

**IF IT EXISTS:
A NEW MEDIA ARTWORK**

DAN DOMINIC A. VILLENA

Faculty of Information and Communication Studies
University of the Philippines
OPEN UNIVERSITY
College, Laguna
Philippines
2019

This Special project titled ***If It Exists: A New Media Artwork*** is hereby accepted by the Faculty of Information and Communication Studies, U.P. Open University, in partial fulfillment of the requirements for the degree Bachelor of Arts in Multimedia Studies.

DIEGO S. MARANAN

Adviser

Date

DIEGO S. MARANAN

Program Chair

Date

Dean

Faculty of Information and
Communication Studies

Date

ACKNOWLEDGEMENTS

I would like to express my sincerest gratitude to my adviser, Assistant Professor Diego S. Maranan for providing me with every help that I needed to conduct this project. His advice was indispensable to the completion of this artwork.

Dedicated to:

*Chewy, Salad, Oreo, Doc, Popcorn, Ollie, Ottie, Catarina, Katniss, Chuck
and all the other pets I've lost along the way.*

My family, for their patience with me.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	2
1. INTRODUCTION.....	5
2. INSPIRATIONS FROM OTHER ARTWORKS.....	6
3. VIEWER EXPERIENCE.....	10
3.1. Media Deterioration.....	11
4. ARTISTIC MOTIVATIONS.....	12
4.1. Mourning with Other People.....	12
4.2. Afterlife.....	13
4.3. Immortality in Memories.....	14
5. PROJECT COMPONENTS.....	16
6. CREATION PROCESS.....	18
6.1. LED Strip.....	18
6.2. Cloud Structure and Exterior.....	22
6.3. Projector Rigging.....	24
6.4. Custom Coding.....	33
6.4.1. Image Deterioration in Processing.....	33
6.4.2. Arduino and Neopixels.....	35
7. FUTURE OBJECTIVES.....	37
8. CONCLUSION.....	39
BIBLIOGRAPHY.....	44
APPENDICES	
A. Code for Processing.....	45
B. Code for Arduino.....	47
C. If It Exists - Video.....	49

Chapter I

INTRODUCTION

If It Exists is a new media artwork that incorporates local wireless cloud saving, custom coding, microcontrollers, LED strips, basic projection mapping and crafting in an attempt at making a communal experience that tackles a realized technological version of an afterlife. From the conception of this artwork, it has always been centralized with animal companions in an effort to make it a more universal and accessible experience. It is also a decision that consciously tries to contrast itself from the artworks of others that tackle the topics of death, loss and the afterlife in a more morbid manner. It is also purposely kitsch, in an effort to make it more relatable, shareable and accessible.

Chapter II

INSPIRATIONS FROM OTHER ARTWORKS

One of the primary inspirations for this project is Damien Hirst's *The Physical Impossibility of Death in the Mind of Someone Living* (1991). This commissioned artwork consists of a shark suspended in formaldehyde and has since been lauded as a primary example of British contemporary art.

The most obvious parallel between *If It Exists* and Hirst's 1991 artwork is their use of animals as the explicit subject and the discussion of death as their implicit one.

On its own and without context, Hirst's (1991) artwork offers a look into an otherwise intensely provocative experience. After all, tiger sharks are considered to be one of the most dangerous species of sharks because of their tendency to attack humans unprovoked. Perhaps the most relevant observation to be made on the artwork is how Hirst views what remembering is through the use of suspension in his artwork. With the context of the lengthy title though, the artwork becomes a commentary on remembrance and death. The shark, even in its suspension and preservation, elicits a strong reaction of fear, fascination and bewilderment from its viewers. This is in direct contrast to the fact that, even though the shark itself may be preserved in near-perfect condition, it is still just a lesser version of the real thing and cannot substitute it fully. It only captures just one dimension of the real living thing.

Though inspired by its use of animals as a commentary on death, *If It Exists* is a more modest attempt in trying to define what it really means to remember someone after they are long gone. It also embraces the one-dimensionality of memories and lets the viewer's imagination create a more vivid realization of a particular subject.

The participatory aspect of *If It Exists* is similar to another piece of artwork that revolves around the subject of mortality. In Candy Chang's simple yet provocative street art, *Before I Die*, she invites individuals to write down their own personal dreams and aspirations on a wall with the titular phrase as a mantra. Chang's artwork relies heavily on the participation of its audience and evolves throughout the duration of its display. *If It Exists* hopes to do the same, as more people view the artwork, more would have the ability to enrich the experiences of future viewers by adding their own media to it.

This participation of the audience would also make it more relevant to this current age of social media. There would be a hashtag that would be officially tied to social media posts regarding the artwork itself. A website that is a compilation of these posts would also be established, for convenience in viewing. Hopefully, both of these would actually increase the shareability of the artwork, and would then increase the number of people who would participate in it.

The idea of using a new media project as a communal way of coping with loss came from Taiwanese artists Vibert Thio and Aluan Wang's 2016 project *Étude*. As a way of trying to help the victims of the Formosa Fun Coast Explosion, *Étude* was designed with the rehabilitation and restoration of these individuals in mind. This is done by Thio and Wang through music therapy which ultimately culminated in a live

music showcase that invited other viewers to experience the products of the project. A specific aspect of *Étude* that is most relevant to *If It Exists* is this communal experience. For me, the underlying message of this whole project is to invite people to let themselves view technology as a legitimate aid in trying to combat the difficulties of dealing with loss. By letting new technology integrate itself in the grieving process, the technology itself ultimately becomes a tool in our catharsis while not necessarily substituting itself with the inevitably humanistic feelings underneath.

The idea of using images to remember those who have passed away came from Jennifer Loeber's photographic gallery tribute to her deceased mother titled *Left Behind* (2014). In this work, Loeber juxtaposes photographs of her mother's belongings together with archival photographs of her actual mother.

In each juxtaposition, Loeber creates vivid connections between the deceased and the viewer's own reimagination. At their very worst, the connections are straightforward and direct, provoking a sharp somber sense of dread towards the idea of loss. At their very best though, they let you see vividly the moments that have been lived behind each snapshot. Loeber's expert use of cropping and dull space also lends to the feeling of tragedy but the subjects' candid expressions, often with joyous smiles and fleeting glee, provokes something closer to what I think is the artwork's more optimistic intention. That is to say that vividly remembering memories can be a cathartic expression of love in the face of permanent loss and separation.

This is a message that I want *If It Exists* to have for the individual viewer. Whether they are able to participate in the artwork or not is irrelevant. I want them to

feel the catharsis of remembering immersive memories, even if it isn't one of their own.

Terence Broad's *Blade Runner - Autoencoded* (2016) and Ben Bogart's *Watching (Blade Runner)* (2016) are two very similar new media artworks that directly inspired the way *If It Exists* handles the content that would be uploaded into it. Broad and Bogart's artworks both use neural network reconstruction to explore how artificial intelligence is able to see and process media that is inherently human-made. Both of these commentaries are made even more ironic as they both use Ridley Scott's 1982 sci-fi classic *Blade Runner* which follows the tragic tale of an uninformed android tasked with destroying his own kind.

From Broad and Bogart's artworks, we can see both the overwhelming potential and the understandable limitations of artificial intelligence in trying to replicate how a human mind makes sense of an essentially human story. Both of their neural networks dream up their own version of the film and it reminded me of how we remember our own memories. Fuzzy in most instances, surprisingly accurate in others while being entirely wrong with some of the more obvious details.

Broad and Bogart's projects reminded me that remembering for machines can be subjective too and this subjectivity is actually what we think of when we try and imagine what our own consciousness might feel for others. This idea, of machines remembering memories as we do, is something that I wanted to incorporate heavily into *If It Exists*.

Chapter III

VIEWER EXPERIENCE

The following are details from what I perceive as the most appropriate way for the artwork to be viewed by other people. It is one of my hopes that it would be installed in an art gallery along with other works that relate primarily to new media. Though the work still remains admittedly unfinished, these details would hopefully be fulfilled in the artwork's future iterations.

For the viewer, the experience would start as soon as they walk into the display. In the middle of a blank white room, a small spherical object seemingly floats. Upon closer inspection, the object is cloudlike in its exterior. It glows with a soft diffused light that shifts smoothly and non-erratically from one color to another. On one of its sides, various images, gifs and videos are being projected. These images are somewhat distorted, with digital artifacts and color spilling occurring randomly on the projection. The distortions seem to be applied with varying intensity in every image though as some of the images are nearly spotless while others border the line of being unrecognizable. The projector itself eludes sight though it seems that the colors most prominent in the images are the ones being emitted by the cloud itself.

Engraved on a wooden slab near the spot under the cloudlike structure are instructions for interacting with the cloud. Because of its placement. Most people would have to kneel to properly read the engraved instructions.

The instructions would invite viewers to pay respects to deceased pets, with the option of grieving for their own. They themselves, would be able to contribute to the artwork by uploading their own appropriate media to the cloud. The specifics of this interaction would be communicated in the simplest and most concise manner, perhaps with the use of simple diagrams to make these instructions as accessible as they can be.

When they are able to do contribute to the artwork, the cloud would respond with its lights and, for a brief moment, the projected image would become their uploaded content before returning to the cycle of the other images. Their contribution would seamlessly then be a part of the cloud and, consequently, the projected visual media slideshow, letting other people, both in the present and the future, view the memory that they have shared.

In an effort to not make the artwork be saccharine and manipulative, images showcasing the actual death of the animals would not be allowed.

Media Deterioration

The aforementioned distortion of the images would happen to every one of the uploaded media items. Every time they get shown in the projection, they would be slightly distorted. As they get repeatedly shown, these distortions would accumulate until they are no longer recognizable. Ultimately, they would be removed from the cloud.

If viewers want their uploaded content to not be erased, they would have to visit the artwork continually and reupload their content.

Chapter IV

ARTISTIC MOTIVATIONS

The primary goal of this artwork is to create a space wherein a communal experience of mourning can occur. The space provided by this artwork can hopefully allow individuals to make their own peace with the concept of death through the realization that the simple act of remembering and sharing memories with other people is a way for the deceased to live on.

Mourning with Other People

In one way or another, one of the most primal motivations behind the creation of this project is my own struggles with the stigmatization and dismissal of mourning the loss of a pet. For some, relationships with pets are nothing more than a frivolous luxury. It is notable that this seems to be changing with the increased prevalence of more progressive outlooks in social media now but, in my opinion it is still problematic.

As the projected image in the cloud cycles through the crowdsourced content uploaded by past viewers, it will hopefully elicit a feeling of being able to participate in a collective. By experiencing this communal artwork, I hope it will let people know that they are not alone with the way they feel, no matter how intense these emotions may be. Hopefully, this experience can also act as a catalyst for processing these emotions and can legitimize similar reactions in the future if they ever have any.

Though I am quite aware of its inevitability, I have had no personal experience with the loss of someone I know yet, at least not as a consequence of mortality. For those in similar situations, I believe learning how to deal with the intense emotional effect of this inevitable loss would be essential. As admittedly morbid as it sounds, processing emotions related with the death of a pet might just act as good practice. I am hoping that this artwork could help with that.

Afterlife

Probably the most prevalent idea of an afterlife is the concept of a biblical heaven. Clouds, at least in popular imagery and mainstream media, is an image that suggests this idea of a divine afterlife. That is why it was apparent to me that the first thing I would work on is the project's physical appearance. The project's appearance as a single cloudlike structure seemingly floating midair would hopefully strongly suggest this connection. This cloudlike appearance would also be a paronomasia on the artwork's role as a local cloud saving device.

Though this project does not aim to disprove the existence of this particular version of an afterlife, it is a conscious effort to create a realized version of heaven through the use of technology. In more than one way, this new media version is significantly more limited than its theistic counterpart. But its inherent tangibility and physicality could hopefully be taken as an argument for the use of technology in capturing idealistic abstractions that could have never been realized otherwise. Perhaps it is also important to note that this particular aspect of the artwork that

relates to its name the most. If heaven truly does exist, in some form or another, then these creatures are the ones who deserve it.

Immortality in Memories

Perhaps one of the most coveted feature of heaven is its promise of immortality. Though it is very obvious that this project is unable to create resurrection and immortality in its most straightforward definition, it is able to give the deceased a kind of presence after death. Just as it was in Damien Hirst's title for his 1991 artwork, remembering the memories of somebody is a kind of afterlife, at least for me, personally.

It is important to note that while it was tempting to include other types of media, I chose to only let participants upload visual media. This focus on media that included videos, images, gifs and illustrations is intentional. Firstly, visual media was chosen among other types as it is the most likely to be available from viewers. It is more probable that individuals would use their cameras to record their time with their pets.

Secondly and more importantly, the fact that the uploaded content is visual would also mean that it would be easier to let viewers know when it has been affected by change. Since the concept of remembering was so important to the project, I decided that the uploaded pieces of media would be treated as memories.

Ultimately, this resulted in the implementation of a system where the media content that has been uploaded to the cloud would become more distorted as time

goes on. This would be achieved by processing the uploaded media content through a neural network.

Neural networks are one of the most relevant pieces of technology in new media art today and since it resembles the complicated structure of the human brain so much, it was obvious to implement it as a way to replicate how we, as humans, treat our memories. Similar to Broad's *Blade Runner: Autoencoded* and Bogart's *Watching and Dreaming* collection, this neural network would be taught to re-render an image through an intentional data bottleneck. This is done just to make the effects of the render more obvious and to quicken the process of distortion beyond recognition.

Using a neural network for this would've been ideal but due to the current limitations of my resources, the current iteration of the artwork substitutes this neural network with a simple custom written code composed in *Processing*. This code aims to simulate and show the distortions that would happen if a neural network had actually re-rendered the uploaded images.

Thematically, this feature of the artwork was added as it emphasized remembering as an explicit act and memories can only be kept when you continually remember them. Practically though, this feature helps to solve two issues. Firstly, it lets the cloud drive erase data past a certain point. This means that running out of storage would be less likely. Secondly, it would incentivize individuals who have already seen the artwork to repeat their visit in order to avoid having their content be erased from the cloud drive. More viewers means more participants and this would ultimately result in a feeling of being able to participate in a bigger community.

Chapter V

PROJECT COMPONENTS

The specific parts located on the inside of the physical cloud include; a Neopixel LED strip, an Arduino UNO R3 microcontroller, a power supply, a number of jumper cables and a mini breadboard to connect them together. A wireless hard drive would also be included and it would be used to store all the uploaded media. A projector would be connected to this hard drive through a laptop. Both of these would have their own sources of power while the projector also includes an HDMI cable. All of these can be viewed better in relation to one another through figure 1.

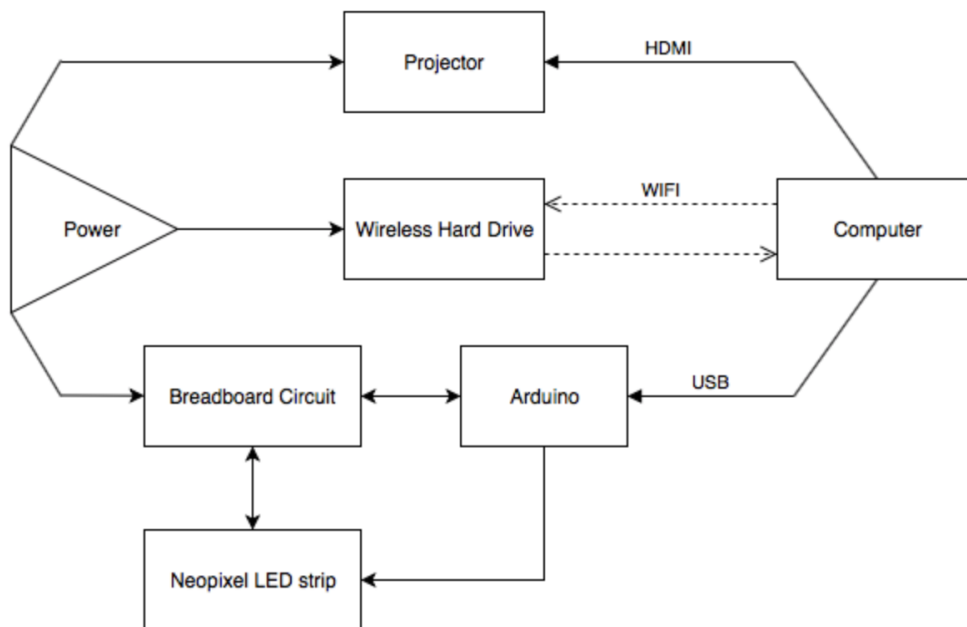


Figure 1. All the components of "If It Exists" in relation to one another.

The main structure of the cloud would be supported by a chinese paper lantern while a layer of cotton batting wraps around the outside of its exterior in order to resemble a cloud. This layer of batting would also diffuse the harsh light coming from the LED strip as well as framing the projector's image.

To make it seem like it's floating, industrial grade fishing line was used to install it overhead. In addition to being clear and almost transparent, fishing line was used as it was inherently taut and inelastic which makes it perfect for minimizing unwanted movement.

Chapter VI

CREATION PROCESS

Most of this process is really just trying to make things as simple as they can possibly be. Due to my intent of displaying this artwork in a gallery, it would be pertinent for me to make the system as simple and reliable as I can make it.

LED Strip

This part of the project was directly inspired by a cloud lamp project written up by Eclectical Engineering (2016).

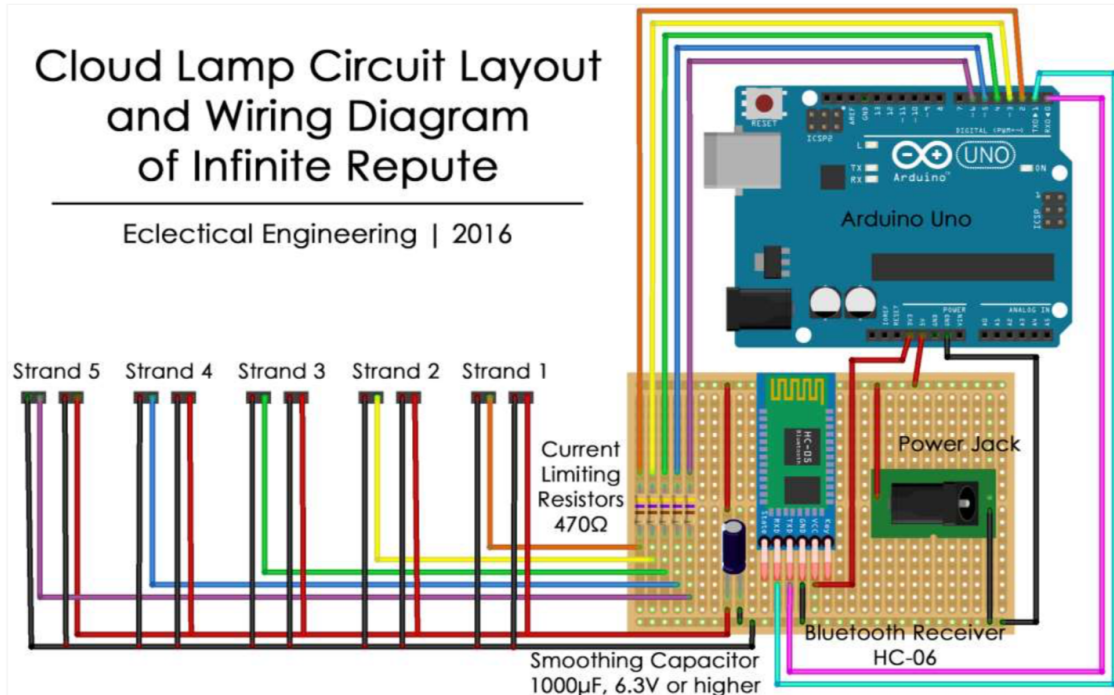


Figure 2. Original Cloud Lamp Circuit Diagram from Eclectical Engineering (2016).

The design shown in the diagram above was modified to fit the needs of the artwork more appropriately. One of the major modifications was the removal of the extra strands and, in the case of the final design, the exclusion of the bluetooth module altogether.

Originally, the LEDs illuminating the physical cloud were going to be controlled through a Bluetooth connection but, after being unable to properly troubleshoot the system after repeated problems, this idea was scrapped for a simpler and more reliable system. This troubleshooting process is detailed later in this section.

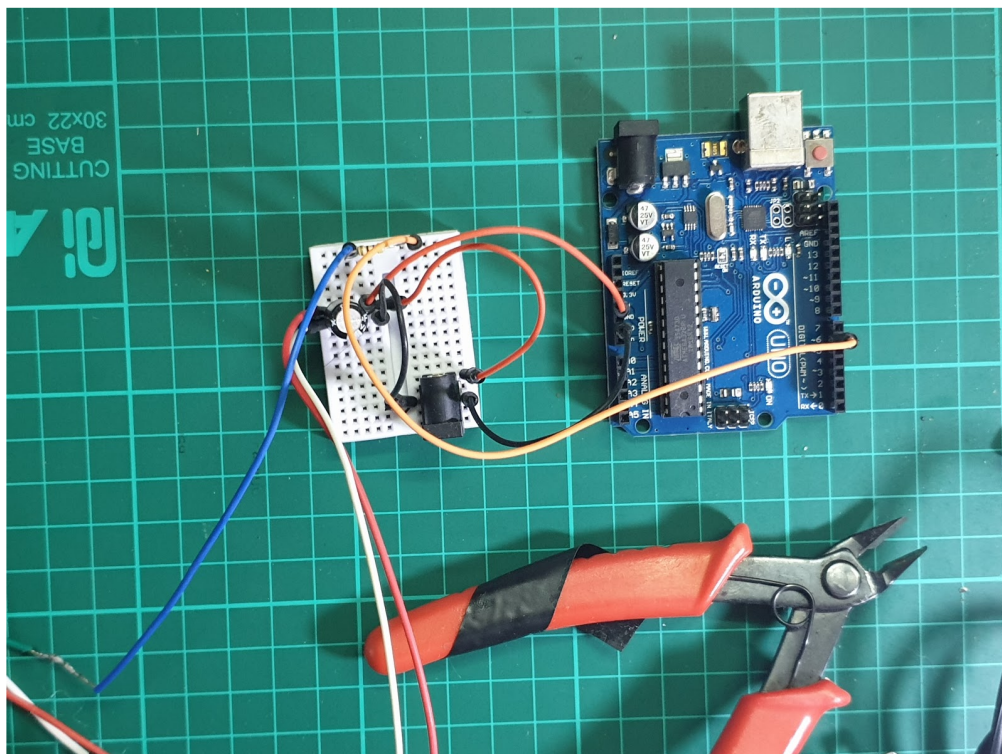


Plate 1. Arduino and mini breadboard with modified cloud lamp circuit.

Since the Neopixel LED strip was shipped out with a male JST connector, the jumper wires that connected it to the Arduino and the breadboard had to be adapted. Three differently coloured jumper wires were paired and soldered to the three pins of

a female JST connector. The use of a JST connection between the Neopixel strip and the rest of the circuit was planned to make it easier to reposition and readjust the entire system when it was finally time for it to be installed inside the lantern.

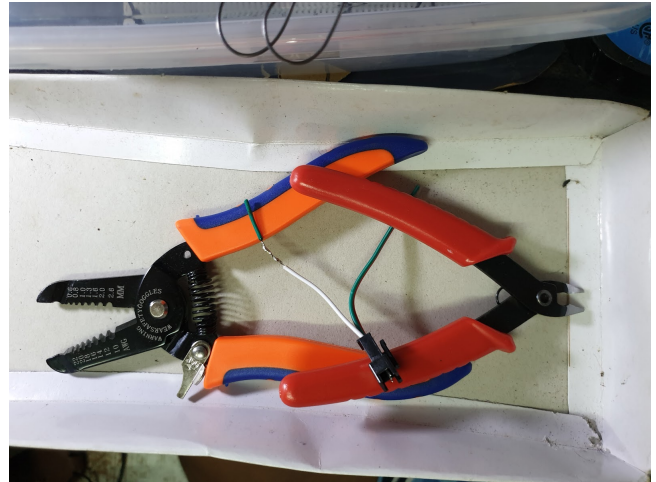
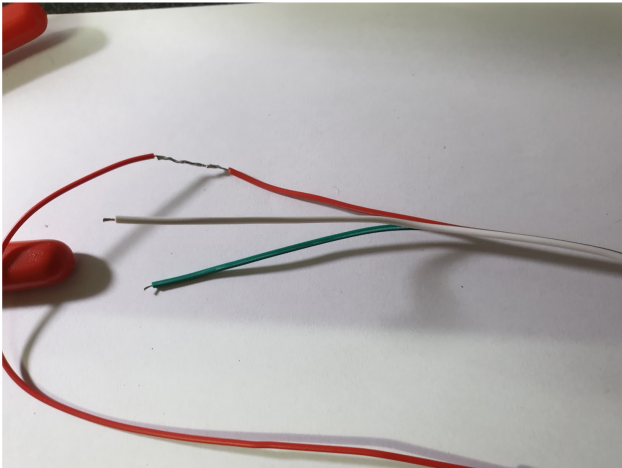


Plate 2, 3. Process of soldering three jumper cables to a JST connector

Since some of the problems I've encountered while troubleshooting the LED strip occurred simultaneously, the process of trying to figure out the reason behind the failure of the LEDs became quite frustrating.

A lesson I learned while troubleshooting this project is the process of isolating separate parts of the system to determine which ones are causing the problem. Obviously, I knew I needed to ensure that the physical connections in my circuit were not compromised.

In order to do this, I changed the uploaded code in the Arduino into a test code first. This turned out to be a fruitful step as I discovered one of the biggest errors in the process of making this artwork. I have failed to notice that the pre-installed JST connector on the Neopixel LED strip actually connected to the

signal out end of the strip. This means that the strip was unable to receive both the signals coming from the Arduino and the power coming from the breadboard. After this discovery, it became apparent that a JST connector had to be soldered into the other end of the strip. A procedure that proved to be quite arduous for someone inexperienced in soldering like me.

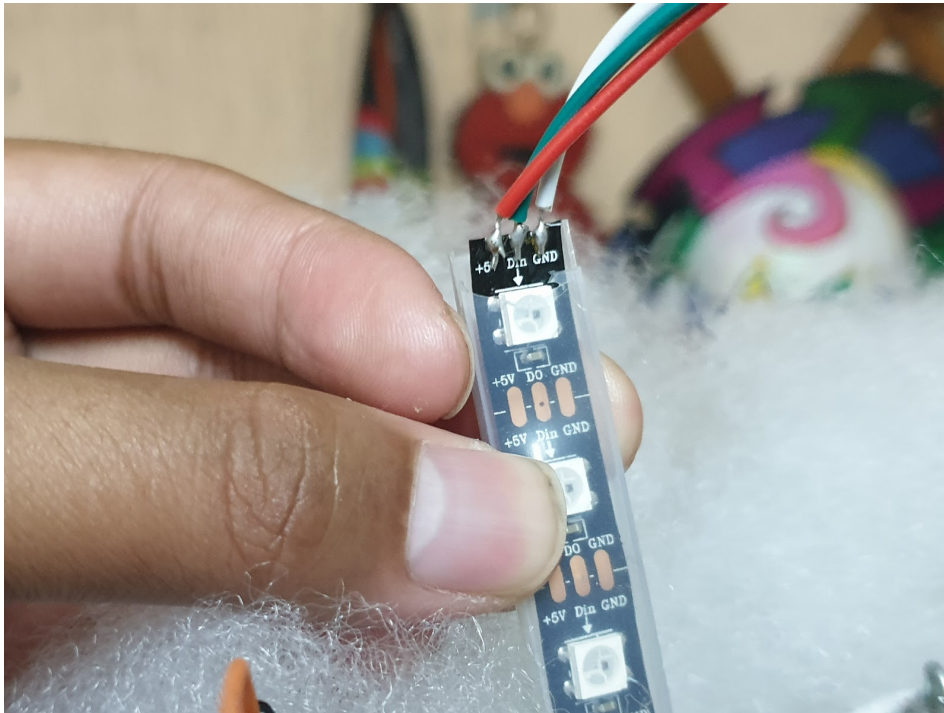


Plate 4. Newly-soldered connections between JST connector and Neopixel input end.

This is possibly one of the most difficult parts of the process as the soldering points on the strip were tiny and did not allow much room for error. I was worried that if I use too much solder, the ports would end up being connected to each other. Burning out the entire strip by feeding power into the signal part of the strip would be an extremely undesirable result. The thin jumper wires also proved to be difficult to position properly as their lack of weight made them susceptible to unwanted movement. And since they were also stranded, the ends would occasionally come

undone in the process of being soldered, making for poor connections. These reasons, combined with my aforementioned inexperience in soldering, made for a significant amount of failures.

As the JST connections were soldered successfully to the LED strip and the LED reiterated through the test code successfully, the next step was trying to figure out why the bluetooth module only worked half of the time.

Originally, the circuit used a HC-06 bluetooth module. But the functionality of controlling the LED strip through a bluetooth terminal from a smartphone was unreliable. With the fear that the module itself was faulty, the slave-only HC-06 module was replaced by a newly-acquired HC-05 module, which can also function as a master. In the end, the functionality still ended up being unreliable and the bluetooth module was excluded from the circuit. I ended up opting for a wired connection between the computer and the Arduino microcontroller.

Cloud Structure and Exterior

The cloud itself was a relatively easy build. As it would act as the main structural support of the whole rig, it was important to choose a lantern built with the correct materials and dimensions. The procured lantern ended up being 24 inches in diameter and is supported by a fairly strong metal frame. The outside membrane is made from white paper.

There was contention regarding the modification of the material for this outside membrane. One of the options considered is replacing the white paper with

papier-mâché. Its malleability would have afforded me much flexibility in shaping the outside of the lantern itself. But concerns regarding its translucency provoked a need for testing first. This turned out to be a beneficial decision as I soon discovered that the projection had a hard time coming through to the other side of a papier-mâché surface. This was also the case with cloth, which was also tested. In the end, the white Japanese paper used in the original lanterns was chosen.

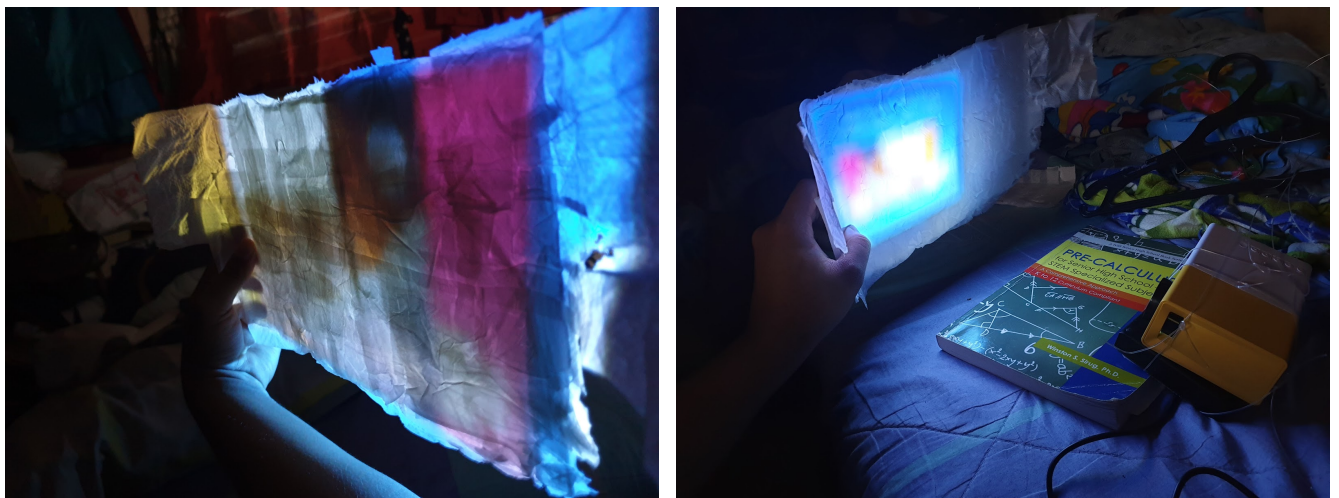


Plate 5, 6. Testing papier-mâché's translucency for the projection.

Before starting on the final version, a smaller lantern made from the same materials was used to see how the materials, specifically the white paper, would interact with the cotton batting. An important lesson learned from this trial was that it was extremely more difficult to attach the batting to the middle parts of the lantern when the parts near the openings were already covered. This also made it difficult to insert objects inside the lantern without damaging the batting near the opening.



Plate 7. Smaller 12-inch lantern prototype for batting cohesion test.

For the later version, the process of covering the exterior with batting started in the middle, working towards the edges, making the process significantly more convenient. The paper was actually perfect for adhering the cotton batting with a glue gun. The white color also made it easier to hide any small gaps that was on the layer of batting.

Projector Rigging

In the early conception of the artwork, the projector was supposed to be separate from the cloud structure. A wall would be allotted for the projection of the

images being uploaded into the wireless hard drive. But after much consideration, it became apparent that incorporating the projector to the cloud itself would result in a more cohesive piece. Putting the projector inside the cloud structure would also add to the experience of the artwork, as the viewer wouldn't be able to immediately realize how the images were being projected. This placement also utilizes the different characteristics of the other materials, particularly the translucency of the lantern paper and the color range of the LED strip.



Plate 8, 9, 10. The projector and hard drive is attached together to save space inside the lantern.

The projector that was acquired was an LED pocket projector. The particular model was chosen as it had the capability to connect through both HDMI and USB. Its small size also afforded me additional flexibility in its installation inside the cloud structure. Incidentally, it ended up being the same length and width of the wireless hard drive.

To keep things simple, the projector and hard drive were physically attached to each other. It was ensured that the exhaust fans of the projector faced away from the hard drive since it gets quite hot when operating.

A flaw in my plan immediately started to show itself when the projector was being tested inside the lanterns. It immediately became obvious that the minimum throw range of the projector would make it difficult to provide a clear image projection on the lantern exterior. To try and solve this, several sizes of lanterns were tested.

First, the 12- inch lantern used for the first version of the cloud structure was tested against the projector. Unsurprisingly, it had difficulties in fitting through the smaller opening though this test did provide me with the information that the light from the LED projector wouldn't be able to penetrate through a layer of cotton batting. This means that in the final iteration of the project, a window would have to be carved out of the cotton batting to display the image projection.

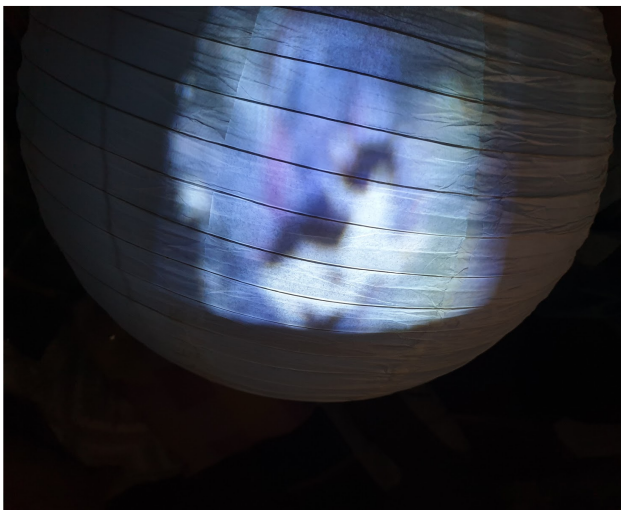


Plate 11, 12. Differently-sized lanterns being tested for projection clarity.

16-inch and 20-inch lanterns were also tested but it ultimately came down to providing the projector with the largest possible lantern diameter available. The 24-inch lantern made the projector provide the clearest picture, though only marginally in comparison to the others.

I ended up using two 24-inch lanterns to achieve an acceptable image quality. Openings in both of the lanterns were made to let the image project from one end to another. These openings left the wires untouched so as to keep the structural integrity of the whole build.

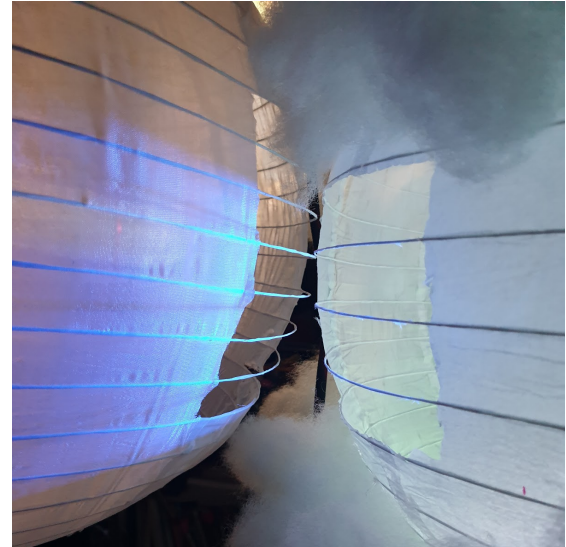
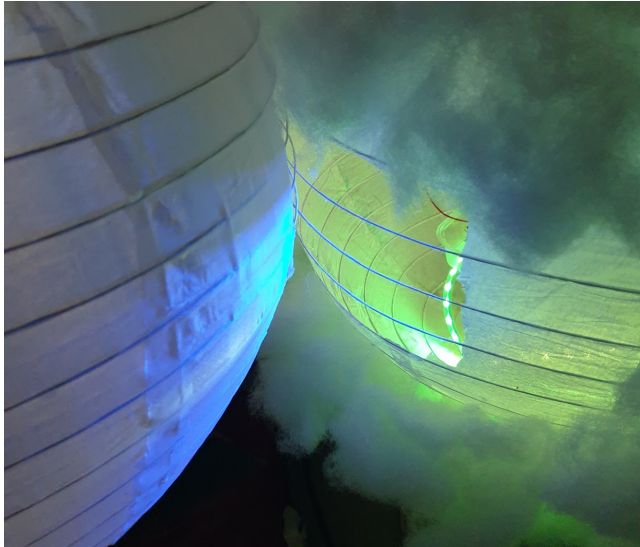


Plate 13, 14. Openings and attachment points of both lanterns.

A couple of plans were thought up on how the rigging would secure the projector inside the lantern. Initially, using wooden boards was planned for each of the components inside the cloud. But it became apparent early in the planning process that wooden boards couldn't be installed without compromising the structure of the lantern itself.

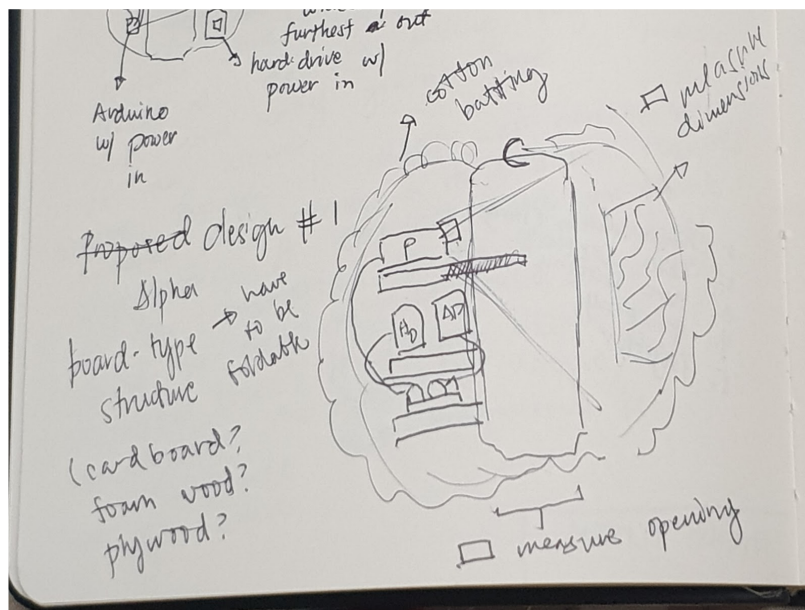


Plate 15. Initial sketch of first iteration.

The next iteration of the rigging plan implemented flexible wooden struts to act as supports for the projector and hard drive. These struts would attach to the metal frame and would support the projector from the bottom of the lantern. Unfortunately, this also failed to work in practice. In addition to not being flexible enough to avoid damaging the lantern in its installation, the struts also failed to properly support the projector and hard drive.. The metal frame of the lantern buckled under the weight of the rigging and it also strained the bottom part of the lantern fabric.

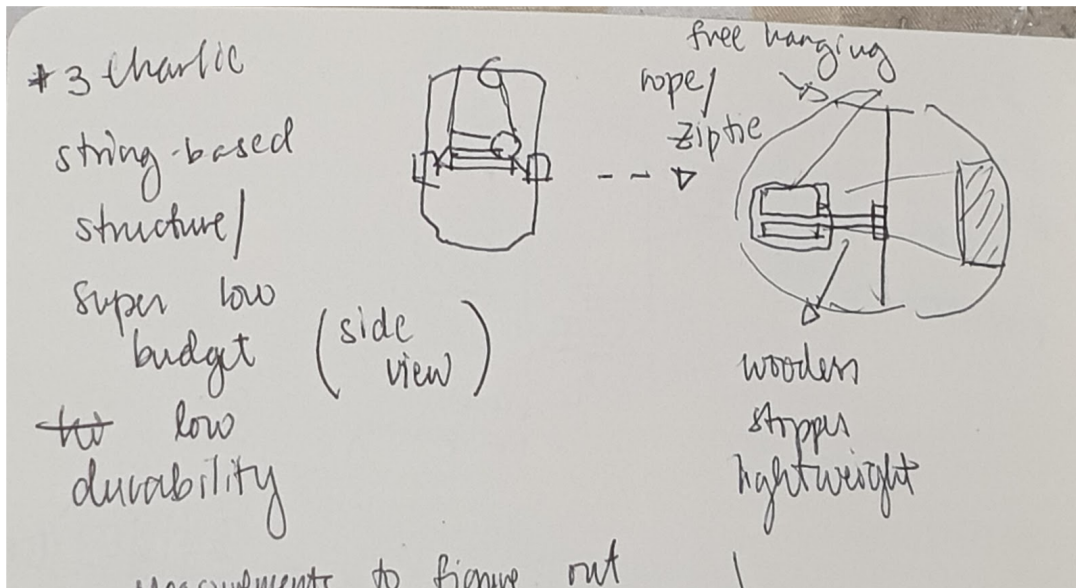


Plate 16. Initial sketch of second iteration.

The third iteration implemented wires as the primary structural element of the projector rigging. These wires would attach independently from the lantern structure in an effort to reduce the stress on the metal frame. As the projector hanged from the wires, it would also be supported by a strut constructed from a metal wire. The metal wire was chosen as it afforded greater flexibility, meaning that there would be no problems in installing and adjusting it through the small openings of the lantern. This material also provided enough rigidity to support the projector.

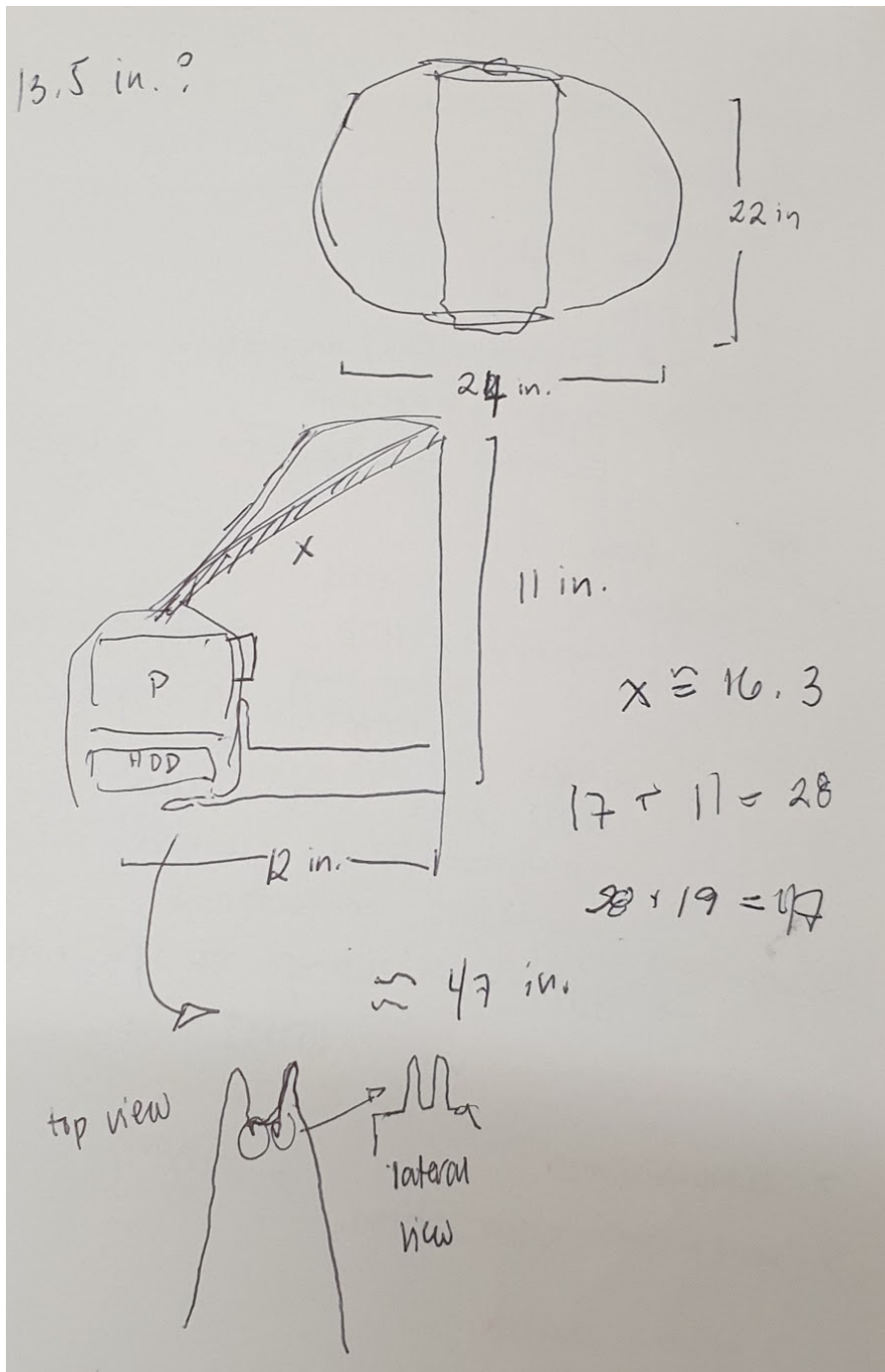


Plate 17. Initial sketch of third iteration (wire trusses version).

The strut's primary function is to push the projector to the edge of the lantern so that it would get somewhat closer to its minimum throw range. Though in practice, it ended up bearing quite a significant amount of weight, since the wire attachments

had to be in a more obtuse angle to the attachments than originally planned, it was not able to take away the weight of the projector from the horizontal strut.

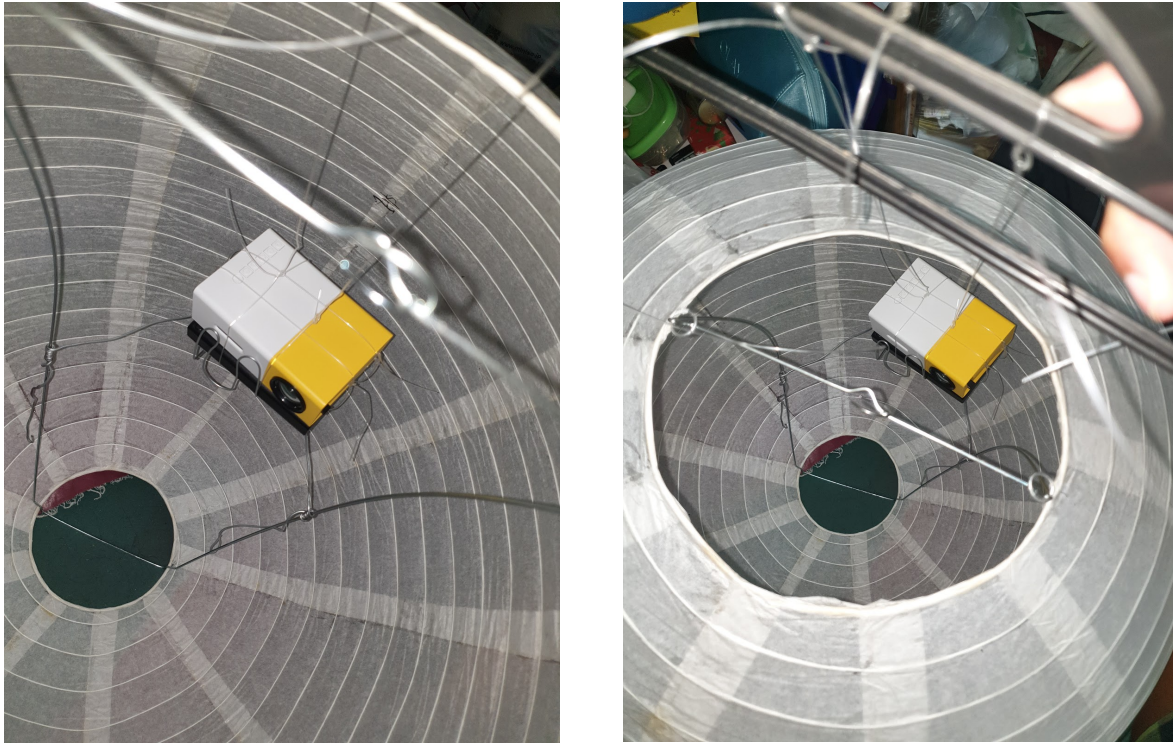


Plate 18, 19. Trial versions of metal wire trusses.

The final iteration then that was used in the project's latest version uses plastic containers and metal struts. The plastic container is supported by metal struts that hooked into designated insert points on each of the four sides. The struts are then attached to the metal frame. The rigidity of this setup reduces movement and rotation in the rigging, which was a major problem in previous iterations. This meant that the projection image being cast onto the outside would be more predictable, affording greater precision in the application of the cotton batting.



Plate 20, 21, 22, 23. The final version of the projector rigging.

A power strip will be lowered into the inside of the lantern, independently supported from the metal frame to reduce stress on the lantern itself.

The Arduino and the small breadboard is attached near the bottom of the frame, using a similar structure as in the projector rigging. Its location directly over the bottom covering of the lantern perfectly situates it so that viewers can see the arduino when they look inside the lantern. This will hide the projector and the hard

drive from direct line of sight. Additionally, it will make it easier to install a cooling fan at the bottom of the lantern if it is ever needed in the future.

Custom Coding

IMAGE DETERIORATION IN PROCESSING

To implement an additional layer of the digital media into the art piece, the visual media that would be uploaded to the hard drive were planned to pass through a neural network. The recreation of these images by the neural network would emphasize the frailty of memories, regardless of whether they were composed through biological means or through digital 1s and 0s.

Ideally, the images would deteriorate as it repeatedly passes through the neural network until the data would be barely comprehensible. This data would then be disposed to make room for new image entries by other people. Practically, this would be a way to ensure that the finite memory of the wireless hard drive wouldn't be filled up. This would also incentivize repeat visits from viewers of the artwork as they would need to upload their media again if they want it to still be included. This would also reinforce the idea that memories would only fail to fade if we recall them continually.

In this particular version of the project though, due to the lack of resources from the researcher's end, the neural network image processing would have to be simulated. This meant using a simpler code to try and achieve the results of the neural network, rather than its full functionality per se. The visuals of this simple code

would introduce degradation to the images in a more brutal manner but would hopefully sketch out how these images would look like if they were being processed through a neural network.

The code is written and executed through Processing (see Appendix A for the code itself). It uses pixel displacement, and random number generators to achieve this overall look. It would also process the images in real time as the motion of the degradation would make the projected image more compelling to the viewer.

Later in the process and as an exercise in further visualizing the final product, I used After Effects to produce a target render. One of the effects prominently used in the render, along with random displacement of blocks of pixels, is the randomized movement of the RGB color channels. This target render animation was also used in the dry runs of the latest iteration.

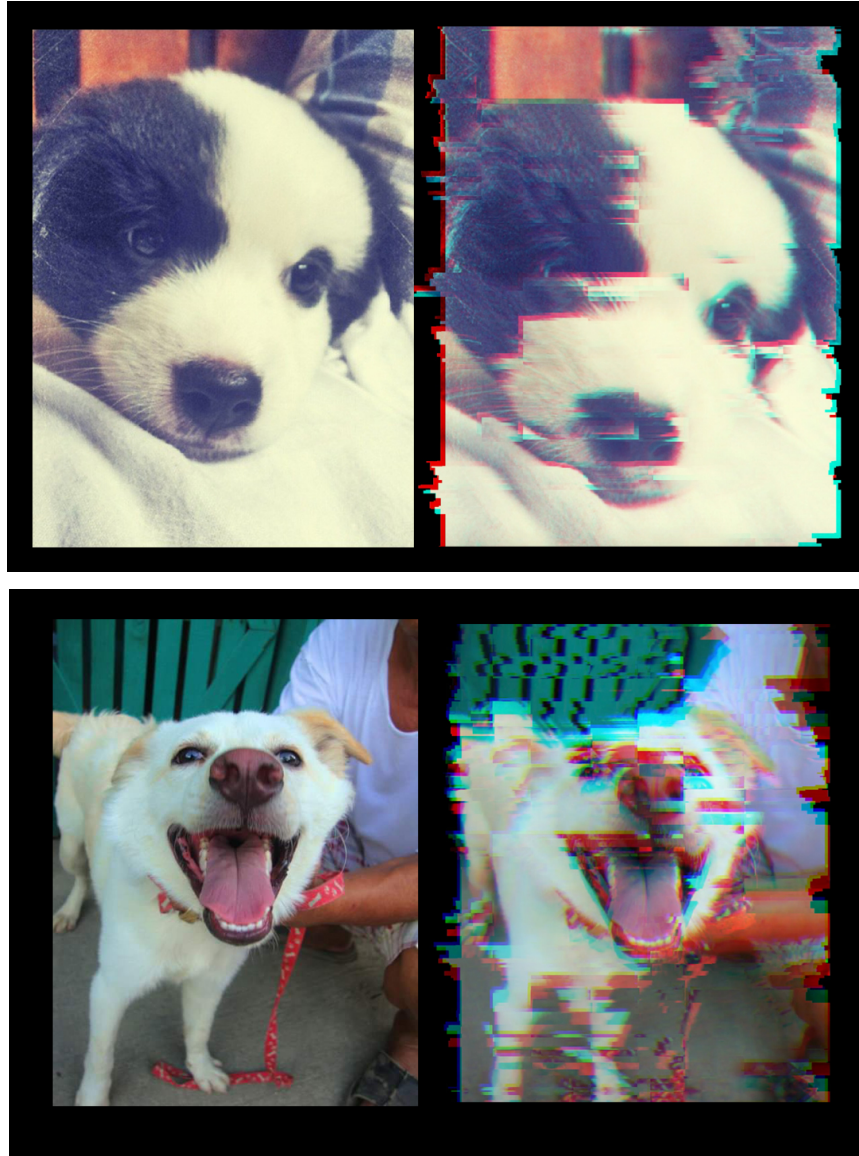


Plate 24, 25. Screenshots of the target render animations along with the original images.

ARDUINO AND NEOPIXELS

Since the bluetooth capability of the LED was scrapped for a simpler and more reliable setup, it actually afforded the piece an additional element that would make it more effective as a whole piece. The images that would be uploaded would be reflected on the LEDs themselves. This connection would hopefully add to the

coherence of the project and would establish to the participants that their interaction with the wireless hard drive is connected to the cloud structure itself.

Just as in the projector, the laptop would mediate the communication between the wireless hard drive and the Arduino that's controlling the LEDs. The *Processing* code that is responsible for the image processing mentioned earlier contains a code that would pick random pixels in the image and transfer its color to the LEDs.

This was done through serial communication. The Arduino code was first modified and, subsequently, uploaded to accept serial communication from the *Processing* code. The *Processing* code would pick a random pixel to extract color information from. This data is then sent to the Arduino through serial communication. To avoid confusing the Arduino with which color value corresponds to which color, the data is divided into three write function batches, namely, red, green and blue. The Arduino then reassembles the color information and plugs them into a `colorWipe` function to be displayed by the Neopixel LED strip (see Appendix B for full Arduino code).

Chapter VII

FUTURE OBJECTIVES

Due to the limitations of my resources and skill, there are still fundamental problems in the project that I would like to address in its future versions. Probably the biggest issue is the throw range for the projector. Specialized short-range projectors can be quite expensive but they are what I think is needed to take the project to another level of polishing.

There is also the issue of the lanterns themselves. Though they were able to provide a solid structure for the current iteration of the project, it was not difficult to see that they would not last with the way they were being used.

Perhaps a specially made structure could be designed and welded together in order to provide more strength to the installation. It being specially designed would also mean that it could be made to suit the different requirements that I wished that I had upon creating the artwork. In particular, this would be access points and mounting apparatus for the various components. I am also open to the possibility of using 3D print technology to create this custom frame. This would make prototyping extremely easier.

There is also the issue with the data handling itself. It is only safe to assume that some less sincere patrons would find a way to abuse the wireless drive. It would be better if there was a way to implement anti-spamming countermeasures.

Last but not the least, as I have mentioned in my artistic motivations, I would like to actually implement a real neural network in the project once my resources can afford me the chance.

Along with this, it is also in my best hope that this project would evolve into other more accessible and less gallery-dependent content. I was imagining setting up a new website called *Dead Pets' Society*, where people can upload media content that they associate with their deceased pets, visual or otherwise. They would also be asked to fill out other relevant information that they would be willing to share. As they finish this process, a custom built page would compile and display all the media and information they have shared. This page can only be accessed in the website with a randomly generated unique code that is similar to a hexadecimal color code. They are free to share this code to whoever and can even use it as a hashtag for social media.

I would also like to incorporate this into *If this Exists* by letting them input this code which would seamlessly transfer this online uploaded data into the local wireless drive.

Chapter VII

CONCLUSION

Throughout this whole process my mind often wandered back to Damien Hirst receiving critique for the outright simplicity and seemingly lack of skill that went into the creation of his tiger shark installation. One of the regular complaints he received, and a statement I'm sure all new media artists are familiar with, was that anyone could have made what he has created. To which Hirst snapped back along the lines of, "Well, why didn't you?". And now I finally know the answer to his rhetorical question. It's because it's actually harder than it looks.

For all my artistic motivations and commentary behind *If It Exists*, it still took me a considerable amount of time and effort to convince myself that it was an artwork, in every real sense of the word. After all, I do not consider myself an artist. For me, *If It Exists* carries with it a tremendous amount of emotional significance and psychological weight. Its context in my own personal struggles with the legitimization of my depression is utterly momentous. And even though I view it as a stumbling success of an attempt to synthesize these personal concepts, I was still bothered by the thought that the casual viewer might think that the existence of this artwork is not justified.

Perhaps this expectation of judgement comes from what is still left of my own prejudice towards both modern and postmodern art. Back when I was still smug with adolescent cynicism and high off of my own ignorance of what art truly means, I openly despised works that seemed to be pretentiously simple and needlessly

abstract. During my blunder years of being a pseudo- intellectual, I would have unabashedly mocked and hated the existence of *If It Exists*.

Perhaps in addition to this deep-seated hesitation to treat it as a real artwork, I also had the issue of lacking confidence on whether I had the capability to articulate something so complex into something so simple. If we reduced *If It Exists* into its components, we could see how it is still just a relatively straightforward composition of easily acquired materials. I questioned my own abilities particularly because of my inexperience in working with a physical medium. There is permanence and irreversibility with real world materials, something I enjoyed not having when I worked exclusively with digital media.

The paralyzing fear of risking my progress with every new creative decision became quite unnerving, especially with the knowledge that I was limited with my resources. Every step of the way, the materials that I used for this project pushed back in ways that I was unable to account for in my planning. I had to adapt my process and settle into the repetition of trial and error, with error being an acceptable outcome.

This increased patience for attrition is something that I had been learning all throughout my education as a multimedia artist but not to the extent that I had been forced to with *If It Exists*. This might be the most practical lesson that I have learned in trying to realize this artwork. At the risk of overtly romanticizing this process, I am willing to admit that while I hated learning this skill in the moment, it will probably be the lesson I will lean into the most throughout the rest of my life.

Perhaps this is the best way for me to try and afford a more forgiving and objective view of myself in *If It Exists*, by putting in the context of the academic

aspect of my life. *If It Exists* is a culmination of all the change that has occurred to me with my relationship with art and, more specifically the concept of new media art itself. Along the way, I have obviously learned to have a more accepting view of art but in attempting to make this project, I've developed a relationship with it in a level of intimacy that I haven't really done so before. From a previous immature dismissal of it to a sort of perverted love-hate relationship, I can actually feel myself changing as I desire to seek it out more as I fully integrate it into my own identity.

I pursued multimedia art because I viewed the skills being developed as practical and, for a more frank terminology, employable. This decision to pursue art in the name of practicality is a situation ripe with irony but there is a sort of wondrous serendipity to it. *If It Exists* is a culmination of many things. It is the culmination of the various skills I have learned as a multimedia arts student and the culmination of my struggle with mental health. But, perhaps most surprisingly, it is the culmination of my acceptance that I can actually see myself as a true multimedia artist, in every real sense of the term.

As for the legitimacy of its being, I can only say that I made *If It Exists* because I wanted to create it. I wanted to help myself and other people articulate feelings and emotions that can be difficult to express in company. I wanted this artwork to be a eulogy to my addiction to sadness, longing and loss. I wanted it to be tribute to fading memories and a celebration to unwavering ones. I may still have a long way to go regarding the technical refinement that I want to see in the finished product but as for the legitimacy of its being, I am not questioning it anymore.

I have accepted that, for art at least, if it exists, someone needed to create it.



Plate 26, 27. One of the final versions of 'If It Exists'.





Plate 28, 29. The latest iteration of 'If It Exists' (see Appendix C for a video)

BIBLIOGRAPHY

- Bluth, Don. (Director), & Weiss, David. (Screenwriter). (1989). *All Dogs Go to Heaven* [Motion picture on DVD]. Ireland, United Kingdom, United States: United Artists.
- Bogart, Ben. (2016). *Watching (Blade Runner)* [New media installation]. Watching and Dreaming. Marshall McLuhan Salon, Berlin, Germany.
- Broad, Terence. (2016). *Blade Runner: Autoencoded* [Digital video]. London
- Broad, Terence. (2016). *Autoencoding Videoframes*. MSci dissertation. University of London
- Brooker, Charlie. (Writer), & Harris, Owen. (Director). (2016). *San Junipero* [Television series episode]. In *Black Mirror*. Netflix Original.
- Chang, Candy. (2011). *Before I Die* [Chalkboard Painting]. New Orleans.
- Frank, Priscilla. (2015). *A Brief History Of Artists Grappling With Loss And Death*. *HuffPost*. Retrieved from https://www.huffpost.com/entry/death-in-art_n_6849376
- Hirst, Damien. (1991). *The Physical Impossibility of Death in the Mind of Someone Living* [Tiger shark, glass, steel & formaldehyde]. The Metropolitan Museum of Art, New York.
- Kung, Ryan H., & Shulman, David. (2016). *Eclectical Engineering: Cloud Lamp* [Online video instructable]. Los Angeles.
- Loeber, Jennifer. (2014). *Left Behind* [Photomontage/photographic gallery]. In *Instagram*.
- Thio, Vibert., & Wang, Aluan. (2016). *Étude* [New media project]. Taipei, Taiwan.

Appendix A

CODE FOR IMAGE PROCESSING

```
PImage original;
PImage output;
PImage orange;

float line_y = 0;
float n_line = 0;

import processing.serial.*;    // Importing the serial library to communicate
                               // with the Arduino

Serial myPort;                // Initializing a variable named 'myPort' for serial
                               // communication with the Arduino

void setup() {
    size(640,480);
    original = loadImage("chewy.jpg");
    orange = loadImage("orange.jpg");
    int l = int(random(60));

    output = createImage(l, l, RGB);

    image(original,0,0);
    frameRate(4);
    n_line = random(30);

    //for Arduino
    myPort = new Serial (this, "/dev/cu.usbmodem1451", 9600); // Set the com port
    // and baud rate according to the Arduino IDE
}

void draw() {
    //background
    original.loadPixels();
    output.loadPixels();

    //picking a random location to sample
    int r_x = int(random(original.width));
    int r_y = int(random(original.height));

    int randomLoc = r_x + (r_y)*original.width;

    int x = int(random(original.width));
    int y = int(random(original.height));

    int loc = x + y*original.width;
    color pix = original.pixels[loc];
```

```

float r = red (original.pixels[loc]);
float g = green (original.pixels[loc]);
float b = blue (original.pixels[loc]);

float r_pix = red (original.pixels[randomLoc]);
float g_pix = green (original.pixels[randomLoc]);
float b_pix = blue (original.pixels[randomLoc]);

float red_average = r_pix;
float green_average = g_pix;
float blue_average = b_pix;

if(random(100) > 50){
    original.pixels[loc] = color(red_average, green_average,
blue_average);
}
else {
    original.pixels[randomLoc] = color(red_average, green_average,
blue_average);
}

original.updatePixels();
image(original,0,0);
for (int k = 0; k < 450; k = k+50) {
    float j = random(640);
    image(output, j, k);
    delay(50);
}
//line glitch. fix stroke color to random
stroke(random(255),random(255),random(255));

for (n_line = random(60);n_line < 50; n_line = n_line+5) {
    if (line_y < 0) {
        line_y = height;
    }
    line(0, line_y = random(480), original.width, line_y);
}
//output to arduino here. taking random pixels, extracting color data and
running the LEDs through it
float [] ardu = new float[3];
int red = int(r_pix);
int green = int (g_pix);
int blue = int(b_pix);

myPort.write('S');
myPort.write(red);
myPort.write(green);
myPort.write(blue);
}

```

Appendix B

CODE FOR ARDUINO

```
#include <Adafruit_NeoPixel.h>
#ifdef __AVR__
  #include <avr/power.h>
#endif

#define PIN 6

// Parameter 1 = number of pixels in strip
// Parameter 2 = Arduino pin number (most are valid)
// Parameter 3 = pixel type flags, add together as needed:
//   NEO_KHZ800  800 KHz bitstream (most NeoPixel products w/WS2812 LEDs)
//   NEO_KHZ400  400 KHz (classic 'v1' (not v2) FLORA pixels, WS2811 drivers)
//   NEO_GRB     Pixels are wired for GRB bitstream (most NeoPixel products)
//   NEO_RGB     Pixels are wired for RGB bitstream (v1 FLORA pixels, not v2)
//   NEO_RGBW    Pixels are wired for RGBW bitstream (NeoPixel RGBW products)
Adafruit_NeoPixel strip = Adafruit_NeoPixel(120, PIN, NEO_GRB + NEO_KHZ800);

void setup() {
  strip.begin();
  strip.setBrightness(30); //keep at 30% to avoid overpowering the projector
  strip.show(); // Initialize all pixels to 'off'

  Serial.begin(9600); // Starting the serial communication at 9600 baud rate
}

void loop() {
  colorWipe(strip.Color(206,240,209),50);
  delay(2000);
  rainbow(10);

  int r;
  int g;
  int b;

  if (Serial.available ( ) > 0) { // Checking if the Processing IDE has send a
  value or not

  if(Serial.read ( ) == 'S') { // Reading the data received and saving in the state
  variable
    while(!Serial.available()){
      r = Serial.read();
    }
    while(!Serial.available()){
      g = Serial.read();
    }
    while(!Serial.available()){
      b = Serial.read();
    }
  }
}
```

```

}
delay (10);

colorWipe(strip.Color(r,g,b), 100); // Red
}
delay(50);
}

// Fill the dots one after the other with a color
void colorWipe(uint32_t c, uint8_t wait) {
  for(uint16_t i=0; i<strip.numPixels(); i++) {
    strip.setPixelColor(i, c);
    strip.show();
    delay(wait);
  }
}

//idle animation
void rainbow(uint8_t wait) {
  uint16_t i, j;

  for(j=0; j<256; j++) {
    for(i=0; i<strip.numPixels(); i++) {
      strip.setPixelColor(i, Wheel((i+j) & 255));
    }
    strip.show();
    delay(wait);
  }
}

// Input a value 0 to 255 to get a color value.
// The colours are a transition r - g - b - back to r.
uint32_t Wheel(byte WheelPos) {
  WheelPos = 255 - WheelPos;
  if(WheelPos < 85) {
    return strip.Color(255 - WheelPos * 3, 0, WheelPos * 3);
  }
  if(WheelPos < 170) {
    WheelPos -= 85;
    return strip.Color(0, WheelPos * 3, 255 - WheelPos * 3);
  }
  WheelPos -= 170;
  return strip.Color(WheelPos * 3, 255 - WheelPos * 3, 0);
}

```

Appendix C

IF IT EXISTS - VIDEO

<https://vimeo.com/353061700>

