knowledge.

Participants will be asked to describe each item individually during the recorded interview session. General fire service stories and experiences are also of great interest to the project. There will be a short pause between each story or description to allow the interviewee to gather and organise thoughts regarding the next item to be discussed. Pausing to organise thoughts in the middle of an item or story description is also not a problem.

Participants will be asked to wear a clip-on microphone during the recorded interview. A consent form giving the project team the right to utilise the recording must be also signed before the session begins.

The process is expected to last no more than 2 1/2 hours.

Anticipated Schedule

Morning Session

10:15 AM Arrive at the Fire Services Museum Victoria

10:30 AM Museum Tour with Project Group

11:15 AM 15 Minute Break

11:30 AM Interview

12:30 PM Interview Completed, Thank you for your time.

Afternoon Session

01:30 PM Arrive at the Fire Services Museum Victoria

01:45 PM Museum Tour with Project Group

02:30 PM 15 Minute Break

02:45 PM Interview

03:45 PM Interview Completed, Thank you for your time.

Interviews will be conducted for 5 days, between 29/3/04 and 2/4/04.

There will be a sign-up sheet posted on the bulletin board in the museum kitchen. Please sign up for a time slot that best fits your schedule. You may call 0400 616 970 to obtain more information.

Thank you and we hope you are interested in sharing your experiences and look forward to hearing from you!

Laura Desi
Matthew Krolak
Boris Masis
Lauren Stolzar

Appendix I: Interviewee Checklist

Entrance Hall	Notes
❑ Current MFB Uniform	
❑ Coat of Arms	
❑ Current CFA Uniform	
❑	
❑	

Board Room	Notes
❑ Centennial Painting	
❑ Renovated Ceiling	
❑ Samuel Manger	
❑ Sir Henry de Castres	
❑ Former Presidents of MFB	
❑ Queen Victoria Painting	
❑ Original Table and Chairs	
❑ 1907 MFB Collage	
❑	
❑	

Chief's Office	Notes
❑ Situation at the Chief's Office	
❑ Officer Stein	
❑ Chief Portraits	
❑ Officer Helmets	
❑ Trophy Display Case	
❑ Band Trophies	
❑	
❑	

Engine Room	Notes
❑ 1914 Hotchkiss	
❑ Salvus Breathing Apparatus	
❑ Foot-Operated Horn	
❑ Silver Proximity Suits	
❑ 1938 Dodge	
❑ Plaques of Insurance Companies	
❑ 1949 Leyland Comet Truck	
❑ Kingston Pump (1830)	
❑ Hand Cart (1880)	
❑ Old Fire Station Photograph	
❑ Brass Pole	
❑ Photo Display	
❑ MFB Bicycle (1890)	
❑ 1919 Pierce Arrow, Melbourne Pump	
❑ Helmets Around the Room	
❑ Plate in Floor to Boiler Room	
❑	

Watch Room	Notes
❑ Wooden Switch Board	
❑ Fire Alarms	
❑ Key Cabinet	
❑ Occurrence Book	
❑	

Watch Tower
❑
❑

International Room	Notes
❑ Fire Department Patches	
❑ UK Cap Badges	
❑ International Uniforms	
❑ International Helmets	
❑ “Saved” Painting	
❑	

Medal Room	Notes
❑ Valour Medals	
❑ Firefighter Memorial	
❑ Long Service Awards	
❑	

CFA Room	Notes
❑ CFA History	
❑ CFA Equipment	
❑ CFA Uniforms	
❑ CFA Certificates	
❑ Wooden Water Main	
❑	

Personal Experiences	Notes
❑ Living at the fire stations	
❑ Living at Eastern Hill	
❑ The evolution of the 'Shift' System	
❑ Sporting achievement	
❑ Working in the Communications Dept.	
❑	

Historical Events	Notes
❑ 1991 Fire	
❑ 1983 Fire	
❑ Creation of CFA/MFB	
❑ Motorization of Brigades	
❑ Salvation Army Hostel fire in the CBD 1966	
❑ Davis Plastics fire in Burwood 1984	
❑ Butler's Transport fire Footscray 1985	
❑ United Transport fire, Footscray 1987	
❑ The MFB & CFA involvement in the NSW bushfires in 1994	
❑	
❑	

Appendix J: Interviewee Release Form

I hereby give and grant permission for the described versions of the recorded materials to be used by the Fire Services Museum of Victoria a shall be determined under the discretion of the Board of Directors of the aforementioned Museum. As such, full rights to these materials are granted to the museum for any pursuits deemed necessary by the Board of Directors.

Medium:

Sound Recording

Video Recording

Photographs

Printed Name: _____

Signed: _____

Date: _____

Time: _____

Phone Number _____

Appendix K: Letter to Solicit Help from Professors

I am working with a student group from the Worcester Polytechnic Institute for the Fire Services Museum of Victoria to help develop new exhibits and archive contemporary sources such as interviews with current and retired fire fighters. I understand groups from WPI have been in touch with faculty at Deakin in earlier years and have received quite a bit of support.

At this point we're looking for help implementing our project at the museum, and are seeking student volunteers and expert advice. I was unable to find specific contact information for faculty who might be interested in talking to us, or able to pass on our information to students who might be interested in volunteering.

If at all possible, could you point us to a specific person in either the communications or arts department who might be able to help us find students interested in film/TV/digital media/communications? Thank you for your time and help.

Sincerely,

Matthew Krolak, WPI Group

Appendix L: How to Catalog an Item

This five-step process allows you to easily catalog any item related to the Fire Services of Victoria. Use the numbering system below as a guide when following the steps.

Numbering System

00	Major Category
00.00	Subsection
00.00.00	Secondary Subsection
00.00.00-00	Item
00.00.00-00 (XX)	Room Placement

1. **Major Category Placement**: Determine what type of item it is and how it fits best into the major categories using the category descriptions. An item can fit into multiple major categories. For example, if a retired fire fighter is recorded talking about how he used to drive an old fire engine, it would be placed under 01-Personal and Historical Recollections because it is a personal recollection and 02-Equiptment because he spoke about a fire engine.

#	Major Category Title	Category Description
01	Personal and Historical Recollections	A recording of an individual person
02	Equipment	An item used to assist in fire fighting
03	Uniforms	Garments worn by fire service personnel
04	Historical Parts Within the FSMV	Features of the FSMV that are the same they were when the building was a fire station
05	Historical Documents	Written or pictorial documents associated with the fire services
06	Awards/Memorials	Any honors awarded to fire service personnel
07	Miscellaneous	An item that does not fit in the other seven categories
08	Rooms in the FMSV	Information on the specific rooms and their use when the FSMV was a fire station

2. **Subsection Placement**: Once a major category is selected, look at the existing catalog for subsections under that category. The subsection is written with two numbers following initial two, with a period in between. For example, if you have an MFB Uniform, you would determine it is in the Uniforms category (03) and then look at the existing catalog and find that MFB Uniform is 03.01.

04 Uniforms
- 04.01 MFB
  - 04.01.01 Helmets
  - 04.01.02 Tops and Bottoms
- 04.02 CFA
  - 04.02.01 Uniforms
  - 04.02.02 Patches
- 04.03 Non MFB / CFA
  - 04.03.01 Patches
  - 04.03.02 Badges
  - 04.03.03 Uniforms

- If you had an item that could be placed in multiple major categories, find the multiple subsections the item belongs in under the two major categories.

- If no subsections exist that would fit the item, an additional subsection can be created.

3. **Secondary Section Placement**: Further distinguish the type of item you are attempting to classify by placing it in a secondary subsection. For example, if you have a MFB Tunic you would place it under MFB Uniforms (03.01) and then "Tops and Bottoms" (03.01.02).

03 Uniforms
- 03.01 MFB
  - 03.01.01 Helmets
    - 03.01.01-01 Chief Fire Helmets (CO)
    - 03.01.01-02 Senior Officers Leather Helmet (CO)
    - 03.01.01-03 Fire Helmets Over Time (ER)
    - 03.01.01-04 Pigskin & Leather Helmet, 1878 (IR)

03.01.01-05 Fireman's Brass Helmet, 1870's (IR)
03.01.01-06 Singapore Fire Brigade, 2003 (IR)
03.01.02 Tops and Bottoms
03.01.02-01 2004 (EH)
03.01.02-02 Various Tunics (ER)

- If and item is placed in multiple major categories and multiple subsections, also place it into multiple secondary subsections.
- If no secondary subsections exist that would fit the item, an additional subsection can be created.

4. **Item Number Creation**: Add the specific item name, excluding the major category and subsection descriptions, under the last item listed in the subsection/ s. For example, if you wished to catalog the 2005 MFB Uniform you would look at the current items listed under the secondary subsection and insert it following the last item listed. Use a dash rather than a period before inserting the next sequential number. This makes the items easily distinguishable and makes the list expandable.

03 Uniforms
03.01 MFB
03.01.01 Helmets
03.01.02 Tops and Bottoms
03.01.02-01 2004 (EH)
03.01.02-02 Various Tunics (ER)
03.01.02-03 2005

Notice how it is not necessary to list that is an MFB Uniform or how it is a top and bottom, not a helmet. This information is already expressed by viewing the subsections.

- If placing the item under separate secondary subsections, create two item names.

- Item numbers are unique for each individual item; no two items can have the same number. An item can have more than one item number if it is placed under multiple major categories.

5. **Location Placement**: In parentheses insert the abbreviation of the location the item is currently placed. If an item is not displayed in the museum, do not insert a room placement. Use the abbreviations below as a guide. If additional rooms are used or current rooms are renamed in the future, change accordingly.

Abbreviation	**Location**
EH	Entrance Hall
BR	Board Room
CO	Chiefs Office
ER	Engine Room
WR	Watch Room
IR	International Room
MR	Medal Room
CFAR	CFA Room

Below you can see that MFB Helmets can be found in the Chiefs Office, Engine Room, and International Room.

04 Uniforms
04.01 MFB
03.01.03 Helmets
03.01.03-01 Chief Fire Helmets (CO)
03.01.03-02 Senior Officers Leather Helmet (CO)
03.01.03-03 Fire Helmets Over Time (ER)
03.01.03-04 Pigskin & Leather Helmet, 1878 (IR)
03.01.03-05 Fireman's Brass Helmet, 1870's (IR)
03.01.03-06 Singapore Fire Brigade, 2003 (IR)

- Be sure to list the location placement for the item under all the categories it is listed.

Appendix M: Technical Post-Production Notes

This document describes the digital process of working with the audio-visual content in postproduction. Specifically, the document explains the steps that were taken in the current project and makes relevant recommendations for future work in this area. The document begins by making notes regarding video capture, moves on to file naming and organization, and finally covers the editing process.

Video Capture:

Both cameras were paused in-between discrete item descriptions. These breaks in miniDV time code allow the "ScenalyzerLive" software program to automatically split the tape into files, each representing an item description. In addition, the program is able to quickly index a tape to determine the position of each new chunk, creating a tape index that can be used to selectively capture certain segments.

ScenalyzerLive worked well and significantly sped up the process of capturing the needed material. There are however several issues to be aware of:

- The program tends to create several extra unaccounted for “dummy” files at the end of each tape. These can be easily detected by looking at the clip duration, which is generally under 10 seconds for such files.
- Time code breaks of less than 1 second (i.e. when the camera is stopped and immediately re-started) are not detected by ScenalyzerLive during the creation of the index file. The breaks are detected and processed correctly when a full capture is done. Several NTSC tapes exhibit this problem as documented in Appendix N.
- If a camera was accidentally stopped or not stopped when it should have been, the ScenalyzerLive tape index will differ between the PAL and NTSC versions. These differences are documented in Appendix N.

Steps 1-8 of the following instructions document the process of capturing audio with ScenalyzerLive. Steps 9-14 are regarding the video capture process:

01. rewind tape
02. go to file -> options, select audio only (wav)
03. create 3 new folders for the person
04. set the folder by clicking on folder button in ScenalyzerLive
05. press capture
06. wait
07. match number of captured clips with excel index
08. update excel file to match capture
09. go to file -> options, select "type2 DV-avi file"
10. in scenalyzerLive select the corresponding video folder
11. click on "create tape index-takes 5 min"
12. put a checkbox next to the "good" video clips that you want to capture
13. press "start batch"
14. repeat steps 1 through 13 as needed

Capturing NTSC Video with a PAL Camera:

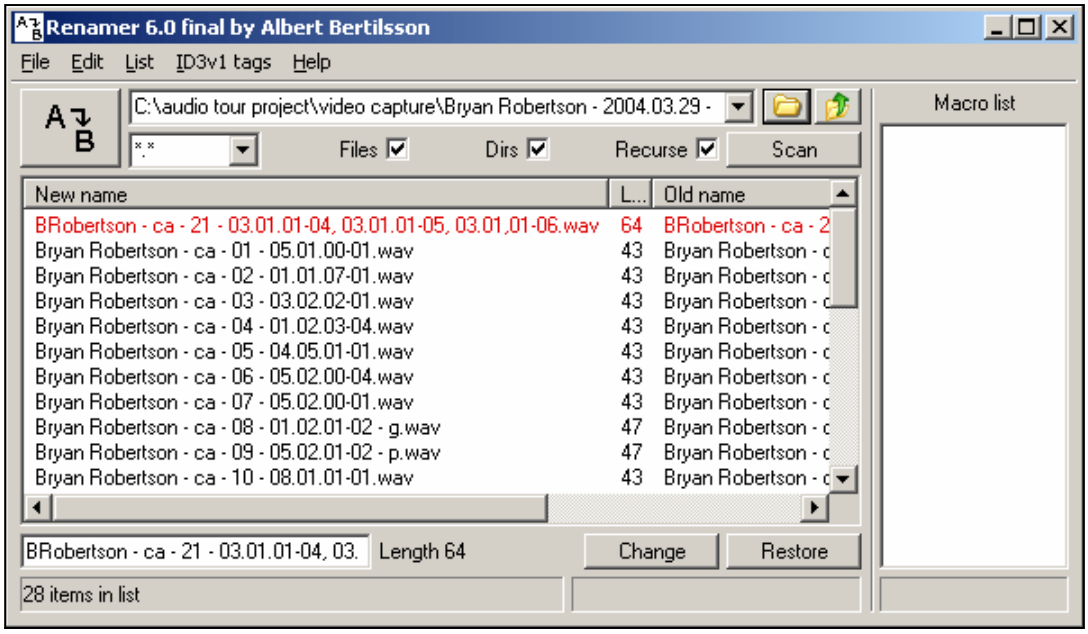
It is somewhat difficult to find hardware to read NTSC miniDV tapes in Australia. After an extensive search, an undocumented, but working solution was developed.

Most models of Sony PAL MiniDV cameras play back NTSC video on the LCD screen, where as cameras from most other manufacturers will not play back the video at all. The Sony PAL cameras do not, however, properly output the NTSC footage when they are connected through firewire. The following process of fooling the camera into properly outputting the NTSC video was used successfully with a Sony PC104 PAL hired from Michaels. It should work for any camera that plays back NTSC video via the LCD screen.

01. close ScenalyzerLive
02. unplug firewire cable from camera
03. rewind tape
04. use the camera LCD screen to start playing the tape
05. while the tape is playing plug the firewire cable back in
06. open scenalyzerLive, it should now display the video correctly

File Naming and Organization:

ScenalyzerLive generates a list of files that must be renamed in accordance to their subject matter. “Renamer” by Albert Bertilsson was used to quickly rename the files in batches. The program is very fast and efficient and allowed for near copy-pasting of clip information from the excel shot list document. Specifically, the necessary rows were copied from the excel file and pasted into Renamer using the program’s “free edit” mode (edit -> misc -> free edit). Several “replace” and “insert” commands were performed after that point to finish formatting the file names.



The program also allows for easy viewing of the number of characters in every filename. All filenames were kept below the 64-character limit to allow for backup of projects and files to DVD and CD without filename truncation. The first names of some interviewees were abbreviated to meet the 64-character restriction.

All captured files are stored on the Fire Services Museum of Victoria computer (Super power, Smokey) in the "c:\audio tour project" directory. Three directories exist for each individual; "Person – Far", "Person – Close", "Person – Close – audio." The "Far" directories refer to the video files from the NTSC camera which captured the wider angle, the "Close" directories refer to the tighter shots of the PAL camera, and the "Close – audio" directories are audio-only captures from the PAL camera.

The general naming structure for every file is "Person – Camera – Clip Number – Item ID – Good – Problems.Extension." Close-audio is abbreviated "ca," good is abbreviated to "g" and Problems is abbreviated to "p."

Due to hard-drive space restrictions, the only video files captured were those marked as "good." The exceptions to this rule are the "Far" video files for Fred Kerr and Frank Scott, all of which were captured due to the general high quality of all the clips. All of the audio was captured for every interviewee and is stored in the "Close – audio" directories.

Editing Process:

Sony (formerly Sonic Foundry) "Vegas" software was used to edit video and audio content. Vegas is, broadly speaking, a terrific editing program. It is very powerful, stable, has a relatively small learning curve, and is generally a pleasure to use.

The editing process varies significantly depending on if the final output is for visual or aural presentation. The focus of strict audio editing (as in "01.02.02-06 - valour medal.veg") is on the removal of verbal fillers, where as content edited for visual presentation (the other projects stored in the "c:\audio tour project\vegas projects" directory) cannot afford this luxury due to the associated breaks in visual continuity.

Vegas is flexible enough to allow for an excellent editing environment for both video and audio. The program is able to mix NTSC and PAL content on the fly, which is

crucial for this project. The template used for all Vegas projects was the "PAL DV" template with the "Full-resolution rendering quality" set to "Best."
All video was rendered using the "MainConcept DV Codec" in PAL mode using the highest quality settings. This codec is generally considered to be best in the industry and also allows for the opening of DV files in VirtualDub, which can become useful.

Video Post Processing:

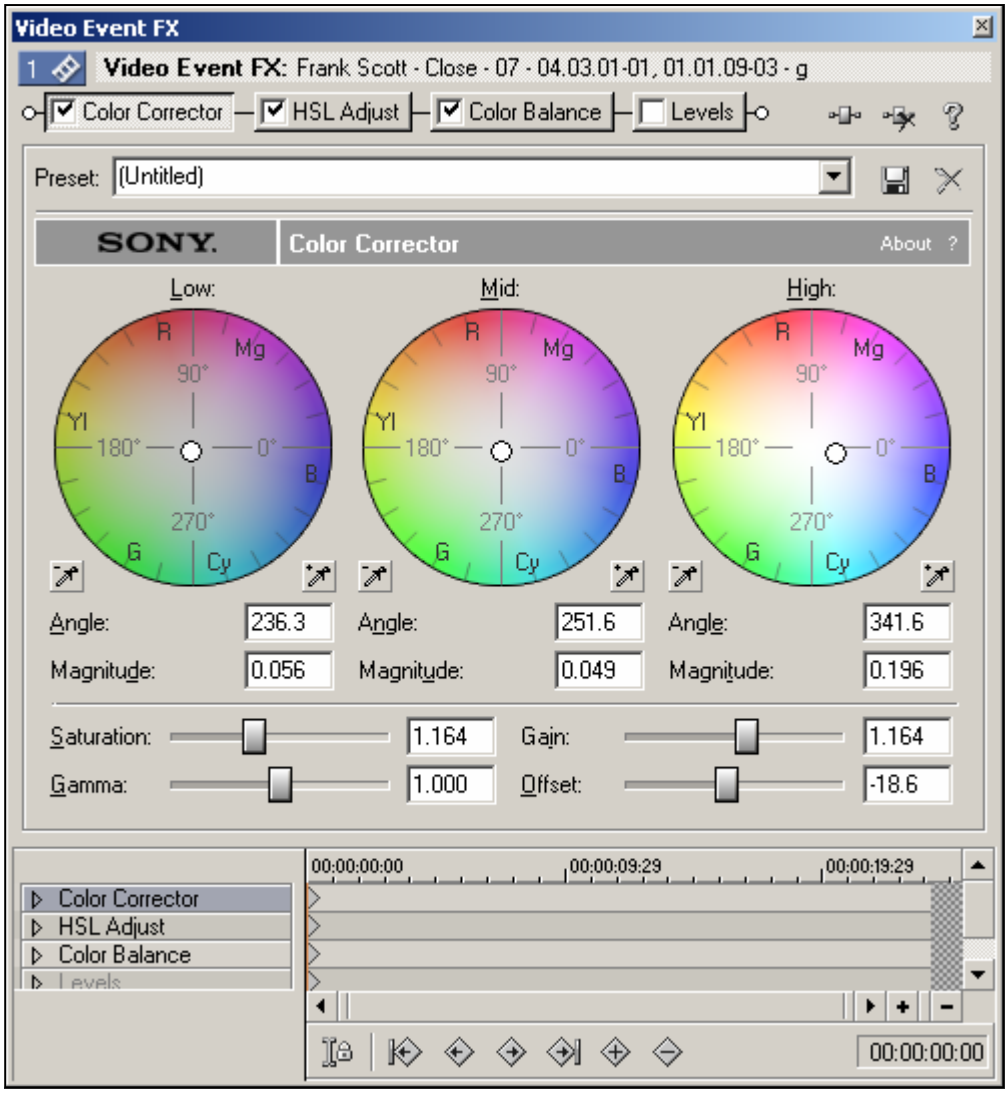
Some of amount of work was necessary to ensure that the two video streams captured from each of the two cameras work well together.

Synchronizing Video Streams:

Syncing the two video streams to allow for switching between camera angles was quite an easy task. The audio waveform, which is nearly identical in both video streams, creates for a visual synchronization indicator. Aligning video streams in accordance to these waveforms proved to be a fast and effective method for syncing clips.

Matching Colors Between Varying Sources:

The first task is matching colors between the two cameras. This task is fairly easily accomplished by using a number of "Video Event FX" filters in Vegas. Specifically, the "Color Corrector," "HSL Adjust," "Color Balance" and "Levels" are useful in this context. There is a large amount of literature on this topic, and Vegas makes it quite easy to see the results of the adjustments. In addition, the "Studio RGB to Computer RGB" preset in the "Color Corrector" plug-in is worth using for the captured footage.



Vegas provides a number of options and tools suited for working with multiple-camera-angle projects. Specifically, “event grouping” and “takes,” should be used as described in the Vegas help file. It is also recommended that the monitor on which video work is performed be calibrated before any adjustments are made.

Audio Post-Processing:

Audio was recorded from two microphones, a lavaliere microphone that worked quite well, as well as a dynamic microphone on a stand that did not work well. The latter, in particular, benefited from a number of audio processing techniques.

Each stream of audio was split at the time of recording and placed onto both the NTSC and PAL tapes. It was found that the PAL version generally has somewhat cleaner audio, however both streams should be examined before one is chosen. One stream will on occasion have some erratic noise or constant hiss, in which case the opposing audio stream should be used.

The post-processing techniques described below were applied in Vegas projects at the time of editing. Audio and video files were not batch-processed ahead of time because it is very difficult to create the definitive post-processing plug-in chain. By keeping the original files and applying the plug-ins on a "need basis," all original files were kept unaltered. Furthermore, Vegas's ability to process a variety of effects in real-time as well as save and apply presets across tracks made audio post-processing quite fast and efficient.

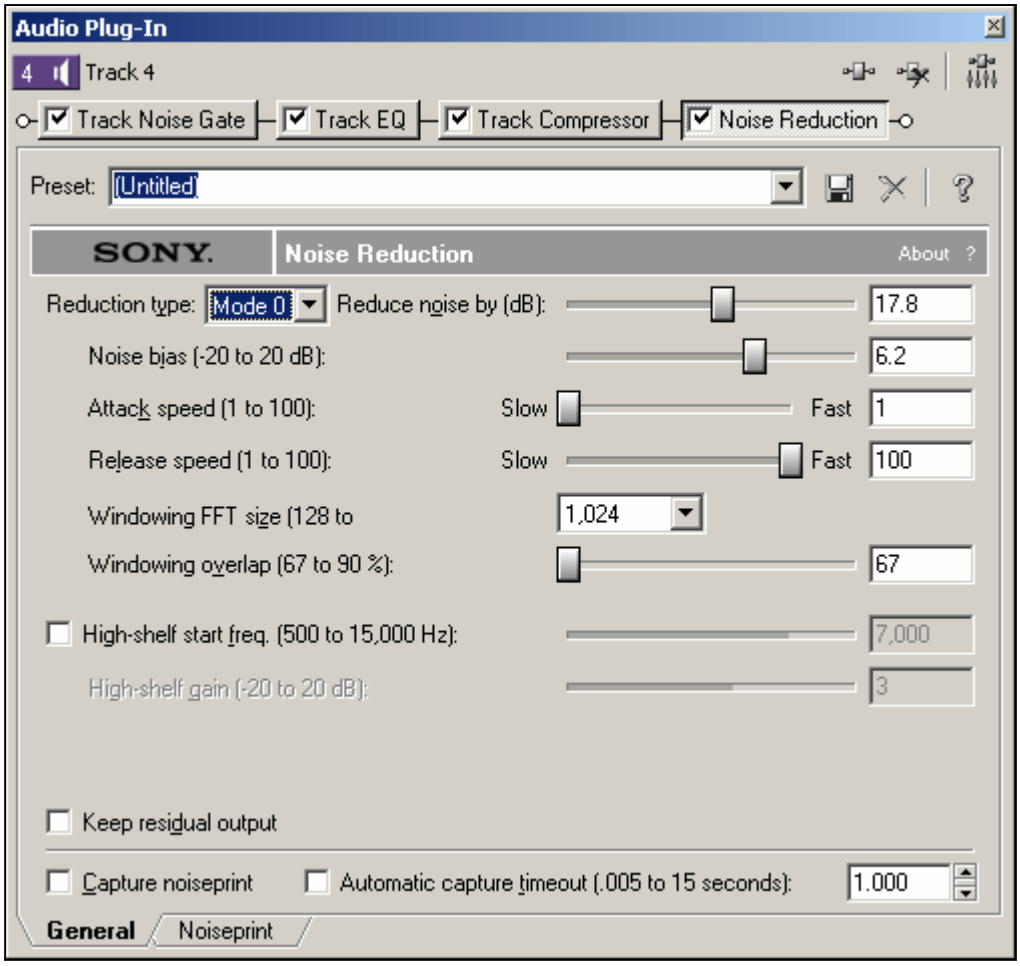
All audio post-processing should be done with a pair of high quality headphones. Regular speakers will not accurately reproduce the finer audio details.

Audio from each separate recording session was allocated a separate track in Vegas. This allowed for easy across-the-track application of filters and plug-ins. The projects were also sufficiently short in length to allow for use of this system without a very high number of tracks.

Noise reduction:

Sony's "Noise Reduction" plug-in was used for removing consistent microphone hiss. The plug-in works by capturing a "noiseprint" from a section of recording that should be silent, and then subtracting the captured noise from the rest of the audio clip. The process is well documented in the associated help file, and the plug-in works quite well. The settings for each recording session will be different and should be modified to achieve optimal noise reduction without introducing distortion.

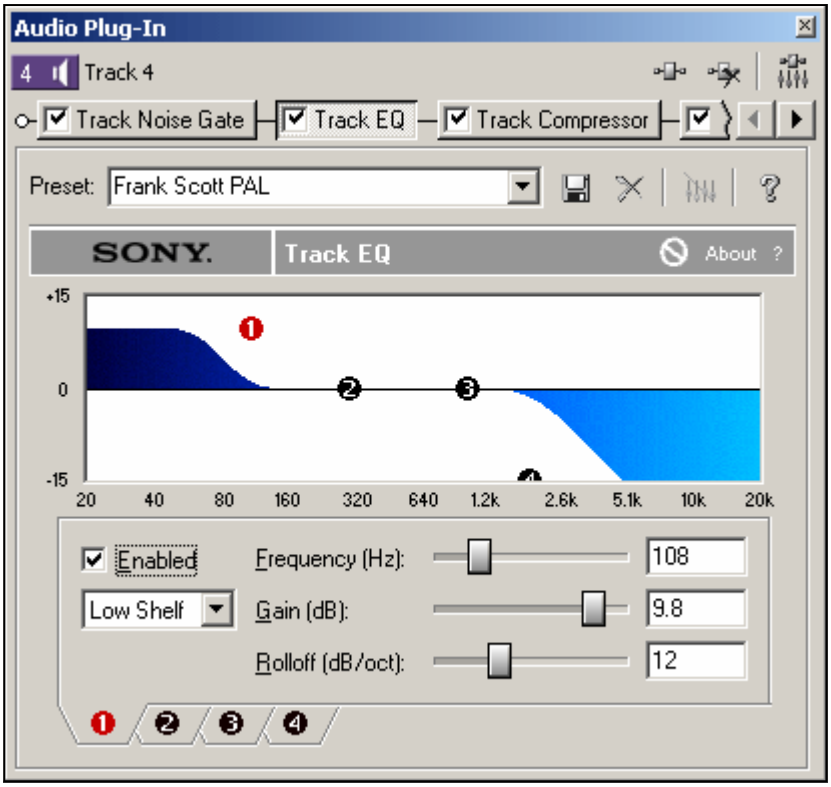
Presets should be saved and re-used for removing noise from the same recording session across multiple projects.



Matching Varying Sound Sources:

Matching audio qualities between the lavaliere and dynamic microphone is a somewhat difficult task. The dynamic microphone was not well suited for recording voice from a distance, and tended to produce audio recordings that were low amplitude, had a high-pitched hiss, and were generally leaning towards the high frequency range. In addition to noise reduction, the following techniques were employed to match the two sound sources:

- The Vegas “normalize” switch was enabled for all audio tracks (edit -> switches -> normalize)
- Volume was reduced to -5.0dB for all lavaliere-recorded tracks
- Volume was increased to 5.0dB for all dynamic-microphone recorded tracks
- The equalizer plug-in was used to boost the low frequencies and kill the high frequencies of recordings made with the dynamic microphone. Like with the noise reduction plug-in, presets should be saved and re-used for the same recording session across multiple projects.



Working with audio recorded from a dynamic microphone at a distance was somewhat challenging. It is recommended that further recordings be done with either lavaliere microphones or dynamic microphones placed close to the sound source (although video will be un-usable in this case).

Software Resource List

ScenalyzerLive	http://www.scenalyzer.com
Renamer by Albert Bertilsson	http://www.albert.nu/Programs/Renamer
Sony Vegas	http://mediasoftware.sonypictures.com
MainConcept DV Codec	http://www.mainconcept.com
Sony Noise Reduction Plug-in	http://mediasoftware.sonypictures.com

Appendix N: Shot List

Bryan Robertson	1:30 PM									
Monday 29/03/04										
Clip Number	Item Number	Good?	Problems?	Notes						
01	05.01.00-01									
02	01.01.07-01			intro, experience in fire services						
03	03.02.02-01									
04	01.02.03-04			history of fire station						
05	04.05.01-01									
06	05.02.00-04									
07	05.02.00-01									
08	01.02.01-02	g								
09	05.02.01-02		p	mistake - may have skipped entry (unsure)						
10	08.01.01-01			board room info						
11	02.02.01-01									
12	05.06.00-01									
13	02.04.01-01	g								
14	02.05.01-01	g								
15	05.03.00-02									
16	02.01.00-04	g								
17	08.04.01-01	g		watch room info						
18	02.03.03-01									
19	04.02.04-01									
20	03.02.02-01, 03.03.01-01			international room info						
21	03.01.01-04, 03.01.01-05, 03.01,01-06									
22	05.02.00-05	g								
23	01.02.01-01									
24	03.02.01									
25	01.02.01-03			historical recollections - evolution of the shift system						
26	04.03.01-01, 01.01.07-02	g		personal experiences - fire pole story						
27	01.02.02-01, 01.02.02-02			personal experiences - fires attended over the years (melbourne club, famous jail)						
28	01.01.07-03			historical recollections - mfb history (land line, 2 way radio)						
29			p	DISCARD						

Barb McCumisky	10:15 AM						
Tuesday 30/03/04							
Clip Number	Item Number	Good?	Problems?	Notes			
01	01.01.05-01			intro, experiences in fire services			
02	05.01.00-01						
03	05.02.00-01						
04	05.02.00-02, 05.02.00-03						
05	05.03.00-01						
06	01.02.01-02			situation at the chief's office			
07	04.05.02-01						
08	05.02.01-02						
09	02.01.00-02						
10	05.06.00-01	g					
11	04.03.01-01	g					
12	05.03.00-02	g					
13	02.05.02-01						
14	02.01.00-04	g					
15	04.02.01-01						
16	02.02.01-03	g		smoke jacket, breathing apparatus			
17	04.02.04-01						
18	06.05.00-01		p	discard (restarted due to door bell)			
19	06.05.00-01						
20	01.02.02-03			historical recollections - the great fire of 1897			
21			p	DISCARD			
22			p	DISCARD			

Keith Sanders	3:30 PM						
Tuesday 30/03/04				**Scenalyzer does not show all breaks in NTSC in tape-index, but fine when captured**			
Clip Number	Item Number	Good?	Problems?	Notes			
01			p	DISCARD			
02	01.01.08-01			introduction, experience in fire services			
03	03.01.02-01						
04	04.05.01-01						
05	05.03.00-01						
06	04.01.00-01			architecture of board room			
07			p	DISCARD			
08	01.02.01-02			Situation at the Chief's Office			
09	08.02.01-01			new chief officer, changed PAL battery			
10			p	**DISCARD (PAL ONLY)**			
11	04.04.02-01						
12	02.02.01-01						
13	02.02.02-01						
14	02.01.00-03						
15	01.02.03-04	g		history of fire station			
16	04.03.01-01	g					
17	02.07.01-02		p	**the jump sheet, NTSC VERSION SPLITS CLIP IN 2 (16, 17)**			
18	02.07.01-01			the pumper ladder, leather belt			
19	02.05.02-01	g					
20	02.01.00-04	g		PAL version has full audio			
21	03.01.01-03						
22	04.02.01-01						
23	04.02.02-01			extended stand pipe			
24	02.03.01-01						
25	02.03.04-01	g					
26	02.03.04-01, 02.03.02-02			sprinkler installation (similar to street fire alarm)			
27			p	DISCARD			
28	02.08.01-02			the watchmen's clock			
29	04.02.03-01			brass doors (international room)			
30	03.01.01-04, 03.01.01-05, 03.01,01-06						
31	06.05.00-01						
32	01.02.01-01	g					
33	01.01.08-02			the designer of the FSMV badge			
34			p	DISCARD			
35	01.01.08-03			personal experiences - civil aviation			
36	01.02.03-02			personal experiences - port of melbourne authority			
37	01.02.01-04			historical recollections - old fire horses			
38			p	DISCARD			

Fred Kerr	10:15 AM							
Wednesday 31/03/04								
Clip Number	Item Number	Good?	Problems?	Notes				
01			p	DISCARD				
02	01.01.04-01			introduction, experience in fire services, fire museum				
03	03.01.02-01							
04	03.02.02-01		p	changed PAL battery, beginning is out of focus				
05	05.01.00-01							
06	04.01.00-01, 08.01.01-01	g		history of the board room				
07	05.02.00-01	g						
08	04.05.01-01, 05.05.01-02							
09			p	DISCARD				
10	05.02.00-02, 05.02.00-03							
11	01.02.01-02			Situation at the Chief's Office				
12	04.04.02-01	g						
13	04.04.02-01	g						
14	02.01.00-02	g						
15	02.02.01-01	g						
16	02.03.04-01							
17	02.02.02-01							
18	02.01.00-01	g						
19	05.06.00-01							
20			p	DISCARD				
21	02.01.00-03							
22	02.04.01-01							
23	02.05.01-01	g						
24	05.03.00-03	g						
25	04.03.01-01	g						
26	05.03.00-02							
27	02.05.02-01							
28	02.01.00-04	g						
29	04.02.01-01							
30	02.03.01-01, 02.03.03-01							
31	02.03.04-01							
32	05.04.01-01	g						
33	04.02.04-01	g						
34	04.02.04-02			structure attached to the watch tower				
35			p	DISCARD				
36	05.02.00-05	g		**END OF TAPE 1**				
37	01.02.01-01	g		**START OF TAPE 2**				
38	01.01.04-02			personal experiences - Living at the fire stations				
39	01.01.04-02	g		personal experiences - Living at the fire stations				
40	01.01.04-02		p	personal experiences - Living at the fire stations (NTSC version cuts beginning (PAL has full))				
41	01.01.04-03	g		personal experiences - humorous				
42	01.01.04-03	g		personal experiences - humorous				

Mike McCumisky	1:30 PM			
Wednesday 31/03/04				
Clip Number	Item Number	Good?	Problems?	Notes
01	01.01.06-01			intro, experiences in fire services
02	02.01.00-03			
03	02.03.03-01			
04	02.03.04-01			
05	02.08.01-01	g		mfb radio system
06	02.03.02-02	g		mfb sprinkler systems
07	04.02.04-01			
08	07.01.01-01			
09	01.01.06-02			personal experiences - working with the firefighters
10	01.02.02-04			personal experiences - cottages fires

Len Greaney	10:15 AM	Recording Notes:		Overhead MIC, poor audio
Thursday 01/04/04				**Scenalyzer does not show all breaks in NTSC in tape-index, but fine when captured**
Clip Number	Item Number	Good?	Problems?	Notes
01	01.01.03-01			intro, experiences in fire services
02	02.01.00-02			
03	02.02.01-01			
04	02.04.01-01		p	missing beginning on both cameras
05	04.03.01-01			
06	05.03.00-02			has some interviewer voice recorded
07	03.01.01-03			
08	03.03.01-01	g		
09	08.05.01-01			
10	01.02.01-03	g		personal experiences - The evolution of the 'Shift' System, personal experiences - humorous
11	01.02.02-05			historical recollections - chemical fire
12	01.01.03-02	g		personal experiences (horses, breathing aparatus, telephone, radio)
13	04.03.01-01			
14	02.01.00-02	g		
15	05.06.00-01			historical recollections - history of the melbourne fire services
16	01.01.03-02			historical recollections - humorous
17	01.01.03-02			personal experiences
18	01.02.03-01			personal experiences - history of the FSMV

Geoff Annal	1:30 PM	Recording Notes:		Overhead MIC			
Thursday 01/04/04				**Scenalyzer does not show all breaks in NTSC in tape-index, but fine when captured**			
Clip Number	Item Number	Good?	Problems?	Notes			
01	01.01.01-01			intro, experiences in fire services			
02	05.01.00-01						
03	05.02.00-04						
04	04.04.01-01, 04.04.01-02	g					
05	01.02.01-02			Situation at the Chief's Office			
06	04.04.02-01						
07	04.03.01-01						
08	03.01.01-03	g					
09			p	DISCARD, light went out (not replaced)			
10	04.02.01-02	g		er - marble stair case			
11	01.02.01-04	g		historical recollections - humorous (horses)			
12	03.03.02-01						
13	06.02.00-03						
14	01.02.01-01						
15	01.01.01-02			personal experiences - working in the special services			
16	01.02.03-03			historical recollections - history of the special services			
17	01.01.01-03			personal experiences - ghosts			
18	01.02.02-08						
19	01.01.01-04			personal experiences - general thoughts (off topic)			

Frank Scott	10:15 AM	Recording Notes:		Overhead MIC
Saturday 03/04/04				
Clip Number	Item Number	Good?	Problems?	Notes
01	01.01.09-01	g		intro, experiences in fire services, life history
02			p	DISCARD
03	05.03.00-01	g		
04	01.01.09-02, 03.01.01-01	g		also personal experience with brass helmet
05	02.02.01-01, 02.02.01-02	g		also proto breathing aparatus
06	02.01.00-03	g		
07	04.03.01-01, 01.01.09-03	g		also personal experience with brass pole
08	02.05.02-01, 01.02.01-05	g		also historical recollections with bicycle
09	02.01.00-04	g	p	possibly did not record PAL version
10	04.02.01-01	g	p	PAL version missing beginning
11	02.03.04-01	g		
12	04.02.04-01, 02.07.01-01	g		also explanation of pompier ladder
13	05.02.00-05	g		
14	06.02.00-03, 01.02.02-06	g		personal experience with valour medal
15	01.02.01-01	g		
16	01.01.09-04	g		personal experiences - humorous

Stewart Wilkinson	12:30 PM	Recording Notes:		Overhead MIC
Saturday 03/04/04				
Clip Number	Item Number	Good?	Problems?	Notes
01	01.01.10-01			intro, involvement in the fire services
02	02.01.00-02			
03	02.02.01-01			
04	02.01.00-03	g		
05	04.03.01-01	g		
06	05.03.00-02			
07	03.01.02-02			description of tunics in ER
08			p	DISCARD
09	01.02.02-07			federal hotel fire 1952
10			p	DISCARD
11			p	DISCARD

Bill Bayley	1:45 PM	Recording Notes:		Overhead MIC, PAL version has mic audio, NTSC has camera audio			
Saturday 03/04/04				**Scenalyzer does not show all breaks in NTSC in tape-index, but fine when captured**			
Clip Number	Item Number	Good?	Problems?	Notes			
01	01.01.02-01			intro, experiences in fire services			
02	08.02.01-01			portraits of MFB presidents			
03	08.01.01-01		p	**board room info, 3+4 Are Combined in NTSC**			
04	04.05.01-01, 01.02.04-02, 01.02.04-03			also sir henry killet, bellinger			
05	05.02.00-02, 05.02.00-03			**5+6 Are Combined in NTSC**			
06	05.03.00-01						
07	01.02.01-02			Situation at the Chief's Office			
08	05.02.01-02						
09	04.04.02-01	g					
10	02.02.01-01, 02.02.02-01	g					
11	05.06.00-01	g					
12	02.01.00-03						
13	04.03.01-01	g					
14	03.01.01-03	g					
15	08.05.01-01			international room info			
16	08.06.01-01	g		medal room info			
17			p	DISCARD			

Appendix O: Corporate Sponsorship - Audio Tour Implementation

A number of MP3 hardware manufacturers were contacted with the intent of aiding future work in funding the audio tour system via corporate sponsorship.

Potential corporate sponsors with Australian representation identified:

- Philips / Nike
- Creative Labs
- JNC
- iRiver
- EFx

Audio tour unit needs identified:

- solid-state, built-in memory (128mb preferred)
- large, clear buttons
- conservative design
- built-in rechargeable battery
- MP3, wma support (preferred)
- no track auto-advance
- no option for deleting content in player
- attachment for neck strap
- clear lcd
-

The following companies were contacted with regard to a full implementation of the audio tour project:

JNC:

Sydney-based company selling JNC, iRiver, Datum, Mpio MP3 players and digital recorders in Australia.

http://www.jnc-digital.com.au

02 9264 8677

elena@datum-jebsen.com.au

We spoke with Elana who expressed considerable interest in corporate sponsorship and requested additional information via e-mail. JNC seems to have relatively small Australian representation, however according to Elana the company was searching out sponsorship opportunities. Below is the e-mail that we sent to JNC. A graphically formatted document which was also sent to JNC is included several pages on. No definitive response was received.

Hi Elana,

My name is Boris Masis, I spoke with you earlier today regarding possible JNC sponsorship of an audio tour at the Fire Services Museum Victoria. I am part of a four-person group that is working with the museum to develop the tour and am in charge of locating corporate sponsorship for the museum.

The museum is situated at the site of the original Melbourne Fire Brigade and houses the largest collection of fire-related memorabilia in Australia. The goal of the audio tour is to allow museum visitors to hear first-hand stories from fire fighters regarding the various fire appliances and vehicles, helmets, uniforms, and other fire related memorabilia contained in the museum.

The content for the tour is currently in post-production and should be ready to go in two weeks time. We are currently looking at obtaining about 20 MP3 hardware player units to use in the tour. The devices will likely be used by a couple hundred museum visitors each week, so it may also be a good opportunity to get JNC players in the hands of potential customers.

We have identified some requirements for the hardware players:

- solid-state, with built-in 128 MB memory
- large, clear buttons
- no option for deleting content in player
- attachment for neck strap
- clear LCD
- conservative design (preferred)
- built-in rechargeable battery (preferred)
- wma support (preferred)
- no track auto-advance (preferred)

Looking at the JNC product line, the JNC SSF-31 seems to be a great match, but perhaps you can make some recommendations.

We are looking to obtain the units in the immediate time frame. It would be great to have a unit to demo in 2 weeks time, and assuming everything goes smoothly, to have all the units for the implementation by May 15th.

Please contact me either by e-mail or by calling 04 0061 6970 (ask for Boris). We hope that you are interested in the project and greatly appreciate your support. Recognition will be given to corporate sponsors of the project via a sponsorship board in the museum.

I look forward to hearing from you,

- Boris Masis

Philips:

Marketing department

1300 651 993

www.philips.com.au

http://www.nike-philips.com

We left several voice messages. The calls were returned with voice messages by Millie May, however no conversation was established.

EFx:

Business Development

bd@efx.com.au

http://www.efx.com.au/company/contacts.asp

No phone number is available. We sent an e-mail similar to the JNC e-mail above, no reply was received.

Creative Labs:

Marketing Department

(02) 9021 9800

http://australia.creative.com/contact/

We left several voice messages to which no reply was received.

The following pages are of an example graphical funding proposal. This proposal was submitted to JNC. See recommendations section 6.2.1 for suggestions on future proposal use.

Fire Services Museum VICTORIA

WPI

JNC—Sponsorship Proposal

Brief

A four person student group from Worcester Polytechnic Institute (WPI) in the United States is working with the Fire Services Museum of Victoria to create an audio tour system. The group is currently seeking audio hardware manufacturers to donate players for use in the audio tour.

Project Background

The Fire Services Museum of Victoria is the largest fire-memorabilia museum in Australia. The museum is a non-profit organization and receives no government funding. The Fire Museum is currently in the process of developing an audio tour system featuring the stories of a number of retired and active fire-fighters.

Four American students with experience in creative media are currently working on this project. The students are non-paid.

A number of recorded interviews have been conducted by the students with the help of sponsors. This audio tour content is currently in post-production. Editing will be complete at the beginning of May.

A capture from an interview session conducted by the students.

Desired Sponsorship

The museum is searching for a corporate sponsor to provide the audio player hardware for use in the audio tour. 20 mp3/wma player units are desired. The sponsor has the potential to familiarize a large number of museum visitors with the company's products.

Audio Player Requirements

- solid-state, built-in memory (128mb preferred)
- large, clear buttons
- conservative design
- clear LCD
- no track auto-advance
- no option for deleting content in player
- attachment for neck strap
- built-in rechargeable battery (preferred)
- wma support (preferred)

The JNC SSF-31 appears to be a close match.

Sponsor Recognition

Sponsors of the Fire Services Museum Audio Tour Project will be thanked in the final track of the audio tour as well as recognized via a sponsor plaque in the museum.

Contact Details

A capture from an interview session

Please contact Boris Masis by April 25th to discuss JNC's potential role as a sponsor of the audio tour project.

Boris Masis
boris@borism.net
0400 616 970 (ask for Boris)

Fire Services Museum of Victoria
http://www.alphalink.com.au/~fsmvic/
39 Gisborne Street
East Melbourne, Victoria, 3002

Appendix P: Corporate Sponsorship - Audio Tour Prototype

Funding the production of the audio tour prototype was made very affordable with the help of corporate sponsorship. Appendix E lists the equipment that was used in the production cycle as well as the organization that supplied it.

The main sponsor was the FireVision TV studio operated by the MFB. Mike Hollander at the studio is a personal contact of Mike & Barb McCumisky at the museum. FireVision offered a lot of equipment for a week's loan based on this personal relationship. Mike Hollander said the loans were OK because the production was "brigade related."

A number of equipment rental houses were contacted during the later stages of the project in order to obtain the necessary equipment for capturing the miniDV content. FireVision was not contacted in this regard because the studio had already been very generous with prior loans. In total three rental houses were contacted, and all were highly responsive.

The combination of in-person requests, not asking for extensive equipment loans, offering the companies recognition in the final product, as well as well-formatted printed proposals generated very positive results. An example sponsorship proposal is included on the following pages. The use of similar methods is highly encouraged in further sponsorship-seeking activities. The specific results of each of the three sponsorship efforts are below. The contact

information for each organization and associated individual can be found in Appendix E.

Lemac:

This rental house targets higher-end productions. Lemac was very responsive to our request, however, and offered free rental of a Sony miniDV camcorder for two days. Insurance for the camera (10% of the usual rental price) did have to be paid.

Michaels:

This busy rental house and retail store was likewise highly responsive to our sponsorship request. Michaels offered free rental of a Sony miniDV camera for two days, though the company required an $800 deposit which was refunded at the end of the rental period.

OpenChannel:

OpenChannel specifically supports small independent productions. The organization has programs for full sponsorship of projects as well as applications for attaining up to a 50% discount off the rental price. Both application types were submitted, as a result of which the organization offered 50% off the rental price of a three chip miniDV camera. This option was more expensive than the other alternatives, however. Nonetheless, OpenChannel is definitely worth following up with in further productions.

Fire Services Museum VICTORIA

WPI

Michaels —Sponsorship Proposal

Brief

Four students from Worcester Polytechnic Institute (WPI) in the United States are working with the Fire Services Museum Victoria to create an audio tour system. The students have recorded interviews with a number of fire-fighters and seek equipment to allow them to capture the interviews.

Project Background

Worcester Polytechnic Institute conducts over-seas social science projects for undergraduate students. There are four students working with the Fire Services Museum Victoria in Melbourne at present. The museum is a non-profit organization and the students are non-paid.

The students are conducting a two part project:

- create a multimedia archive of fire-fighter stories
- create a prototype audio tour for the museum

A screenshot from an interview session conducted by the students.

Ten interviews with fire-fighters have been conducted using equipment loaned by the FireVision television studio operated by the MFB. This equipment is no longer available for loan. The students now need to capture the audio content from the tapes to create a prototype of the audio tour for the museum.

Desired Equipment

The students are looking for the following equipment for a 1 day loan:

- 1 miniDV camera or deck capable of playing NTSC (may be an undocumented feature)
- 1 firewire cable from camera/deck with a 6 pin male output connector

Michaels —Sponsorship Proposal

Sponsor Recognition

Sponsors of the Fire Services Museum Audio Tour Project will be thanked in the final track of the audio tour as well as recognized via a sponsor plaque in the museum.

Contact Details

The students are looking for equipment ASAP. We apologize for the short notice. If at all possible, it would be most beneficial to use the equipment around the 19th and 20th of April.

A screenshot from an interview session conducted by the students.

Boris Masis
boris@borism.net
0400 616 970 (ask for Boris)

Fire Services Museum Victoria
http://www.alphalink.com.au/~fsmvic/
39 Gisborne Street East Melbourne

Worcester Polytechnic Institute International Global Studies Division
http://www.wpi.edu/Academics/Depts/IGSD/Projects/

Appendix Q: Attached DVD Disk

Several DVD data disks were created as part of the current project. These disks can serve as reference for future work as well as a backup of existing project work.

The first disk, included with the proposal submitted to WPI as well as located at the museum, has the following contents:

- This IQP report document as well as all supporting files used in the creation of the various report sections
- The slides from the final presentation given by our group
- The compiled "audio tour" walk-through video as shown at the final presentation (located in the final presentation folder)
- The five edited video tracks exported in PAL DV
- The five edited audio tracks exported in the mp3 format
- A collection of graphics and logos relevant to WPI and the Fire Services Museum of Victoria
- A collection of photographs taken throughout project work
- The entirety of the CD included with the 2003-2004 WPI IQP report

A DVD disk containing a backup of the audio-only files captured from the PAL version of all conducted interviews is located at the museum. These files, along with a number of captured video files are also found on the museum's computer system. A final DVD disk containing a backup of relevant project software as well as drivers for the museum's computer system can also be found at the FSMV.

Appendix R: Audio and Microphone Suggested Practices

In an audio recording the microphone acts as a transducer, converting acoustic sound waves into an electrical signal (Shure, 2004, Critical Distance and Microphone Placement). Once the audio signal is captured by the microphone, it can be recorded, modified, amplified, or transmitted. Many different types of microphones with different recording properties exist, however no microphone can distinguish between desirable sounds and undesirable noise. Therefore, understanding the different types of microphones and their properties is critical in choosing a microphone that will pick up as much of the desirable sound and as little of the noise as possible.

Types of Microphones

Microphones can be categorized by two different characteristics. The first characteristic refers to the construction of the transducer element (the part of the microphone that converts the acoustic waves to an electrical signal). Transducer elements are categorized into either dynamic or condenser types (J&R, 2004, Microphones). The other characteristic refers to the package that the transducer element is placed in, and spans a wide variety of types such as a handheld unit, a clip on lavaliere, or boom microphone.

Dynamic microphones are constructed using a diaphragm, magnet, and wire coil (Media College, 2004a, How Microphones Work).

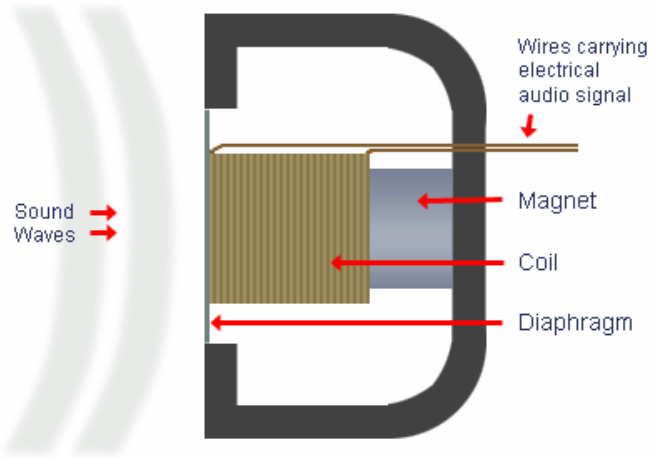


Figure 10: Dynamic Microphone

The magnet is fixed inside the microphone, with the wire coil free to move around the magnet. Acoustic waves cause the diaphragm to vibrate, moving the wire coil within the magnet field of the permanent magnet resulting in a voltage across the coil terminals. This voltage represents the acoustic wave at the diaphragm, and can be amplified and recorded. Such microphones are usually very rugged; however they do not respond to all acoustic waves in exactly the same manner (do not have a flat frequency response) and as a result are often designed only for a particular application such as recording musical instruments or voice.

Condenser microphones use a compacted carbon compound with attached electrodes as a transducer element (How Microphones Work, 2004, Media College).

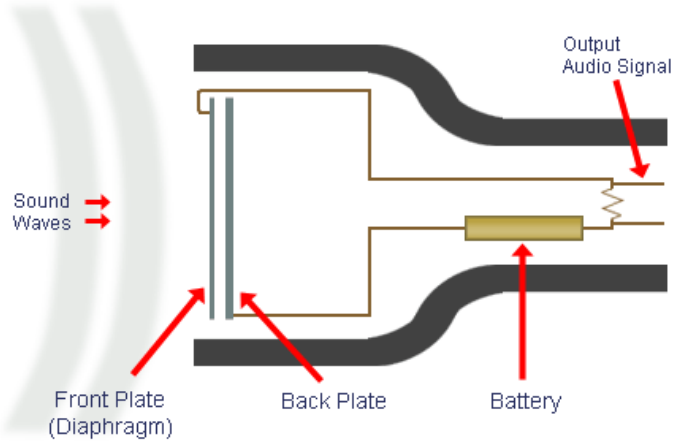


Figure 11: Condenser Microphone

Acoustic waves compress the carbon compound, changing the electrical properties of the carbon between the electrodes. This does not result in a voltage being created directly across the electrodes; rather it results in a change in impedance (resistance) across the terminals. In order to record this impedance, an external voltage (called phantom power) must be applied across the terminals. The change in impedance will then result in a small fluctuation of the voltage across the terminals. Because of this, condenser microphones require either a powered mixer or battery pack to supply phantom power. Condenser microphones are typically very sensitive and prone to distorting in high volume applications, however the have a much flatter frequency response and as a result reproduce sounds more faithfully.

Dynamic and condenser microphones can be purchased in a number of packages. The most familiar is the handheld microphone, which is used by talk show hosts, stand up comedians, or for vocals in musical groups. Most handheld

microphones are dynamic. Lavaliere microphones are usually very small so that they can be placed on a performer's body without being visible or obtrusive as a handheld may be. Lavaliere microphones are usually condenser types. For interview purposes, lavaliere condensers are most often used, as they are small, sensitive, and visually discreet.

Microphones respond differently to sounds coming from different directions, and each type of microphone has its own pick up pattern. There are four main pick-up patterns: bi-directional, cardioid, omni-directional, and unidirectional (Types of Microphones, 2004). Bi-directional microphones (See Figure 12) are used for interviews when the interviewers as well as the interviewee's voice needs to be heard. This type of microphone picks up sounds from two opposite directions. News broadcasters often use this type of microphone when interviewing a person.

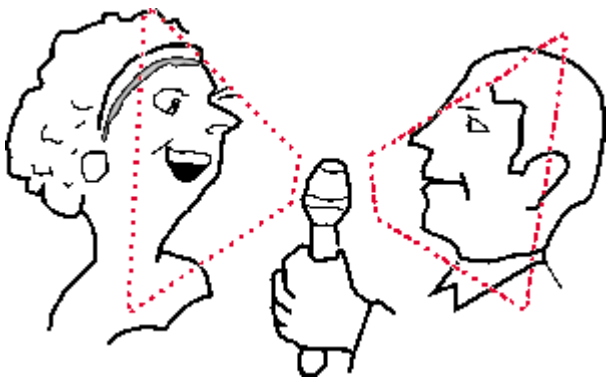


Figure 12: Bi-directional Microphone

Cardioid microphones respond to sounds directly in front, but tend to attenuate sounds from either side or from behind. They are used primarily by stage

performers, often singers or politicians. Figure 13 shows the pick up pattern for a cardioid microphone.

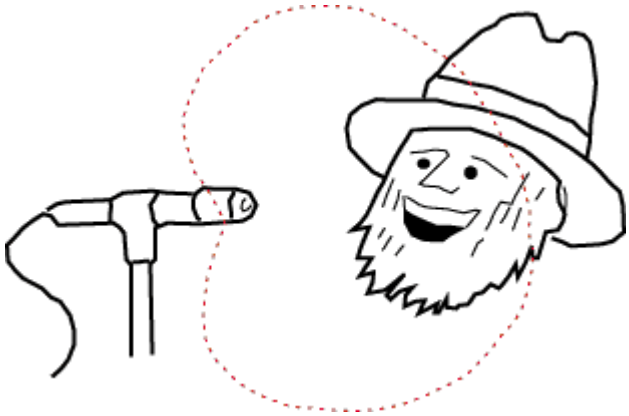


Figure 13: Cardioid Microphone

Omni-directional microphones pick up sounds equally in all directions (See Figure 14). Since all sounds are picked up, limiting the environmental noise provides the best audio. They most often used with group interviews, conference calls, or focus groups.

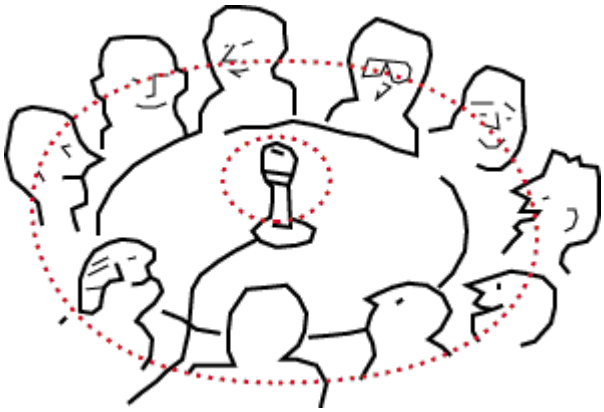


Figure 14: Omni-directional Microphone

Shotgun microphones are used to capture sound from large distances (See Figure 15). These microphones are very sensitive to any sound coming from a

small area directly in from of them. They are used primarily in film production and would not be of much use in an interview setting.

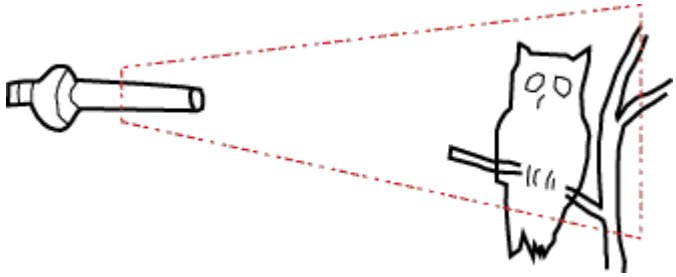


Figure 15: Shotgun Microphone

Microphone Placement

Microphone placement is split into two categories based on the distance of the microphone from the subject. Close micing refers to when the microphone is a few centimeters to a half a meter away from the speaker (Microphone Placement, 2004). Distance micing refers to when the microphone is a half meter or more away from the speaker. Close micing gives the best signal to noise ratio and results in a "tight" sound. When using distance micing, a lot of noise and room reflections will be introduced, but the noise can also add a background sound that brings a sense of spaciousness to the recording. For simple documentary purposes, close micing is highly preferred as it records the voice faithfully without adding distracting environmental noises.

Noise

Ideally, microphones would generate an electrical signal which correlates perfectly with the acoustic waves it its transducing; however every microphone

introduces some amount of error into the electrical signal. These errors fall into two categories: signal noise and non-linearities. Signal noise can come from any number of sources such as environmental ambient noise or inductively coupled electrical signals, but will always manifest as audible noise on the recording. Non-linearity errors are more subtle in cause and effect, and occur when the microphone responds differently across the audible frequency range and result in distortions of the original acoustic wave.

Equalizers

An equalizer allows frequency bands in an audio signal to be attenuated separately (Equalization, 1996, Scott Lehman). This feature is commonly found in many consumer audio devices such as stereos or amplifiers, or in most professional audio devices. The two most relevant uses of an equalizer are to reduce the amount of signal noise and non-linear distortions.

Signal noise, particularly inductively coupled electrical noise, can be identified as being of a particular frequency. In the case of inductively coupled noise from power mains, the noise will almost always manifest as an audible low frequency hum at twice the service mains frequency (ex: in countries with 240 V/ 50 Hz service, inductively coupled noise will appear as a 100 Hz buzzing.) Since equalizers allow specific frequency bands to be attenuated separately, they are particularly well suited for removing this sort of noise. In this case, a slider for the 100 Hz band on the equalizer would act as a volume control only for the noise. This principle can be applied to any unwanted noise which occupies a

specific range of frequencies. However, care must be taken not to attenuate any frequency in the range of the human voice.

Non-linear distortions can also be corrected with an equalizer. These errors are introduced when the microphone responds differently over the frequency range of human hearing. The result may be that a particular sound in a person's speech is over emphasized, or unnecessarily attenuated. A common example of this is that many microphones respond very strongly to hard S sounds, which can cause a person's voice to sound unnaturally hissy. An equalizer can easily attenuate this frequency, making voice recordings sound natural. For best results in recording audio, every band on the equalizer should be adjusted individually to obtain an even response across the entire frequency range.

Compressor / Expander

The human ear is particularly sensitive to changes in sound levels, so unusually loud or soft sections of audio will tend to stand out, and can be distracting if not corrected. The compressor and expander together can correct these problems so that the result is a continuous, even audio stream. The compressor is used to limit the level of the audio, and can be thought of as a very fast acting volume knob that turns itself down whenever the audio levels exceed a certain threshold. The expander serves a complimentary function by boosting the volume when the audio level falls below a certain threshold. Together, the compressor / expander pair can compensate for audio that varies between very loud and very soft, resulting in a more natural sounding recording. This is

helpful if an interviewee tends to be too close or far away from the mic, or if they vary the volume of their voice.

Electrical Considerations

There are several important electrical considerations that will ensure the best audio quality is attained. The first is to minimize inductively coupled noise, and the second is to ensure that quality power is being delivered to the audio equipment.

Inductive coupling occurs whenever two electrical cables are parallel to one another, which causes the signal from one cable to leak onto the other. This can be particularly problematic when a microphone or other audio cable is run parallel to a power cable. The inductive coupling of noise from power cables can be minimized by making sure that audio cables only cross power cables at a 90 degree angle.

Similarly, electrical circuits with computers or large mechanical equipment can introduce noise onto power lines. If sensitive audio equipment is plugged into the same circuit, this noise can propagate through the device and into the audio. This problem is easily resolved by placing a voltage regulator between the power source and any audio or video equipment.