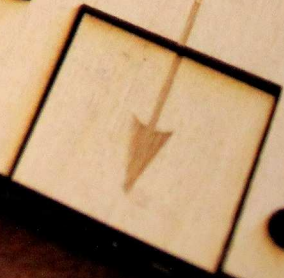


UNUSUAL ANIMATION TECHNIQUES
MICKAEL PITARRESI
DES 518
MAJOR PROJECT
MAY 2015



UNUSUAL ANIMATION TECHNIQUES (STRATASTENCIL)

MAJOR PROJECT 2015
MICKAEL PITARRESI

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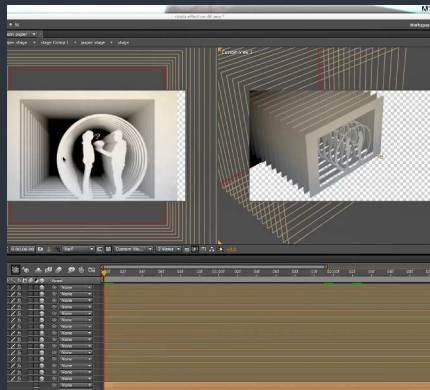
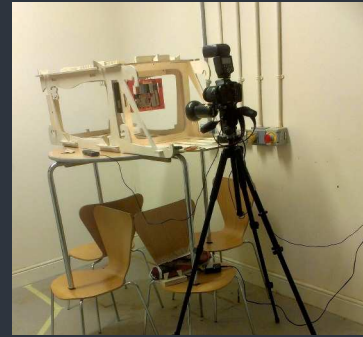
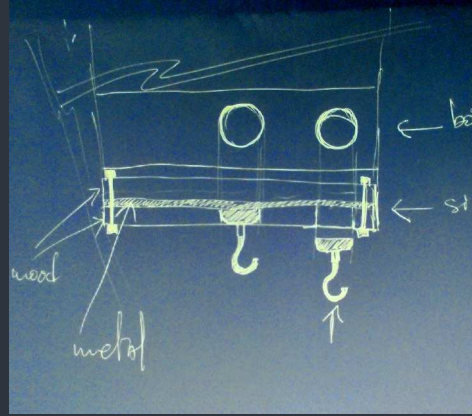
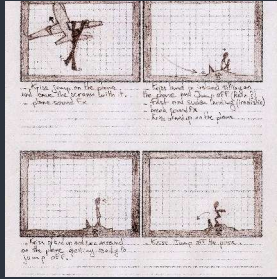
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ABSTRACT

This book documents the creation process of a short video piece exploiting and experimenting with the Stratastencil method of animation. It highlights the different stages of an unusual and complex design development. It also provides an emphasis in the manipulation of tools developed and used in the creative and technical parts of this production. It is a reflexive essay divided into different sections that progressively explains the development aspect of such a project. This process involves a combination of different practices such as craft work, diverse visual expression and digital fabrication.



INTRODUCTION

The focus point of my work often evolved around animation, whether it was purely traditional or part of a sub technique developed from established methods. The project: “Unusual Animation Techniques” is a personal expressive piece, representing a series of life changing events.

The “Stratastencil” technique used for this project has rarely been used in its original form. This is due to the fact that it involves a long and painstaking process. It has, however, been imitated digitally (computer generated) multiple times in other productions. By observing and experimenting with unusual resources, the intention was to develop this particular technique, combining it with new digital fabrication technology, thereby formulating an original approach. The initial innovation was the breaking down of video footage into stills in order to design and compose the series of stencils used as a basis for the animation. Equipment such as user-friendly CAD/CAM digital design technology tools and vector graphic editor software were used in the creation of these stencils. Furthermore, this machinery has also facilitated the conception of a specific shelving unit that enables the particular additive process employed, saving time during the frame shooting stage. Throughout the course of this project the additive process, for which layers of stencils were combined to create the animation, has also been previously generated on a computer using the Adobe Creative Suite (Adobe Systems Incorporated). These “preview” versions have been necessary to test the functionality of the mediums added to this techniques and for observation purposes.

This report details each step and different stage of the production as follows: design concept (pre-production), design production and the final design stage (post-production). These precede personal reflections, an evaluation and conclusive writings related to the experience. The ambition for this project was to redesign, refine and finish an earlier production with the resources and development skills lacking during the initial conception of the design idea. More specifically the aim was the management of the different parts that constituted the project, improving particular working skills such as communication, collaboration and adaptation abilities. During the course of the project alternative practical knowledge in the method was also acquired. By observing and recording the possibilities that emerged from this project, my aim was also to develop my skills in animation through analyzing unusual techniques and add another dimension to my abilities in the field. Consequently my portfolio content was expanded and now demonstrates a higher level in the practice of traditional and unusual techniques in animation. In addition, my level of expertise upon completion of the project will enable me to host facilitation workshops in the method.

RESEARCH - REFLECTIVE BLOG - CONCEPT

Although research had to be undertaken as the first step, it was a stage that practically ran in parallel along the entire project. The complexity and volume of the tasks meant that constant investigation, exploration and study were necessary in order to discover and learn new methods, solving each of the challenges encountered. This research included watching tutorial videos that explained particular manipulation of specific tools within the range of software utilized. It also meant observing all aspects of different productions to find inspiration and analyzing each step to determine the diverse tools employed.

Keeping a reflective blog during the course was requested in order to observe some of the student learning outcomes. It showed the different researched topics along the module and some personal reflections on design matters. For this project the blog has helped to share some of the material – including web sites, tutorial videos and other productions – that has influenced and informed this assignment. It has greatly encouraged good documentation habits when preparing a project (Dreamboxprod 2012).

When investigating the Strata-stencil technique, the research focused mainly on two particular artists. These were Javan Ivey, creator of the Strata-stencil technique who was previously contacted and currently still provides feedback. Javan created the animation *My paper mind* (2007), a video that greatly influenced this project. Subsequently the work of David Daniels was studied. He revived, named and refined the “Strata-cut” animation technique in the mid 1980’s (*Freaked* 1993). This came to be one of Javan Ivey’s influences for the conception of the



“Strata-stencil” method. A Tess Martin production was also observed, where the artist displayed some documentation of the work, which was also part of an exhibition (*slice in time* 2014). Most informative material found was computer-generated imitations of the process, making it an entirely different experience in regards of production. *The me bird* (2013) by 18 Bis, *The right blend* (2010) by Nado Costa and many others became sources of information. Some very helpful tutorials equally made it possible to obtain good results and rough preview of experiments regarding the visual intentions.

During the second year in this course the class learned how use a green screen, allowing the capture, manipulation and edit of a particular action staged in front of the screen. Having this knowledge and the possibility of referring to this previous classwork made it easier to incorporate and use this screen capture in the conception of the frames (Pixel rogues 2013). Designing the vectors led to examining many different artistic productions, silent films, poster design, modernist works (especially illustrations) and photography - mainly black and white as they are easier to render into vectors. With regard to contrast, light and dark, the illustration work of German artist Kaethe Butcher was observed (Cultura Inquieta 2004). More illustrative line work was found on a reflective blog by Trista Vercher (Illustration5 2013). The photographic work of Heidersberg Heinrich was equally interesting for its surrealism and experimental approach (cultura inquieta 2004). Another article by Patrick Jude Ilagan on fashion illustration in which the work from various artists was found (Youthdesigner 2013). Multiple DIY projects in an article by Linda D. were observed in order to discover new ways to utilize different recycled materials (Boredpanda 2012). Some images of products and design ideas were discovered on another website Nedhardy (2011). A remarkable piece was found among many videos called “The adventure of prince Achmed” Produced in 1926, it is an early German cut out animated fairytale by Lotte Reiniger and was found to be attractive for its shadow puppet technique and original colour tinted prints.

Concerning the technical aspects, research was put into looking at the different possibilities within the range of software available in order to achieve the results desired. As a large amount of files were to be treated, automating file conversion or applying an effect on a series of files was a necessity in order to save time. The vector editing open-source application used to design files for the laser cutter had to be learned. Inkscape (Nathan Hurst), an open-source vector graphics editor, has the tools to convert the files but this conversion could not be automated within this software. The files had to be converted with another piece of software found in the Adobe Creative Suite, Illustrator (AI). This software allowed for automation by the use of recorded and saved manipulations that could then be

automatically applied to a series of other files. In addition the software included in the Adobe Creative Suite worked in collaboration with one another meaning that files could be easily transferred to the different applications and edited without any compatibility issues. Again, a lot of research on the matter was done investigating on adobe.com, some information from inkscapeforum.com and tutorial videos found on YouTube.

Different resources of sound were looked into, searching for royalty free music and sound effects on different websites such as the material that freesound.org, freesfx.co.uk or even youtube.com provide. Apps like Beatwave (Collect3 Pty Ltd) and Lauchpad (Focusrite Audio Engineering Ltd) were also considered to compose the music.

Regarding the building of the first shelving unit, testing its functionality, revising and improving its design, the main goal was to avoid the loss of time by unhooking and hooking the stencils from one position to the other. Previous productions set-ups found online were source of inspiration and some animators have also been approached for advice on the matter. Other specifications needed to be defined, for example the size of the stencils hung on the unit or the creation of a dedicated space for the camera and tripod. In regards of resources, the type of tools available and the budget, an investigation took place looking for suitable materials. Unquestionably, wood was the cheapest, strongest and the easiest to work with. Thoughts were also put into making the unit portable and/or foldable to save storage space when not in use. It could also have multiple purposes, for example the bottom panel could also be used as a light table or the unit itself used as a traditional stop motion animation stage.

The material for the stencils was experimented with in an attempt to find alternative visual results. These experiments also helped to determine the appropriate material to be cut with a laser-cutter. After testing and examination, paper or thin card was found to be the most suitable material to use. For this stage the research led to the Fablab, a digital fabrication workshop located in Derry, which helped to take the design further with digital fabrication technology. The staff advised research for design inspiration in sites such as thingiverse.com or instructables.com. These are websites on which designers make their productions available for observation. Some designs can be downloaded and modified and instructions are provided on particular construction protocols. Previous designs directed and produced in the Fablab were also made available in order to gain inspiration and decide on a starting point for the design development. A regular attendance to learn and acquire the experience needed was required so that the software could be used efficiently and the machinery operated in a safe manner.

DESIGN PROCESS

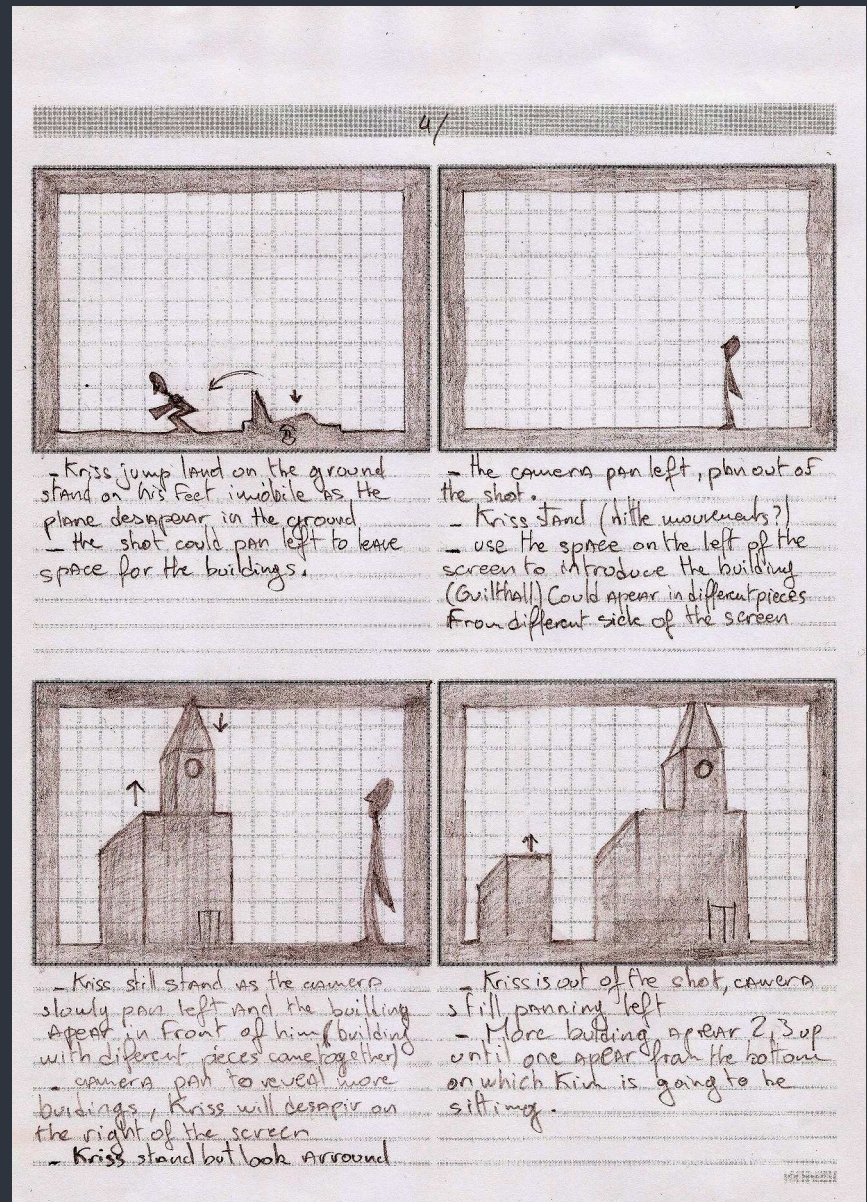
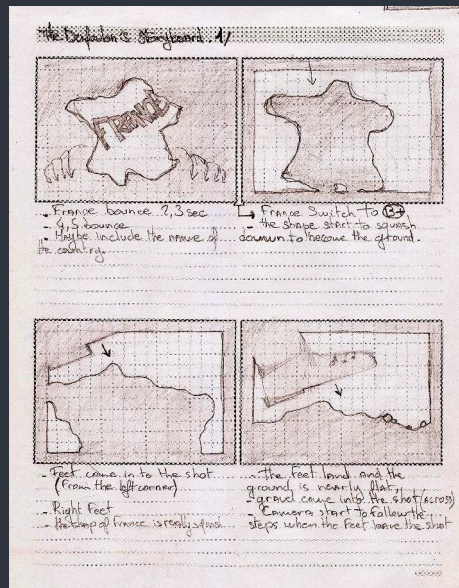
Before the design process could start, further tests were required in order to estimate a time frame for the project and build a realistic schedule. Time management has been a crucial skill to gain and although the agenda may not always have been respected, the real value of time management is to be aware of the current status of the project at all times. It was vital to be aware of whether or not the time frame was followed and therefore have the ability to rectify, adjust or redesign the schedule.

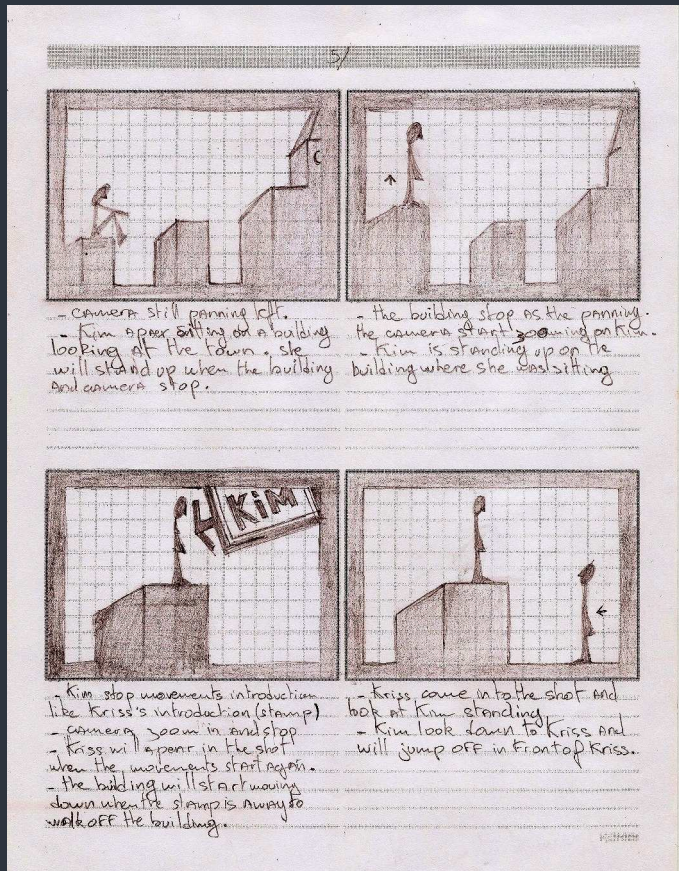
PRE-PRODUCTION

This stage was highly important; it was where ideas and assets of the production were going to be concretized. From the story line to studio time, this stage was where all parts of the project were laid out, organized and communicated to all associates taking part in the project. Feedback was required from everyone involved and communication became essential.

STORYLINE - STORYBOARD - ANIMATIC

This animation is a personal expressive piece, representing a series of life changing events and explaining the union of two principal characters in a short representation of their journey through life as a couple. The story is inspired by the life of a childhood friend Kriss and his wife to be Kim. Appearing to be a common path of life for many, I aim to represent my personal perception of these events and the importance of these memories. Indicating that the unique aspects of this common path is in everyone's individual perception of these happenings, depending on the relation to the subjects, the different points of view and conditions at the time of these events.





Developed from the storyline, a storyboard was created. It has been an indispensable tool that contained the sketched key frames of the animation. Giving details on visual intentions as well as on the technical requirements, it was a document that was to be heavily used as a guidance tool during the animating stage. To complement it, an animatic was put together using the scanned key frames of the storyboard. This video file informed on the flow and rhythm of the animation and helped to determine the speed and length.

It also contained a temporary audio track imitating the result desired with regards to sound effects and music. It gave a rough idea on the mood, time frame and aesthetics (See video 1 in References or scan QR code).



SHOOTING SCRIPT

Primarily the idea was to hire actors to be filmed on a green screen in order to get silhouettes for the conception of the frames further on in the production. After reflections on the visual aspect and for budget related matters, the best option was to actually work with the real subjects instead of actors, so the aim was to try to get as close as possible to the real appearance.

A shooting script was then

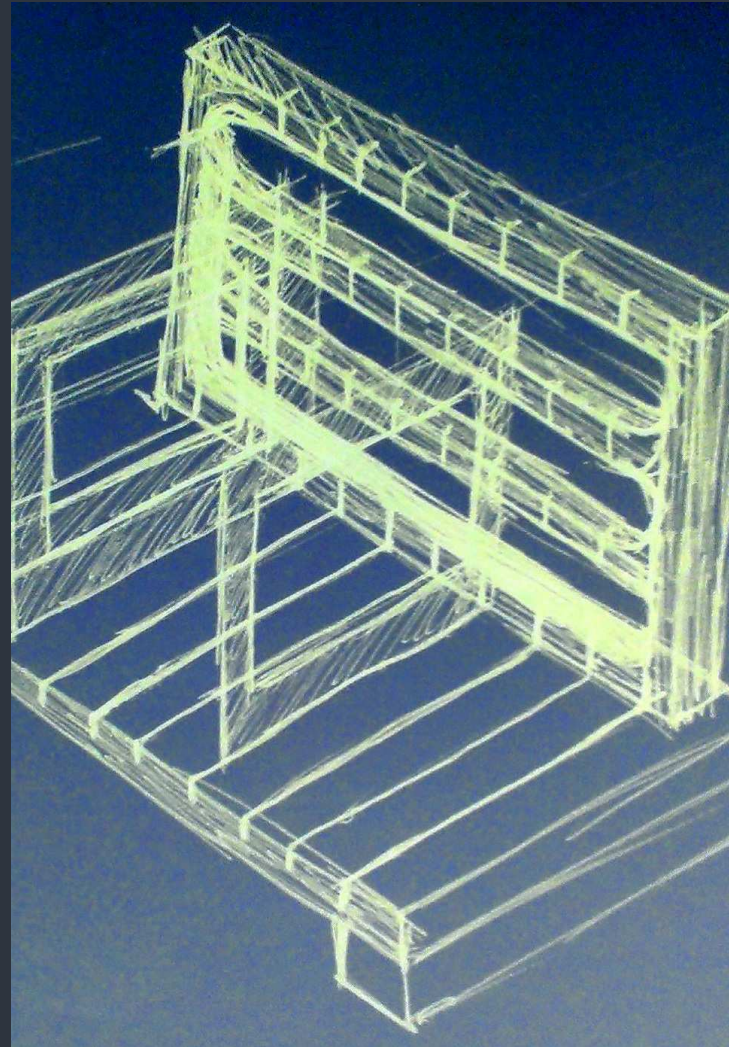
written stating very specific actions required to build the frames. This script facilitated and advised the cameraman who volunteered and provided the equipment and materials necessary to obtain good quality video footage. The details of the script were very case specific as when working with a team it is important to inform the best way possible the exact material required. The storyboard created previously was at this stage a great visual support and provided the actors and cameraman

additional details and understanding of the intentions. At this particular phase of the production, the comprehension of everyone involved was crucial. The course work, storyboard and shooting script were all essential. The sequences were short, easy to follow and obtain with the guidance provided.



SHELVING UNIT DESIGN

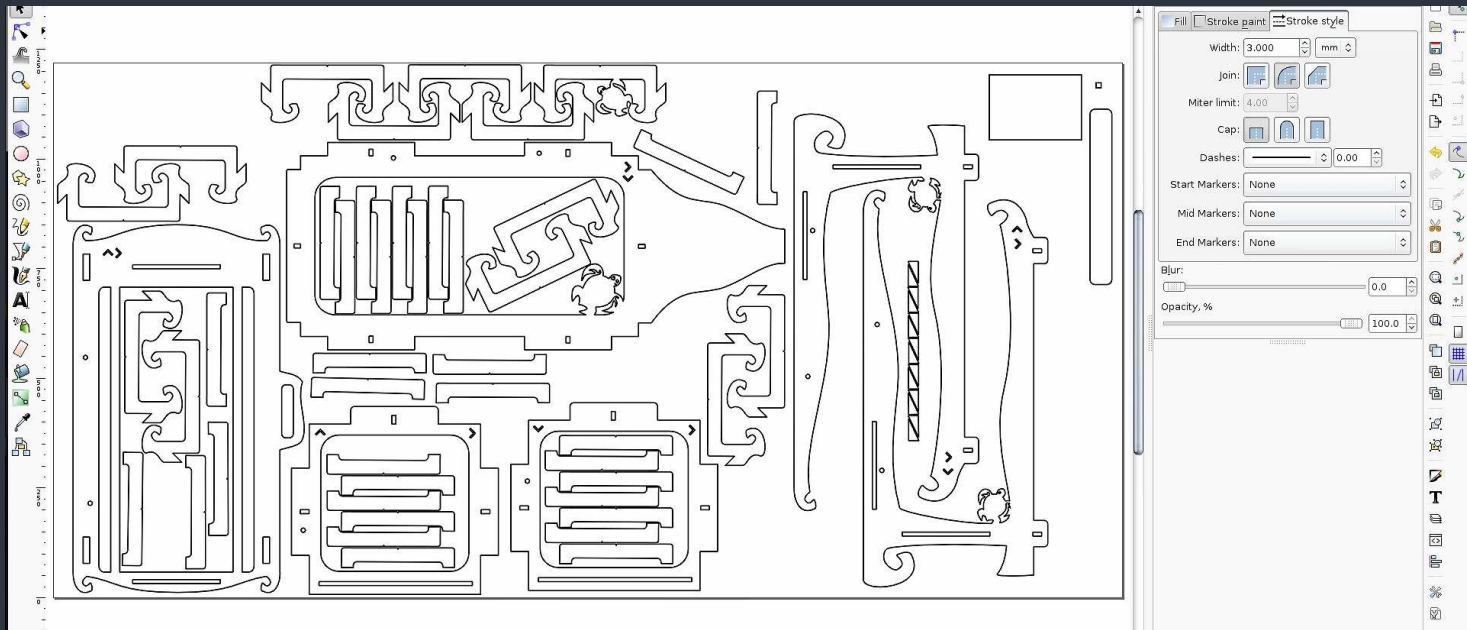
The shelving unit was designed in Inkscape as a 2D design. This design was primarily prototyped to spot any miscalculations and define any final modifications. Once modified the file was imported into PartWorks (ShopBot Tools Inc.), a CAD/CAM program that creates the path files. These were then sent to the CNC cutter machine to be cut into sheets of wood at a later stage. The first unit built was a simple sheet of wood on which pairs of hooks were attached. It was a working set up but very time consuming as all frames had to be repositioned between each image capture from one set of hooks to the next. Time was spent researching and modifying the existing designs to solve issues observed when using the first unit. The aim was to find ways to accommodate the process as well as save time. The improvements made on the design made it possible to slide the frame holders along the unit tracks and therefore avoid having to reposition each frame individually. As a 2D design and using figures from the previous unit, the distance between the stencils needed to be greater than 30 mm. For this reason, considering that the wood was to be 9 mm thick, these holders were composed of three parts. These parts were then to be attached together once cut. Furthermore they were to also





be equipped with the hooks so reference points were added to the design of the center part of the holder, establishing the location where the hooks were to be placed. The distance between the hooks was determined according to the dimensions of a standard A4 ring binder. The stencil size for which the unit was designed is a regular A5 size; 210 mm x 148 mm, but the template can be easily adapted to various sizes of stencils. After those calculations and improvements the process is such that only the last frame is removed so that the next can be positioned at the front and so on. The maximum sheet of wood this particular CNC machine is capable of cutting is 2440 mm x 1220 mm, so the parts designed had to be laid out in a meticulous way to minimize the waste of material as much as possible.

In order to control and confirm all modifications, observe efficiency and aesthetic attributes, a scaled down prototype model was constructed using a "laser-cutter" and 3mm plywood. Although the efficiency of this tool was the principal target, the aesthetic aspect of the unit was also taken in consideration. The challenge was to make sure one property did not affect the other; multiple versions of the design were produced before



reaching a well- balanced and satisfying design. This prototyping stage also avoided the waste of material and is an essential phase in any design.

Items to consider when designing such files for CNC cutters are the thickness of the wood and the size of the bit that will cut the wood. Therefore it is important that sufficient space has been left between parts to avoid unwanted cuts.

Once the design file is loaded on to the program Partworks, a specific settings process

has to be applied before the cutting can start. All this information has to be entered and a configuration procedure needs to be completed - the details will then be communicated to the machine.

In this case, two 9mm thick sheets of wood were used along with a 3mm bit. The device needs to know if the cut should be done directly on the path, in the inside of the path or on the outside. This helps the machine determine if the design paths are in conflict and to check

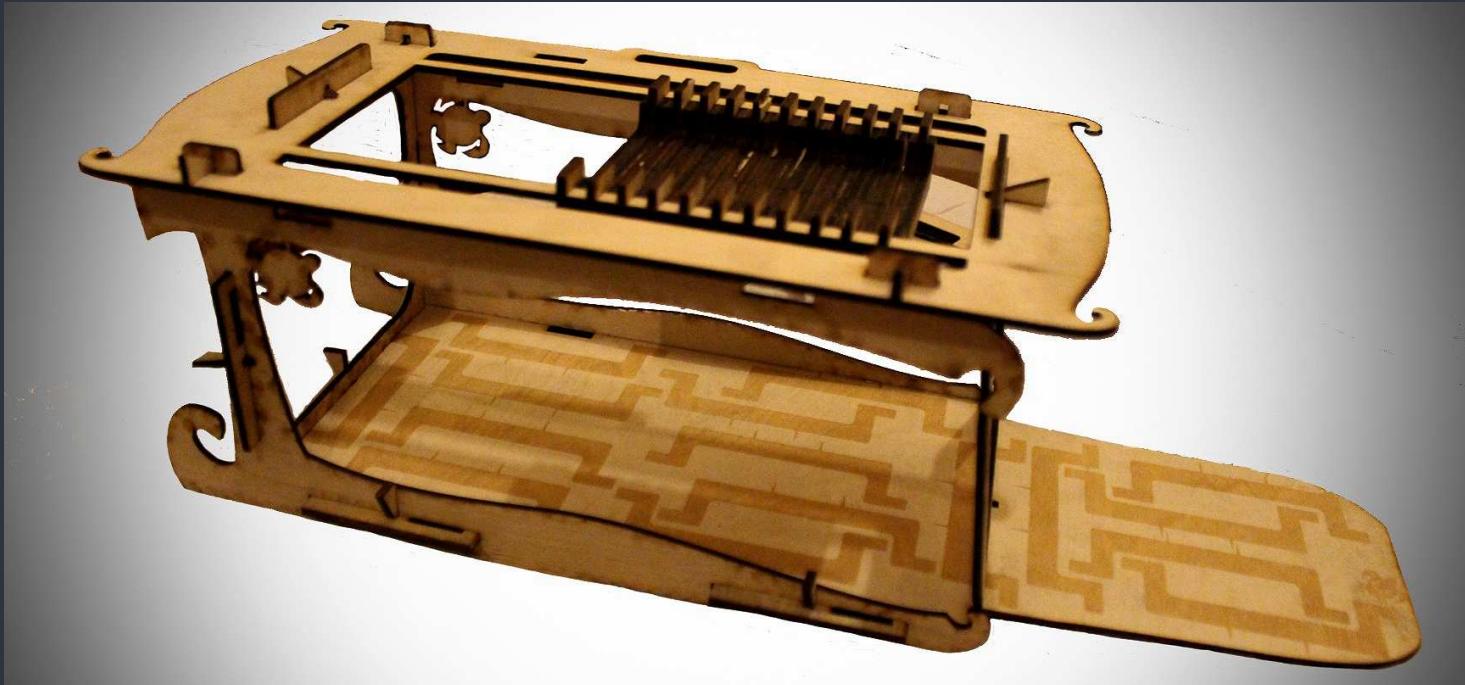
the fitting of the parts. It is important to keep these dimensions in mind when designing for such devices. To secure the different parts in place until the file is entirely cut, small tabs are added to connect all parts. In order to cut each individual part that makes up the unit, the machine cut through the sheet of wood gradually following the path using multiple passes. The amount of passes is determined depending on the thickness of the wood. The bench of the CNC cutter has limited size

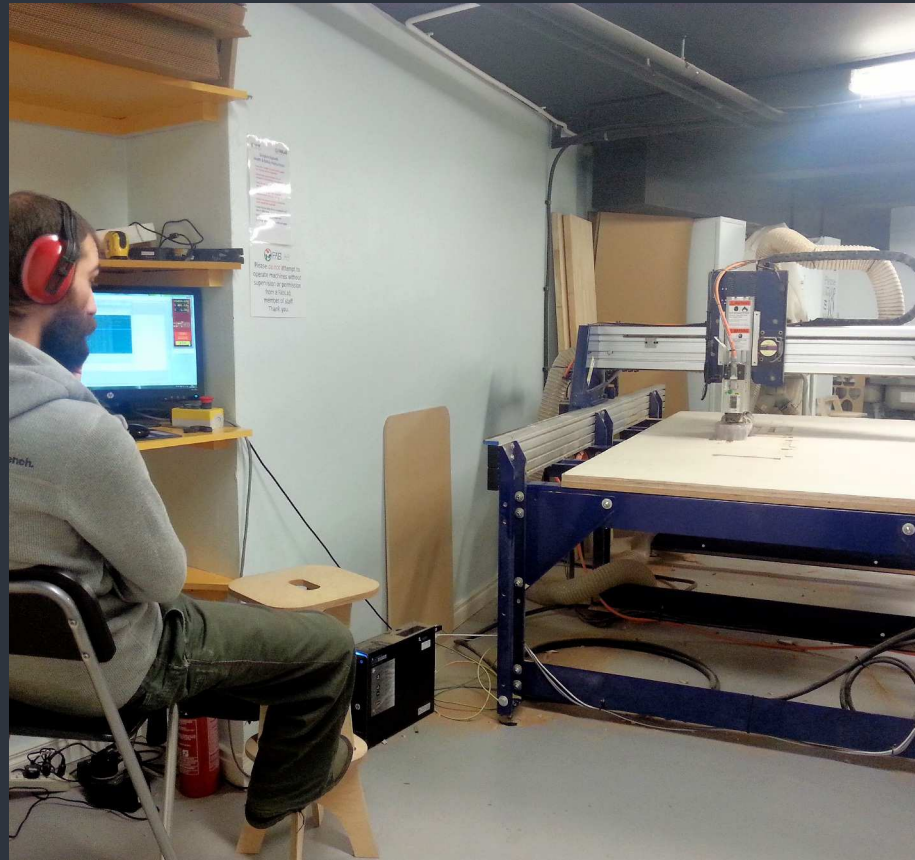
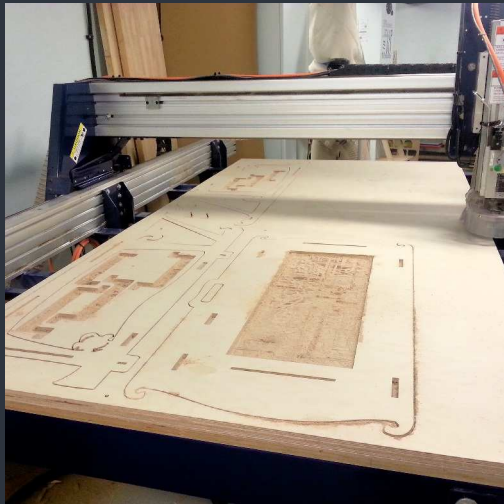
therefore a “home point” is set so that the machine is aware of the area of material it is working with. The sheet of wood has to be secured to the bench with screws; the machine needs to be aware of the position of these screws, making sure that they are not in the path to be cut. The locations are marked and recorded by the machine; the screws are then put in manually. The height of the wood in relation with the bit is also required; that

distance is determined and recorded by the machine. An extractor fan is used to collect all the wood chips and dust produced during the cut; it needs to be switched on.

Prior to this process, initiation time had to be spent to acquire basic knowledge on the functionality of the machinery. To familiarize with the control systems of each individual device, multiple practice sessions assisted by the Fablab’s employees were

essential. It has been crucial to clearly understand the possibilities and operate the tools in a comfortable and safe manner.





EQUIPMENT - TOOLS - MATERIALS

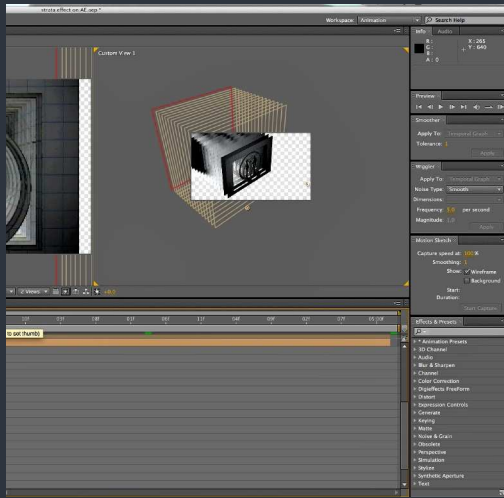


Each step of a production requires different specific equipment and tools; it is good practice to anticipate and create a clear list at this stage, particularly if some have to be hired, borrowed or purchased. It is also very helpful to know when and how long they will be needed for.

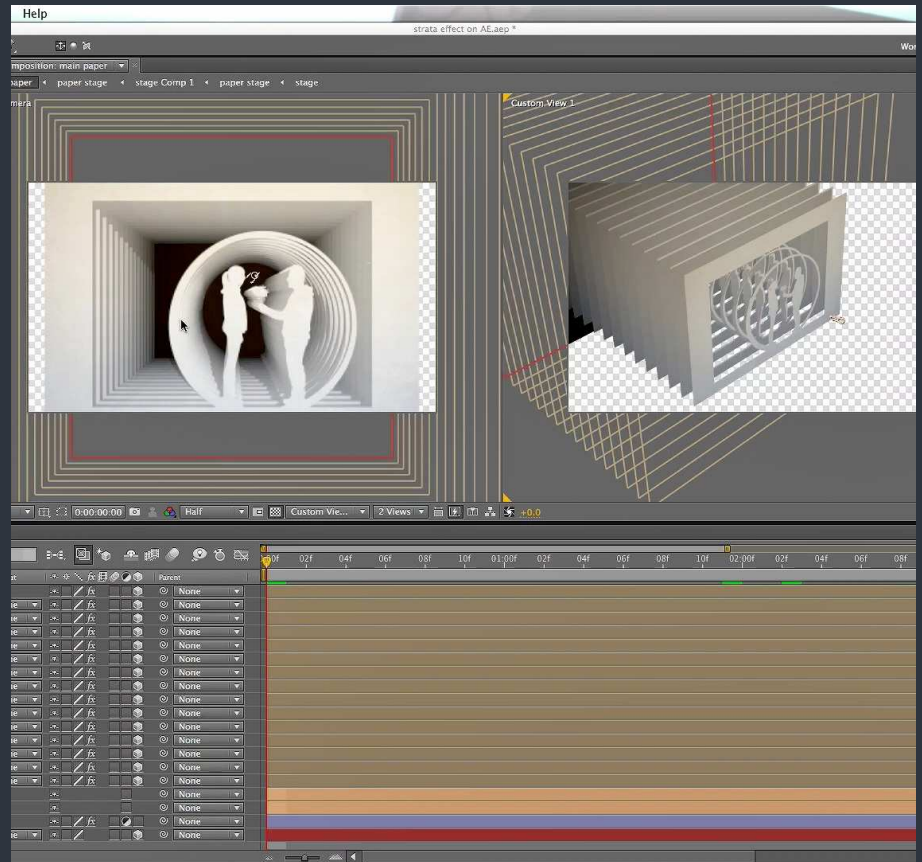
Wood and paper were the only materials needed; paper was to be used intensively so local resources and a recycling center were approached. An arrangement was made with the Craft Box, a resource center/scrap store located in Derry providing a range of recycled

materials for art and craft productions. The staffs were very helpful and flexible, making the materials accessible on request during the experimental stage and kindly donated some to the project. The wood was purchased at the Fablab which has equally supported the project, teaching the use of the equipment, providing access time to the machinery, advising and ordering the wood required. The cameras, tripod, lighting, midi keyboard and other equipment were privately owned and sufficient for this production.

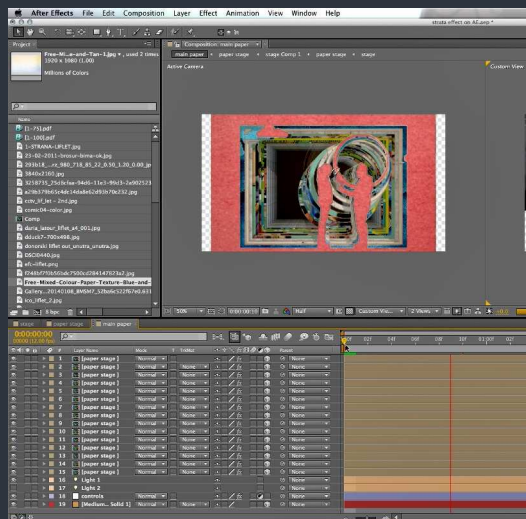




COMPUTER GENERATED



Using AE tutorial videos, a computer-generated version imitating the technique was produced to test, analyze and understand the principles of this method (Echo papier tutorial (français) 2011). It was an entirely different experience in regards of production as all visual aspects, except the animation, were created in AE. To first be able to imitate the strata stencil animation technique it was important to be aware of and understand some particular tools and methods used within that software. As it is an imitation, the composition set up for this reproduction was not easy to



recognize. The software tricks the eye by automating the “echo effect” revealing the layers of stencils. Multiple linked compositions within the software allowed the testing of different paper textures and colors. The 3D options were used to obtain multiple viewpoints for analysis. After effect also has the capability to simulate how lighting would affect the material, providing previews for observations. The different lighting intentions were then tested and verified before the actual unit and stencils were created. The frame rate can also be changed and therefore further tests took place in order to choose the best speed for this animation. Other possible modifications could be tested such as the amount of stencils visible at the one time, multiple lighting or the color of the light. Only a small portion was recreated and tested on AE for experimental purposes.

LOCATION



In order to capture the green screen footage, the cameraman that had kindly offered his help, provided the studio space and time, the screen and the lighting equipment. As discussed with the tutor, the university staff was happy to provide the space needed to shoot the animation.

PRODUCTION

During this stage all the designs were concretized, built or developed further and the visual material gathered and processed. The smooth progress of this phase depended very much on following the schedule and applying the knowledge acquired during the pre-production. The Adobe Creative Suite was greatly exploited at this time as the procedure was complex and took time to organize and set up to produce the material needed.

FILMING (GREEN SCREEN)

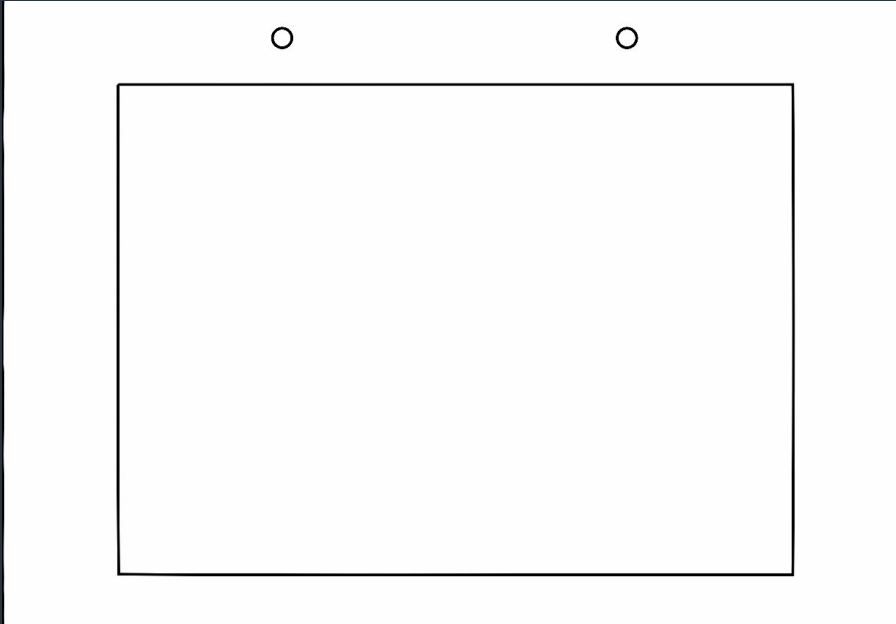
As mentioned earlier, this type of practice was introduced in parts of the program during the course (See video 2 in References or scan QR code). It was therefore a great opportunity to make use of it with the equipment and support of an experienced filmmaker. For the filming, the characters were asked to wear clothes of a different color than the screen so that it did not interfere with the screen-removal process. Around the hair the screen is difficult to remove neatly and the effect provides better results when the hair is attached. It also helps to keep a clear and distinct silhouette of the entire body by minimizing clothing and accessories during filming. The location was prepared with the help and advice of the cameraman. This included ensuring no natural light entered the room, keeping total control on the lighting



during filming. The lighting equipment was set up so that the hard edges of the shadow were eliminated. Once the team had revised the storyboard and shooting script, the footage was captured and loaded onto the computer for processing. During this process, effects were applied to remove the screen around the characters and all other unwanted parts to all of the video clips. Some also had to be edited depending on their functionality and content; for example some had to be flipped, in other cases the duration had to be shortened. Each video clip was then exported as portable network graphics, “PNG” formatted image sequence (See video 3 in references or scan QR code). The format was chosen for its raster graphic attribute that supports lossless image compression. It is a very common format used for online image transfers and very practical to keep safe copies of the material.



FRAME CONCEPTION



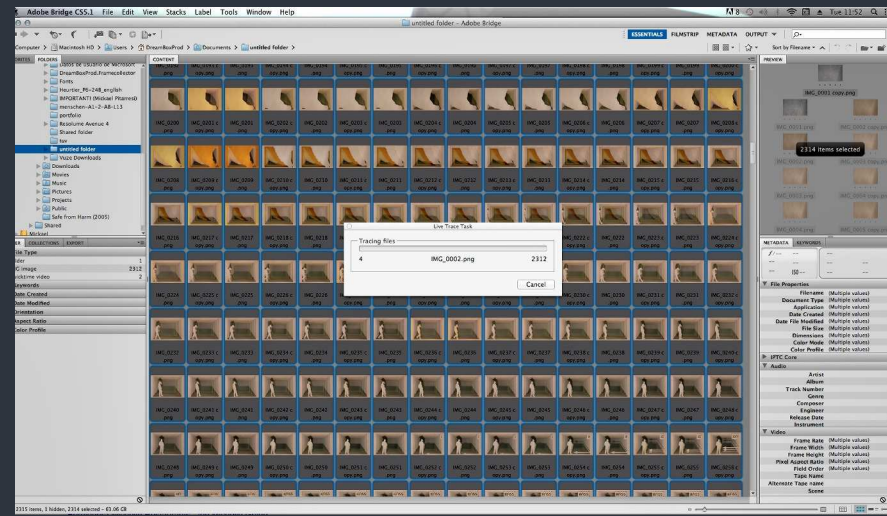
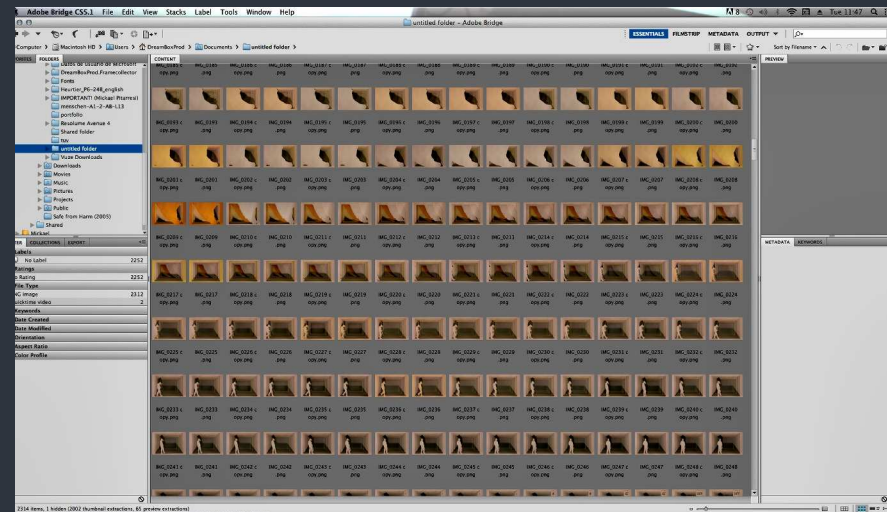
The exported sequences of images from the previous stage were now to be developed further to create the frames composing the animation. To achieve this, the application Photoshop (Ps, Adobe Creative Suite) was used. Referring to the storyboard and the animatic for guidance, the elements were created and combined with the still image sequences of actions recorded previously. This creative process was particularly difficult as each element added had to be animated following the same frame rate as the character's sequences. When animating, timing and spacing is of great importance and in this case it became very challenging to follow these rules (See video 4 in References or scan QR code).

These compositions were to be cut into stencils and hung on the unit, so an A5 template was created. The template was composed of a border from which each element of the sequence had to be attached to avoid the loss of parts when cut. This meant that the animation frames were composed and animated manually at the same time in the template one after the other, producing a new sequence of still images. A total of 1328 frames were created at this stage.



VECTOR CREATION

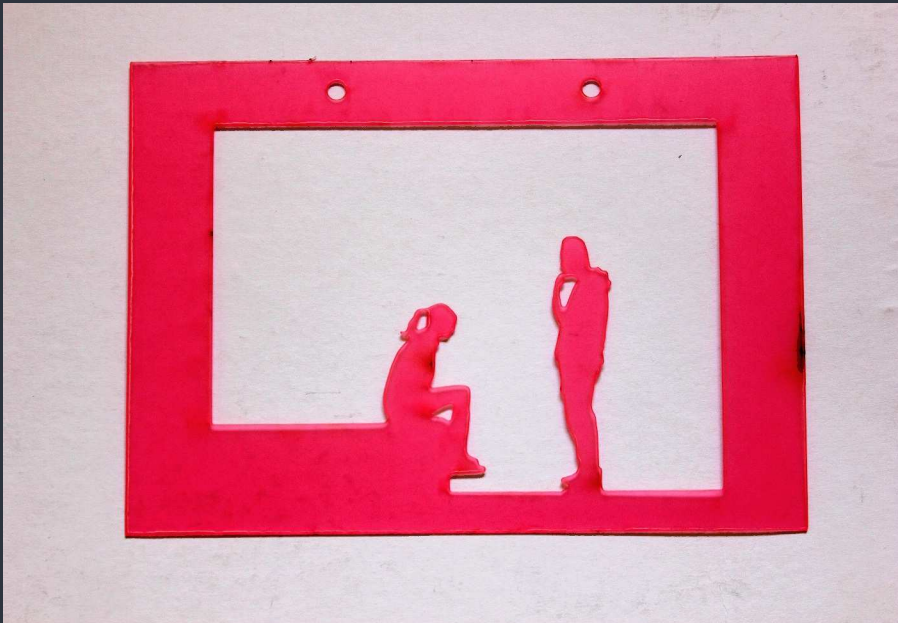
In order to cut the 1328 frames with a laser cutter it was necessary to convert them into “vectorized” files, which is the file format recognized by the laser devices. First the files needed to be “live traced” which meant that the pixels composing the image were to be converted into vectors, also called paths. Taking into consideration the amount of files to be converted, the use of automation was necessary. A common way is to record the series of commands and modification needed into an “action”. This action is then applied to the file automatically. The first step was to customize and save the suitable “live trace” setting in AE. A natural approach for the next step would have been to create an “action” within AE. Unfortunately, commands like “live tracing” cannot be included in a recorded “action” within this software. The file had to be processed by the use of additional software Adobe Bridge (Br) a digital asset management application that, among other managing tools, allows “batch” processing. In addition Br also allows this processing while using the live trace setting customized and saved in software included in the Adobe Creative Suite, for instance Illustrator. Therefore the files were batch processed automatically using the live



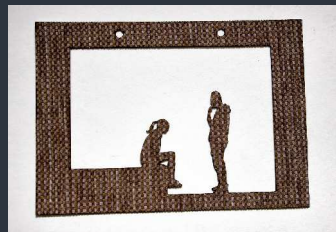
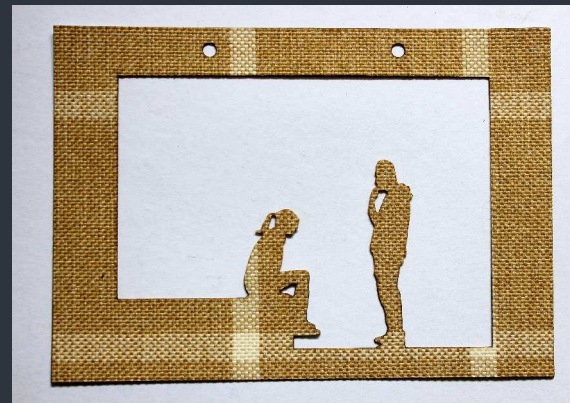
tracing set previously in illustrator. Further on the composition needed to be modified; two ring binder standard size punched holes were also incorporated in the border in order to hang the stencils to the unit and to also facilitate their storage. The fills of the paths were removed and these paths' thicknesses were to be changed to exactly 0.01 mm. This is the standard stroke size that the laser-cutter will recognize as a cut and not as an engraving. The whole composition then had to be centered to the document and scaled down to 210 mm x 148 mm size. An action containing all these modifications was created to batch process the files once again, but this time directly from AE. Finally, these files were saved into Portable Document Format (PDF) format and ready to be cut. Although this complex manipulation saved a lot of time and effort it still took the computer more than a full day to finish processing all the frames (See video 5 in Reference or scan QR code).



STENCIL CREATION

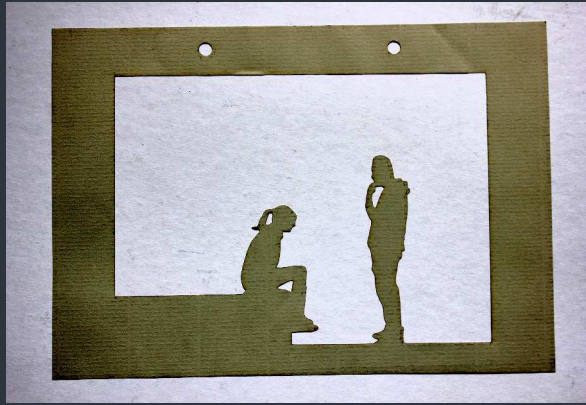


Some tests were undertaken at this stage aiming to experiment with different materials and eventually find new alternative textures. The selection needed to be a sturdy light material which was easy to obtain in big quantities and aesthetically pleasing. After consulting the Craft Box staff and researching within the stock available, the different types of materials were brought to the Fablab. Paper, cardboard, rubber, acrylic and even tissue materials were experimented with in attempting to find new visual mediums. The results varied; the main issues were the weight and flexibility. For example,

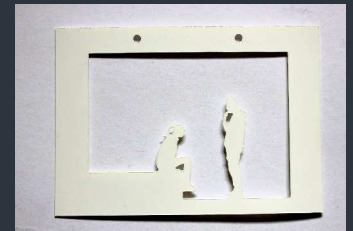
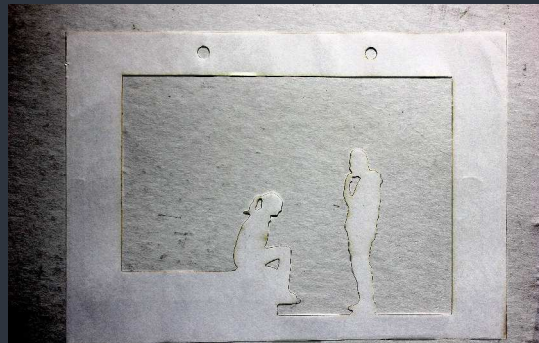


rubber became completely deformed when placed on the unit, making it impossible to work with. Acrylic would have been interesting but much harder to find in big quantities, the time of cut compare to paper or card would have doubled and the storage space needed tripled. Some other plastic based materials slightly melted during the cut by the laser and the design was deformed. Using these observations, a thin sturdy card was found to be the most available, adequate and visually appealing material to work with.

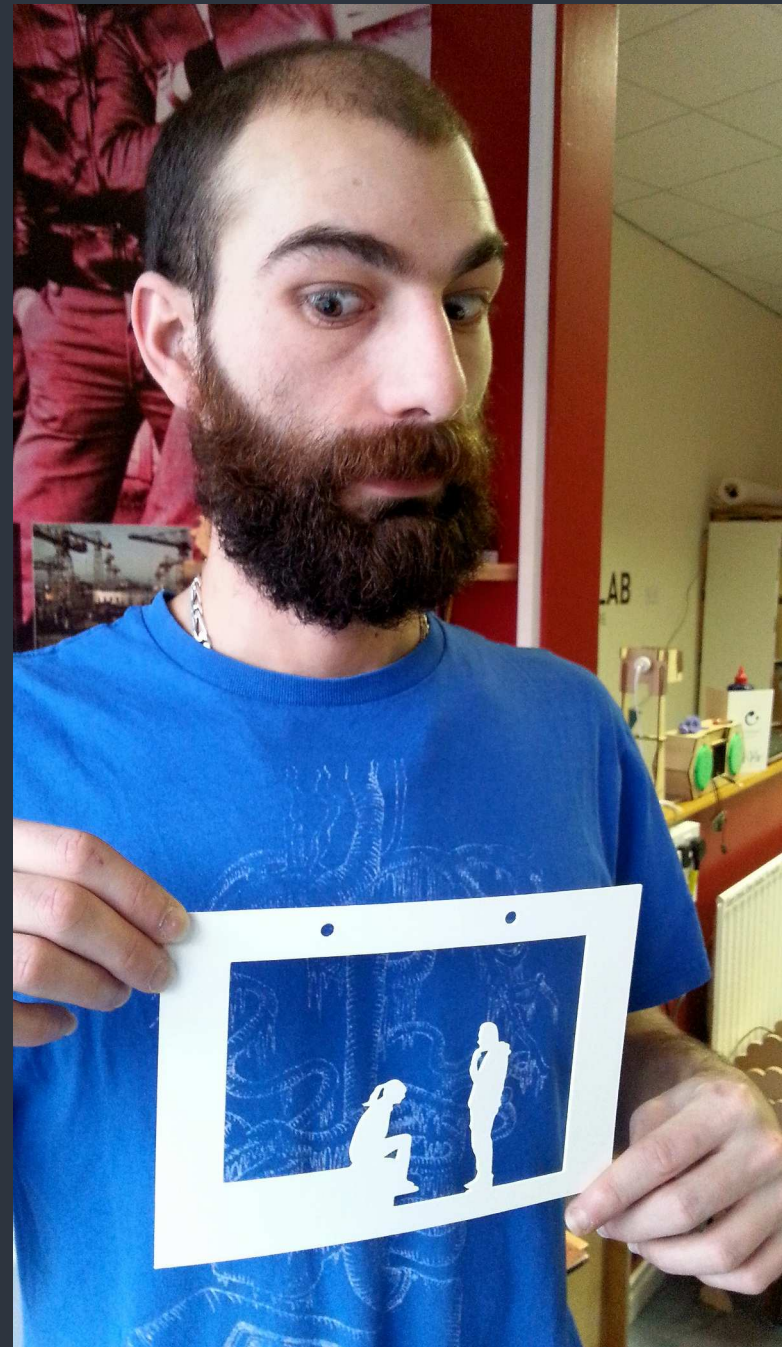
Once the material was gathered, the machine had to be set up. Similarly to the CNC machine, the laser cutter requires some information before any cut can start. To operate this machine, learning and practice sessions also took place to make sure that the device was used safely. It is

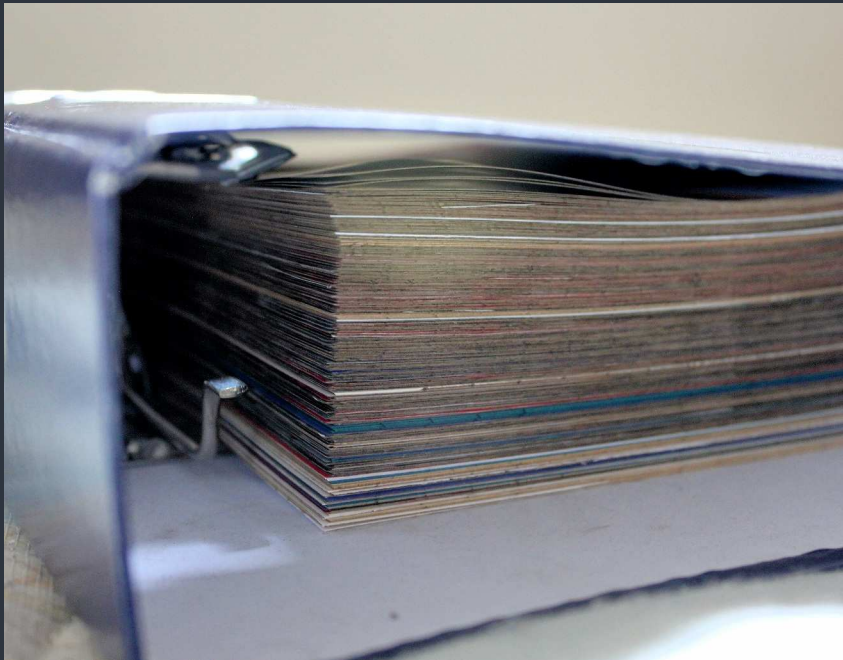


controlled from a computer and once the PDF file had been opened, it was sent to cut using the printing options and settings. The “print” job could be sent to the laser cutter device only after some of the files’ information and particularities on the type of cut needed were entered. The necessary information included the material size, whether the file contained paths to be cut only or if engraving was also required. Depending on the type of material, the frequencies, speed and power of the laser needed to be determined. The next step was to adjust the focus point of the laser by positioning the material at the right distance to obtain a clean and accurate cut. A home point, or start point was set so that the device knew the area it was working with. The extractor fan clearing the smoke and dust produced during the cutting were



switched on and in this way the files were finally safely processed. This describes the process required to cut one file, depending on the machine used and the material, the settings and information entered may alter. These steps were repeated until the entire 1328 frames were cut into stencils; 70 hours within the course of a month were spent cutting. These stencils were then stored in a total of five A4 size folders (See video 6 in References or scan QR code).





SHELVING UNIT CONSTRUCTION

Following on from the previous design process and prototyping stage in the pre-production phase, all the data was entered and the device was all set. The cutting path and its specific settings were then saved. At this stage an extra precaution was taken and a “slot test” completed. A “slot test” allows control of the parts of the design that are to be assembled after the cut, making sure that each part fits within the other perfectly. Once the test is satisfying, the path file can be opened and send to the machine for processing. Although the machine should always be used under supervision of trained staff, it is vital to always be equipped with adequate protections when using such a device such as ear plugs, glasses and gloves. It is important to know the location of the emergency shutdown switches and how to operate them.

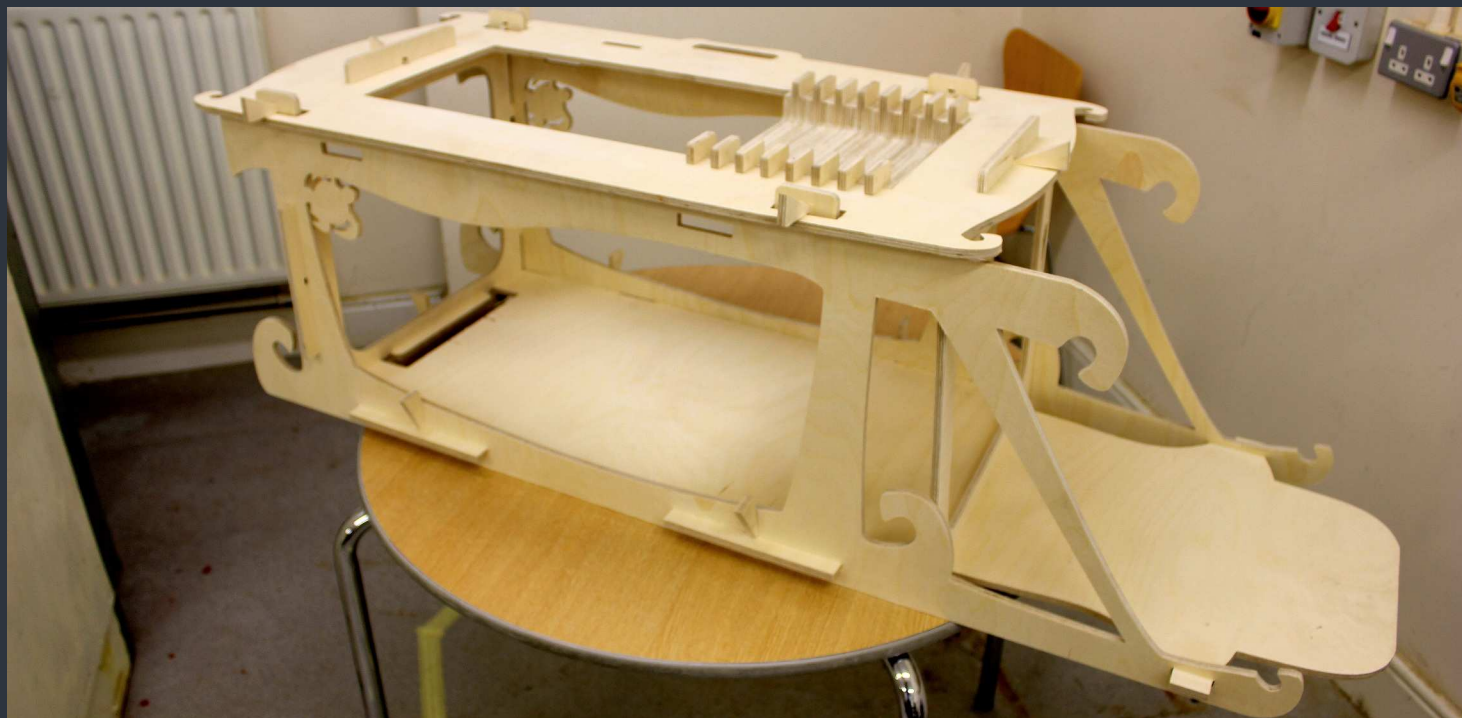




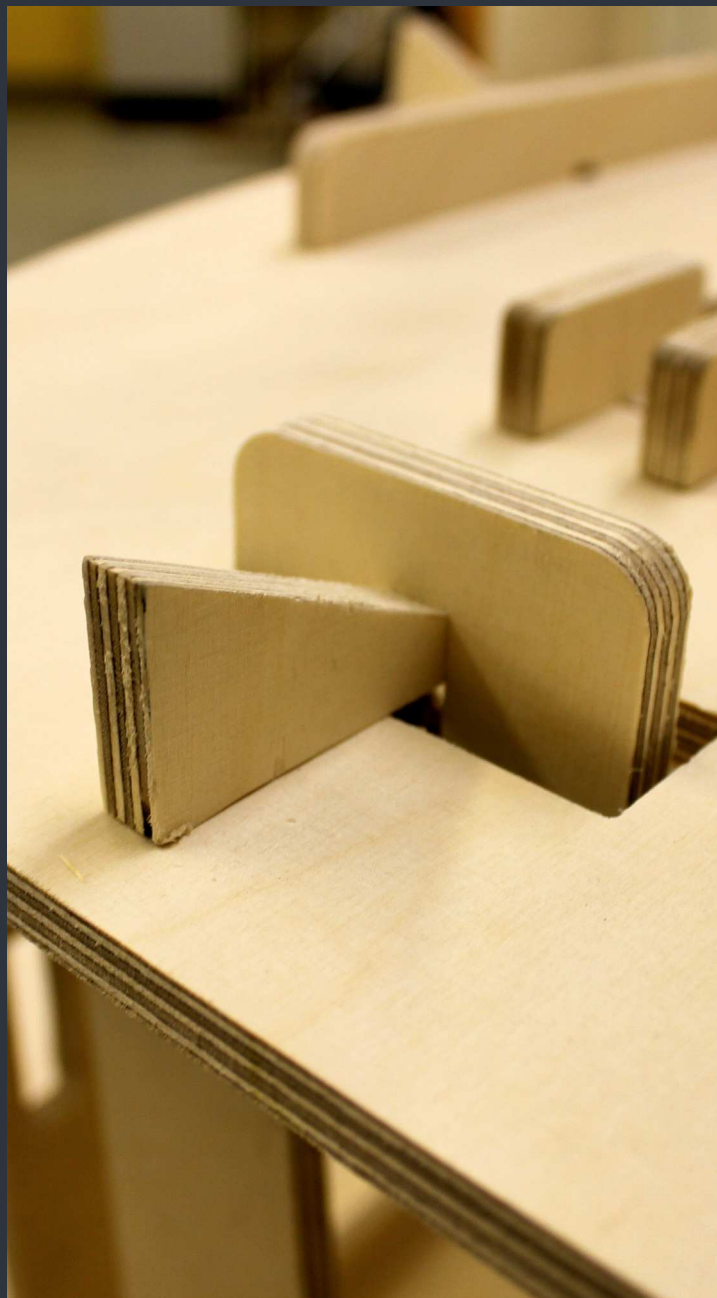
When the cutting was done, the panel was removed from the bench. Each part was separated by cutting the tabs and smoothed down with sand paper. All the pieces were then assembled and to my satisfaction they fitted perfectly. The stencil holder pieces were put together and equipped with the hooks.

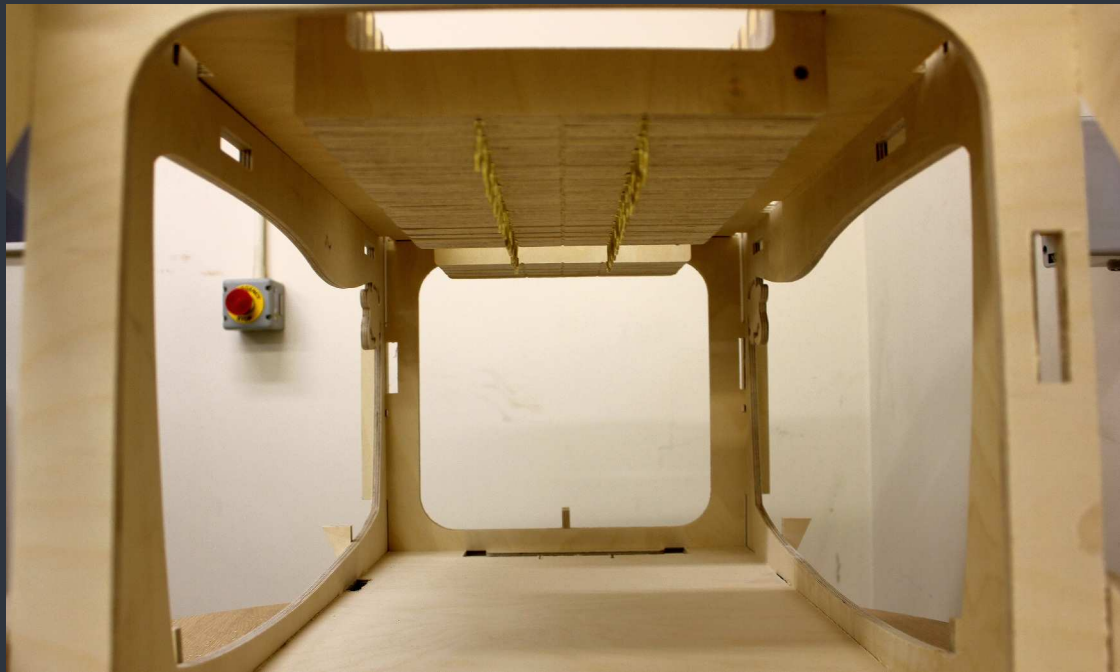
This shelving unit can be taken apart and assembled in a flat pack manner for easier transportation and/or storage. It is imperative to consider leaving time to clean at the end of each session. The machines and all areas used must be cleaned and all tools must be in order before leaving the workshop as “a tidy workshop is a tidy design”(See video 7 in Reference or scan QR code).













ANIMATION SHOOT

The animation shoot was taking place in the location provided by the university. After acquiring the keys, all windows were covered with bin liners, preventing natural light from entering the room. Light consistency and control is crucial to avoid unpleasant and unexpected results during the shoots. The shelving unit was assembled on a table and camera, tripod and lights were prepared and set up.

The long exposure experiment results were very disappointing. Primarily different types of lights were used in an attempt to expose the paper with different colors and shapes. The aim was to implement the moods of the story by changing the light color exposed to the stencils or by adding light stokes to the scene. The equipment was not suitable and the budget was insufficient to rent, buy or build the particular lighting system appropriate for this type of effect. The main issue and the ideal tool for this approach would have been a strong lighting system capable of gradually fading from one color

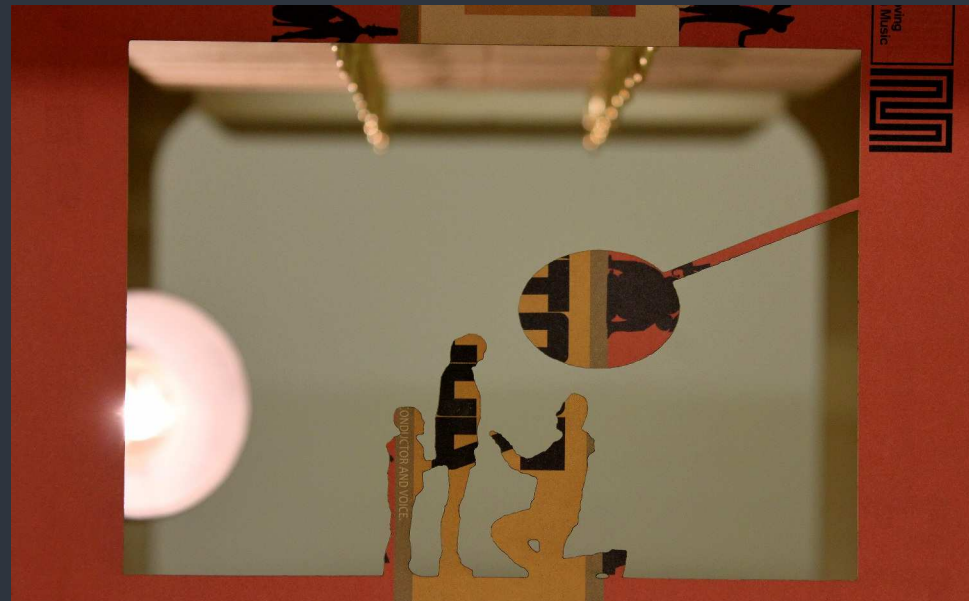




to the next manually so that it could be faded slowly between each shot. This realization would not have been possible without going through this experiment and although the visual results were poor, the conclusion led to a clearer understanding on lighting specific elements for animation. Time constraint was also an obstacle during this test after multiple attempts and trials the production needed to continue in order to respect the schedule.

One positive outcome from these experiments was the unexpected reflection of the ink coloring the back of the paper used to produce the stencils. This gave the look of each image a pleasant altered very subtle shade of random colors, providing a very appealing visual result. The lens depth of field was set so that only the first few stencils in the foreground were in focus, emphasizing the fading away echoes of the passing frames revealing the actions.

Once the experiments concluded and the method to be employed was decided, the shooting started and each of the 1328 stencils were to go through each position on the unit and captured as an image sequence. The shooting of all the stencils took around 30 hours in the space-time of three days.





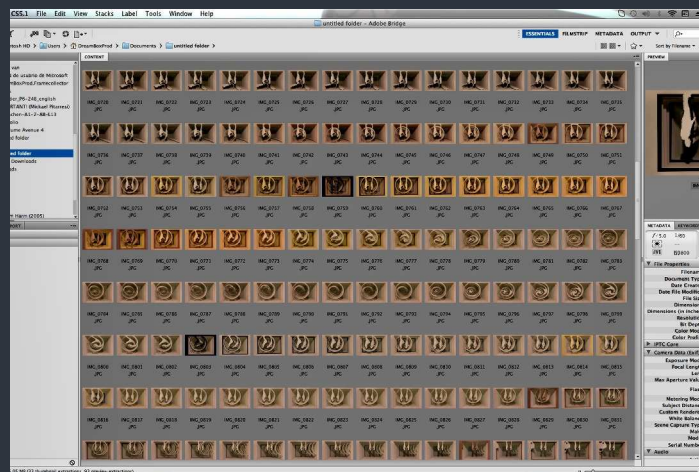
POST-PRODUCTION

In this stage the raw imagery from the animation was edited and audio tracks were added. Furthermore the produced animation was rendered and exported into specific formats to be published online and sent to competitions.

ANIMATION EDITS

To edit the animation the frame sequence first had to be doubled in order to regain the rate and speed initially used during its conception. Regarding the quality, and in order to retain it, the high quality files from the camera also had to be converted to a smaller high definition size which was 1280px x 1024px - a standard web video aspect ratio.

Three applications were used to edit this animation. One of these was Final Cut Pro X (Apple Inc.) which is a great tool to use for video and audio files and although it is possible to use still images, it does not work well with such big sequences. On the contrary (AE) has no limitation in the amount of frame it can be loaded with so this sequence first had to be converted into a video clip in after effect and sent to FCP. Some minor adjustments were made to the visual aspect of the imagery before the conversion: the focused area was sharpened and the contrast was slightly increased, helping to define certain details of the imagery. Once the adjustments were made the video file was saved and imported into FCP for the next phase.



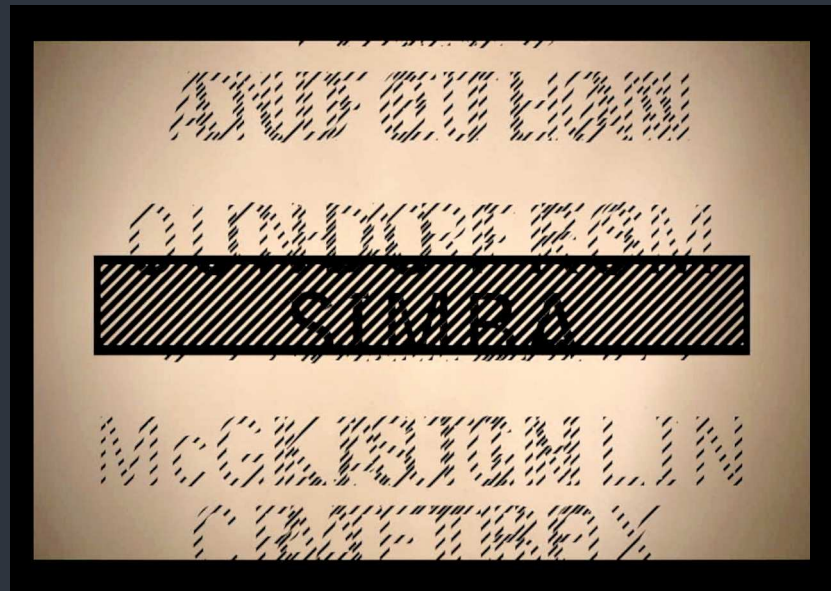
SOUND EFFECT - MUSIC

The audio tracks were composed of mixture of resources edited and sampled with the video on FCP. The music used previously for the animatic was temporary and only used as guidance and influence. The animatic helped to create an overall idea of the intentions but a more defined feel was required. A sound composition was produced which had an atmospheric, dream like quality, with an abstract feel. This resulted from combinations of free audio loops and sampled and computer generated audio parts.

The audio effects were selected from a personal sound bank built over the years from previous productions. These were added manually, adjusted and modified in order to blend in and give suitable audio support. The emphasis was to use audio effects suitable to represent the sound it was visually referring to. The audio effects needed to be appropriate and to also keep the pace of the music track. They help to highlight some of the visual particularities, guiding the viewer to focus on different areas of interest along the video. Once composed and edited, both video and audio tracks were exported and saved.

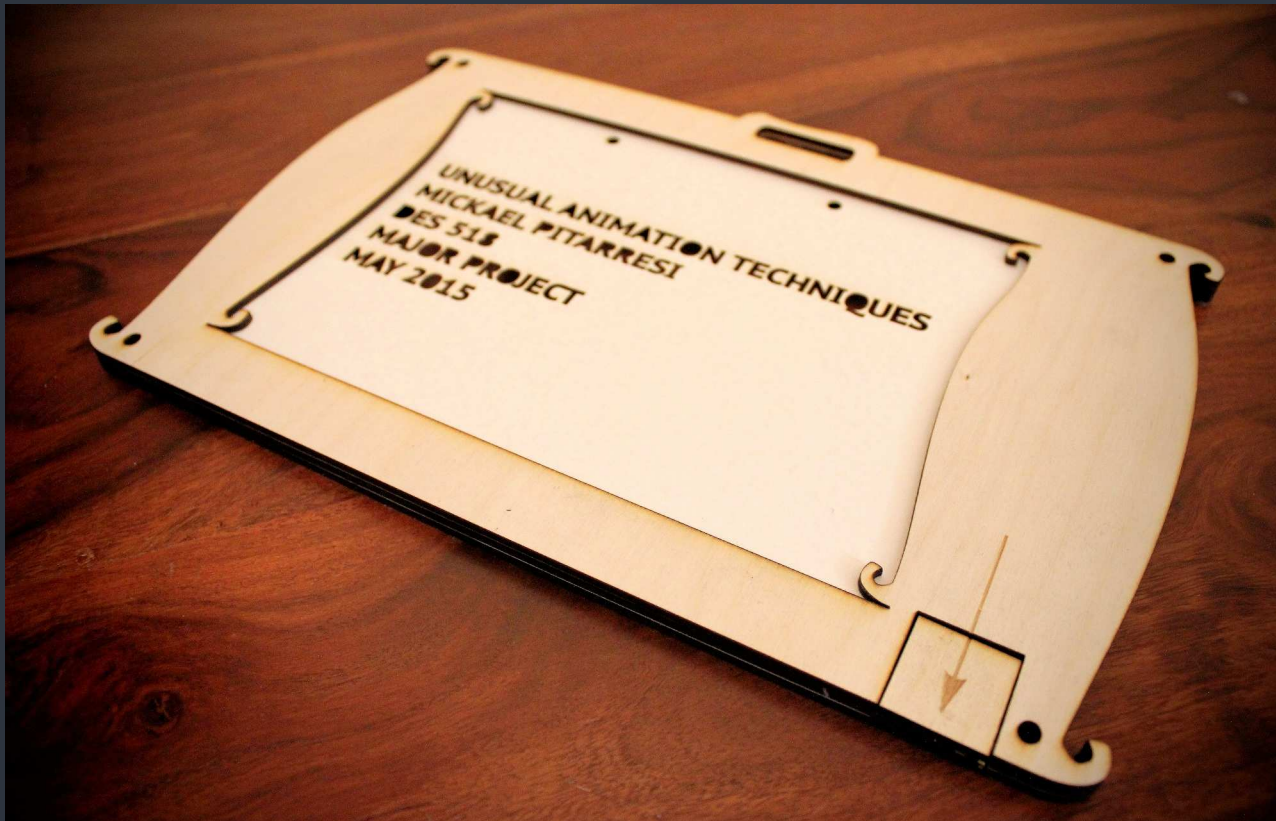
TITLE SEQUENCE

The title sequence has been inspired and was created using "Moiré" pattern effect. Simple "Moiré" patterns can be observed when superposing two transparent layers comprising periodically repeating opaque parallel lines. By controlling the direction, size of the lines and the space between them, it is possible to reveal or hide parts of a composition, creating an animated optical illusion when in motion.



PUBLISHING FORMAT - RENDERS

The complete video has been exported into various formats depending on the platform it will be published on. The video will also be entered in different film festivals and competitions. In addition the project is to be documented in other formats similar to this book or interactive PDF files so that it can be referred to and shared. This book will be made available for print or free of charge download online. In order to deliver the finished animation a portable "usb" storage item has also been build. This item contains some of the files used during its conception, it has been designed and shaped so that its appearance reflect the overall aspect of the project.



CONCLUSION - IMPROVEMENTS AND PERSONAL REFLECTIONS

This project has been a very constructive one with big learning outcomes for me. I feel that I have exploited most of my abilities by combining the skills obtained during the course and other activities. It has allowed me to collaborate with many other professionals, thereby developing communicative and diversity skills. The research for diverse approaches to find new mediums has been an interesting process, as has learning how to be open minded while keeping an organized structure to the project. Reusing old techniques in regards of film production has also given me the opportunity to experiment and therefore develop a greater understanding of the process.

For the shelving unit, the design of the storage for the stencils holders was not well developed, some modification should be considered to improve this unit. The design will be shared, hoping to interest other animators to use or modify it. Further improvements may include the use of colored paper to build the stencils, creating a time-lapse video of the filming process in order to use as an introduction transitioning to the animation itself; to share that process with the viewers. Looking for other materials should be a constant approach.

Most of the work studied was for inspirational purposes and as this project was experimental in many areas it has been difficult to find specific guidance and to know the exact results in advance. Techniques and tools were discovered and learned as the project evolved in order to solve encountered and often unexpected issues. Being a very practical project which used many different tools, an opened minded attitude was required, patience was the key and unsatisfying results were embraced. Much was learned during this project, particularly on finding new approach and techniques, the capability to adapt quickly and solve problems but most importantly enjoying the process.

The light painting combination will be approached again and developed further possibly along with other technique and mediums that have yet to be discovered. The intention is to avoid the profit-driven motivations all too common in the industry. Money and fame are not always indicative of success and finding a personal style is what is really valuable. I hope to inspire and encourage other designers, artists or animators, to consider looking into uncommon resources for inspiration and see the potential for new unique creations.



THE ANIMATION CAN BE FOUND HERE
ALONG WITH OTHER PROJECTS



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