Postmodern Postmortem: Highlighting Venetian Issues Through Art

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Authorship

This project was completed with the equal participation of each team member. Without their cooperation and effort, this project could not have been successfully completed and brought to the potential stage it has reached now.

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- Finally, a special thanks to all our families, who provided us this wonderful opportunity to make a difference in Venice

Abstract

The purpose of this project was to contribute to the creation and implementation of interactive, data driven, street art installations. Expanding off of the previous Postmodern Postmortem IQP we furthered developed all of the installation concepts to create a final concept for each of the twelve issues. The next step was to build and test working prototypes of each concept. Using our own previous knowledge and skills, as well as help from internet forums and guidelines, we prototyped eleven out of twelve installations and then successfully tested nine out of those eleven.

We also laid a strong foundation for the alternate reality game that will be used to connect all of the installations together. By developing a full story with puzzles for each installation there is little to be done in the future in order for this game to be put into action.

The final piece of this project that was developed is a website. The website is what will be used to explain our whole project after someone solves all of the puzzles and completes the game. This website explains everything from why we are doing the project to how each installation was developed and implemented. Another website is also in the works and will be used solely as the main component of the alternate reality game.

Executive Summary

As we continue with the celebration of the 20th anniversary of the Venice project center we look back at all of the projects that have been done, and all of the issues that past groups have attempted to solve through scientific methods. These methods being published reports that are filled with charts, graphs, pictures, and other not so appealing forms of data distribution. Now this method may be effective for people who are interested enough in these projects to want to read the reports but odds are the general public will never see them. This poses a huge problem because the general public being the majority they hold the power to make the changes proposed in order to improve upon the issues that were researched. So then how can we bring these issues to their attention in a way that is both fun and informative? The answer we propose is through the use of interactive, data driven, street art installations.

These installations are intended to meet four specific criteria to ensure that they capture the full attention of the Venetian people. These criteria are as follows:

1. Interact with all five senses, (touch, hear, see, smell, and taste), and exercise the sixth sense (intuition)
2. Represent concrete issues impacting the quality o f life of Venetians
3. Enthrall and titillate the passers-by with whimsical and beautiful street installations
4. Engage the viewers into discovering the underlying theme through a "secret" game that explains the whole project

The Postmodern Postmortem project seeks to eventually have twenty installations representing twenty different issues to coincide with the twentieth anniversary of the Venice Project Center but there were twelve specific issues that we focused on. The issues included: Moto Ondoso, Turbulence, Acqua Alta, Graffiti, The Deterioration and Disappearance of Public Art, The Effects of Pigeons on Venice, Tourism and Exploitation, Hidden Infrastructure, Illegal Dumping, The Failing Retail Sector, Demographic Decline, and The Lack of a Proper Sewage System. The installations to represent each issue were first conceptualized and then the prototyping and testing processes began. To date we have eleven out of the twelve installations either fully prototyped and ready for implementation or extremely close with only a few minor details left to be worked out.

One example of these installations is called Scents and Sensibility and it focuses on highlighting the issue of illegal dumping in Venice. Residents of the city are permitted to leave their trash outside of their front door only between the hours of 6 AM and 8 AM Monday through Saturday and not at all on Sunday. What usually occurs, however, is people will not want to wake up that early and will then leave their trash outside overnight, causing a fowl stench to fill the Venetian air. It is for this reason that we chose an installation that engages the sense of smell. The installation is simple and uses only a modified Air Wick spray freshener, aluminum foil, and two wires. The concept is that when a bag of trash is placed on a hidden pad the weight of

the bag causes the two wires to touch and activate the sprayer. From there it will spray every nine minutes, if the bag is not removed, creating a fresh smell to counteract the scent of the trash and alert someone to remove the bag. A schematic of this concept is shown below.

Figure 1 - Trash Bag is Place on the Sensor, Air Freshener Sprays a Few Seconds Later

After all these installations have been built and installed throughout the city we need a way to connect them all together and this is where the "secret" game comes into play. The game is actually called an Alternate Reality Game but we decided to connect it more to our project and call it an Urban Reality Game due to the fact that it is set in the urban area of Venice. For this game we developed a storyline with a puzzle for each installation. The idea is for a person to find an installation, become curious of what it means, discover the puzzle and solve it to find the location of the next installation. The location of each installation will be shown as an icon on an interactive map that will be used as the main tool for playing the game. The first icon will show up on the map and when you click it you are given a clue to discovering, and solving, the puzzle. For example, the puzzle for Scents and Sensibility, which must be determined through given clues, involves identifying the scent that is projected from the sprayer. This scent will then be the password to unlock the location of the next installation, thus putting another clickable icon the interactive map. A mock

up of the map after an icon has been clicked can be seen below.

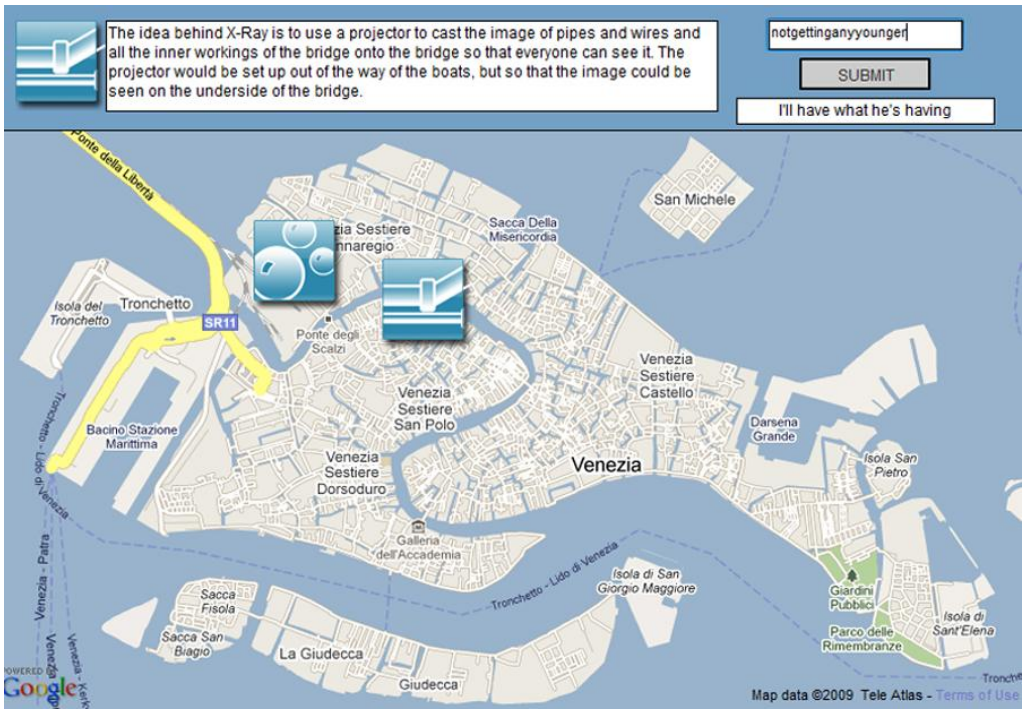


Figure 2 - Mock Up of the Urban Reality Game Website

Once all of the installations are discovered a final password will be given to unlock a website that we have created which explains who we are, why we are doing this project, the issues each installation represents, and how each installation was built. Pictures from different sections of the website are shown below.

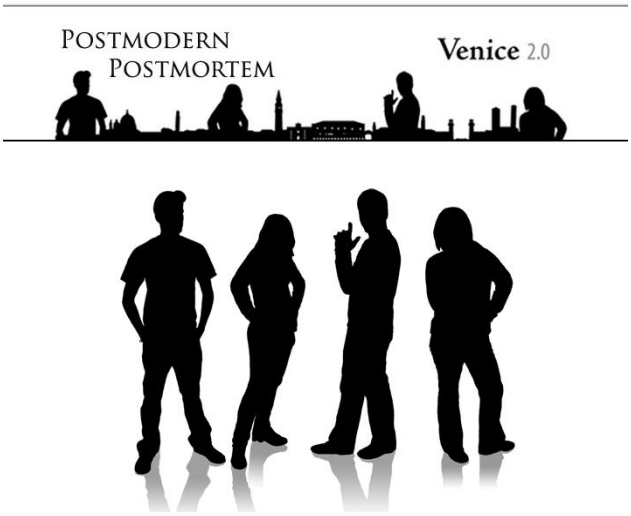


Figure 3 - Website Home Page

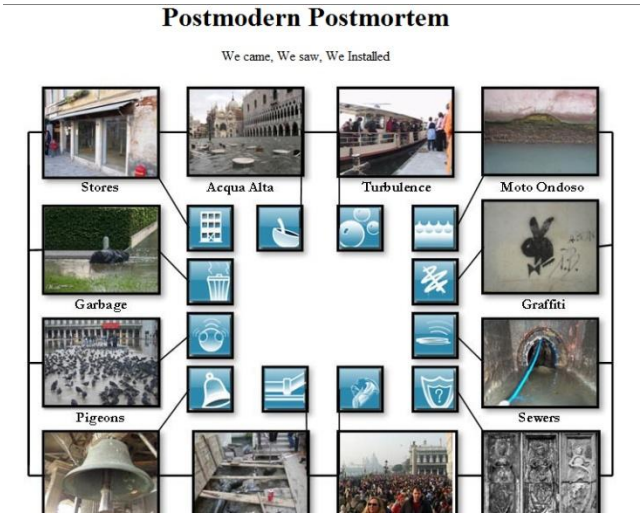


Figure 4 - Explore Our Site

The ultimate goal of this project is to get Venetians and others around the world, to recognize Venice's issues and to take action to preserve this historic city. To fully accomplish this goal we need this project to receive a ton of exposure and a very fitting way to do this is through Venice's biannual art exhibition known as The Venetian Biennale. Artists from all over the world contribute to the exhibition and people from all over the world travel to witness its installations so this would be our best chance to capture people's interest. Luckily there is some time for future Postmodern Postmortem teams to finish what we have started before the next Venetian Biennale, which takes place in 2011.

1 Introduction

In the wake of the 20th century, events and articles of the past slowly fade from the minds of the people, becoming a mere afterthought. The recognition of historical relics and buildings has significantly diminished over the centuries. People become so accustomed to the natural progression of civilization that they fail to recognize the consequences of their environmental negligence. However, not all is lost! There are means of making these issues known. From data charts to graphs to catalogs, the method of data acquisition in tackling an issue have proven to be quite effective in nudging citizens from their apathetic slumber. Among these rousing approaches, art is used as a means of addressing an issue. This method, as opposed to informing the public of an issue through a dreary news broadcast or a mundane article, can be presented in a more appealing, thought-provoking way that engages the viewer as well as informs. Ever since art began being used as a means of self-expression, artists of all sorts have been utilizing their work to serve as criticism on politics or religion, among other themes. Picasso's 1937 painting "Guernica" depicted the bombing of Guernica, Spain during the Spanish Civil War. This piece underscored the tragedy and suffering of war and has since become an anti-war symbol.[1] After gaining worldwide exposure from its tour, it brought the brutality of the Spanish Civil War to the world's attention. More recently, British graffiti artist by the name of Banksy uses his street installations to satirize such topics as politics, culture, and ethics. His pieces are known for their anti-war, anti-establishment, and anti-capitalist messages.[2] This critical aspect of art can be taken to higher levels which can engage the viewer in a more interactive way. Revolutionizing both the usage of art as well as how we perceive issues in our environment could transform the definition of art as we know it.

Venice, Italy is no stranger to the ongoing troubles of a busy city. With the progression of the years and the ongoing motion of daily life, little issues ranging from proper garbage disposal to stolen art relics taken from historic buildings, slowly were building up, snowballing into quite a noticeable result. Soon enough, eroding canal walls, a decrease of basic necessity stores, and high levels of sewage contamination among other things, have raised the attention of many, and some are ready to roll up their sleeves and fix it. Artists in particular are working to use art as a microphone, pointing out ongoing issues with different art media; and what better city to do it in! Venice, Italy is the home of many original innovative and thought-provoking art works. From the 4,230 historical art pieces adorning the Venetian buildings and doorways to the Biennale, Venice holds a prestigious place in the art world and in the heart of an artist.[3] Among the many art forms, installation art brings out the interactive and child-like soul of the viewer, widening their eyes to the wonder of the art and to the reason for its existence. A particular installation artist by the name of Zaha Hadid created "Dunes" which "challenges the traditional Cartesian geometries of architecture and furniture by blending vertical and horizontal into continuous three-dimensional surfaces," bringing a totally different

[1] Koppelman 2009
[2] Chaundy 2006
[3] Elbag 2003

meaning to the purpose of furniture and shape.[4] This kind of approach in challenging the status quo is invigorating and ideal in bringing the dormant city issues to the front lines.

Since the Venice project center was started twenty years ago, many project teams have researched the societal, urban, and cultural issues of the city. In 2007 a project was gathered together to address the lack of awareness for many of these issues. This project was called Postmodern Postmortem and it attempted to address twelve specific issues plaguing Venice such as the canal damage, demographic decline, rising sea level, and tourism. This paved a new path in bringing about awareness through art installations implemented throughout the city. Many of these installations had been conceptualized and were ready to be prototyped.

As we continue with the celebration of the 20th anniversary of the Venice project center we look back at all of the projects that have been done, and all of the issues that past groups have attempted to solve. We look at all of the hard work that's been done to improve the city of Venice and we think to ourselves: how can we connect all of this together in a way that is both fun and informative? Well it seems as though we have found a way: through installation art. Over the years Venice has certainly seen its fair share of artwork, and with the biannual occurrence of the Biennale Art Exhibition its fair share of installation art. So how will our project stand out amongst what seems to be an ocean filled with influential and groundbreaking works of art?

The main goal of this project is to contribute to the creation and implementation of interactive, data-driven street art installations that highlight pressing issues in Venice. By building off of the previous Postmodern Postmortem project, we aim to facilitate the development of these installations with the assistance of various collaborators and artists interested in contributing. Ultimately, this project intends to use art as a catalyst for change regarding the multitude of issues Venice is currently facing. We hope to engage people by tapping into their five senses through these installations, as well as exercising their sixth sense of intuition to allow the viewer to engage in an experience like no other.

[4] Dune Formations : Zaha Hadid, Architect, Photo, Design, Installation, News n.d.

2 Art Catalogue

The following twelve art installations encompass what has been conceptualized thus far for the project. Each installation aims to address a specific issue that Venice is facing in an intriguing and captivating way. This section documents the developmental process for the prototype of each installation and summarizes the rationale behind each concept.

2.1 Brodo di Pesce

Throughout its history the city of Venice has seen its share of environmental changes, but none pose a greater threat to the preservation of the city than what the locals refer to as acqua alta. Acqua alta is the name given to an exceptionally high tide that floods all but the most elevated parts of the city for several hours at a time. The most recent and significant occurrence of this phenomenon, which most often takes place between the fall and spring, occurred on December 1, 2008 when it was documented that 156 cm of water flooded the city streets. Not only is this a disturbance to everyday life, but more importantly it is a direct threat to the overall structure of the city. When the bricks in an old wall are exposed to sea water they absorb the salt which, as it accumulates, hastens their decay. Both the frequency of acqua alta and the height reached by the tides have increased over the past 30 years due to the slow rising of sea levels and sinking of the land surface of Venice. It is believed that the sea level rises by an average of 3 mm per year according to a 100 year study conducted at the tide gauge station known as the Punta della Salute. This study concluded that from 1897-1997 the sea level rose by a total of 30 cm, which gives an average of 3 mm per year.[5] As a natural occurrence, and unnatural occurrence due to global warming, the sea levels will continue to rise thus resulting in more frequent and severe cases of acqua alta as well as more severe and hastened deterioration to the foundations of the city. This is most certainly an issue that cannot be overlooked for much longer.

Figure 5 - Venetians Dealing With Acqua Alta
(Venice from beyond the bridge n.d.)

2.1.1 Methodology

The idea of Brodo di Pesce is to make people aware of the delicate relationship between the city of Venice and sea level. For this installation we sought to take advantage of the opportunity to stimulate a sense that has seen less focus in this project, taste. So the concept that was developed was to make a bowl with a 3-

[5] Contributors, "Acqua Alta," Wikipedia, The Free Encyclopedia n.d.

D model of Venice on the inside bottom, and as a person eats the soup they can watch the soup level, which symbolically represents the sea level, fall and reveal the model of the city. To demonstrate this concept the original creator of Brodo di Pesce, Nicholas de Monchaux, developed a schematic of rendered drawings of his bowl concept. They are shown below.

Figure 6 - Brodo di Pesce Schematic Diagram

As previously mentioned the original creator of Brodo di Pesce was artist Nicholas di Monchaux. He originally chose the soup called Zuppa di Pesce because it has been said that Venice is shaped like a fish, but later changed it to Brodo di Pesce because the Zuppa is not transparent and would therefore defeat the purpose of having the consumer watch the sea level decline. Brodo di Pesce is instead a clear fish broth that allows the installation to follow the concept.

The good thing about this installation is that it is very low maintenance. It practically requires none at all. The only thing that needs to be done is to wash the bowls after each time that they are used and a restaurant would do that anyways so it really no extra work for them or us. The only two things we have to worry about going wrong with this installation is if the bowls drop and break or if over time they wear out from being washed. In either case we could simply replace the damaged with new ones.

2.1.2 Results

In 2007, during the early stages of development, a prototype of the bowl was made using stereo lithographic technology. Stereo lithography is a manufacturing process that uses UV-curable liquid resin and a UV laser to construct a 3-D model a layer at a time. The initial prototype, though very well done, still needed some adjustments however. The mold of the city was not exactly how we wanted it to be so we planned to fix that, and the bowl only allowed for a small amount of soup to be placed on top of the mold so we wanted to get bigger bowls. Most importantly though was the fact that the cost of producing several of these bowls would be too high for our budget. A gallon of the resin used to produce the bowl can cost anywhere from $300 - $800 and each bowl would use about an eighth of a gallon so that's already between $38 and $100 per bowl we would be spending on just resin.[6] Then we would also have to pay for the bowls to make the molds in and the labor charges for using the stereolithograph machine to carve and cure the resin. All in all we decided that this method for producing the bowls was not feasible to us and so we had to develop a new method.

Figure 8 - Brodo di Pesce Initial Concept
(Brodo di Pesce n.d.)

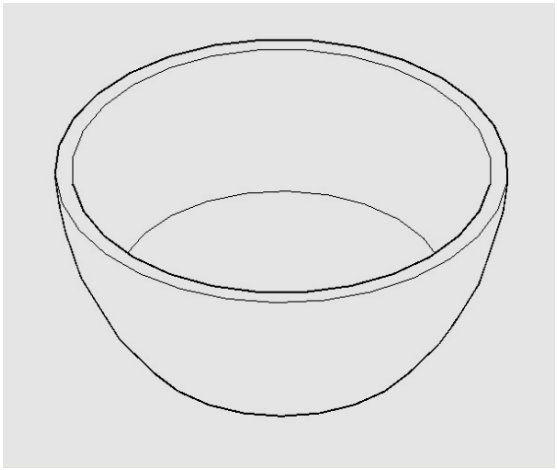


Figure 7 - 3D Bowl

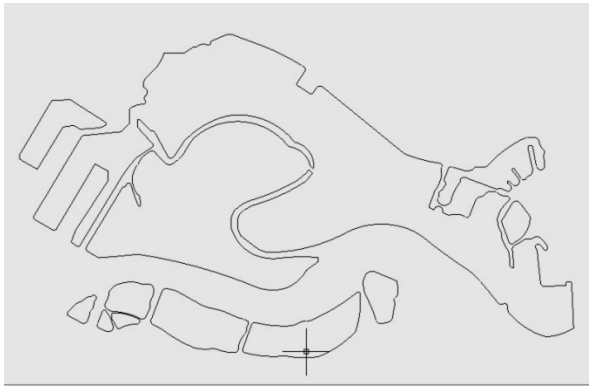


Figure 9 - Outline of Venice

The current concept we developed for this installation involves using a model of the city of Venice similar to the original, but not quite as detailed due to the fact that we don't have a program that can create a 3D model based off of a topographical map. What we have done, however, is use the AutoCAD program to create our 3D model. The first step was to create the bowl in which the city would lie. Using dimensions that we thought to be reasonable we created a circular bowl with a diameter of seven inches and a depth of three inches.

[6] Stereolithography 2009

After the bowl was completed the next step was to create the model of Venice. To do this we took first took a picture of a map of Venice and imported it into AutoCAD. We scaled it so that it would fit within the bowl and then traced the main islands and canals using straight lines. Some of the lines were then filleted to transform them into arcs and give the city a smoother, more rounded and realistic look.

After rounding it out the city was then divided into sections based on elevations which were estimated from the original 3D model. Each section was labeled with a number, one through five with one being the highest elevation and five being the lowest, corresponding to a matching extrusion height.

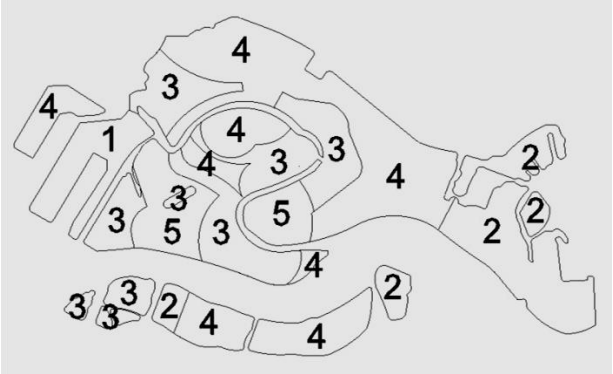


Figure 10 - Extrude by Number Map of Venice

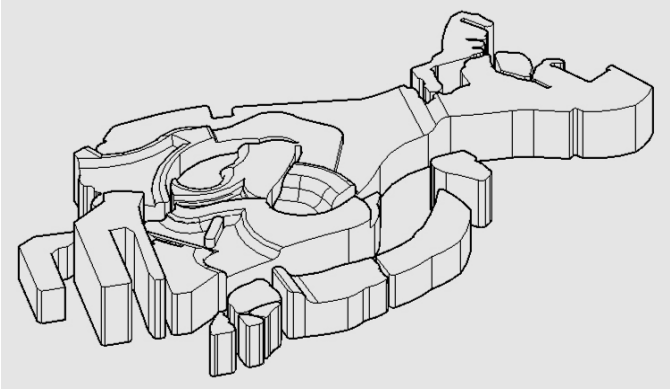


Figure 11 - 3D Model of Venice

The sections were then extruded to their respective heights and the union command was used to connect and blend them all together. Some additional filleting was then done on the surface of the model to give it a smoother feel.

Finally, the model of the city was placed inside of the bowl to create the completed 3D model.

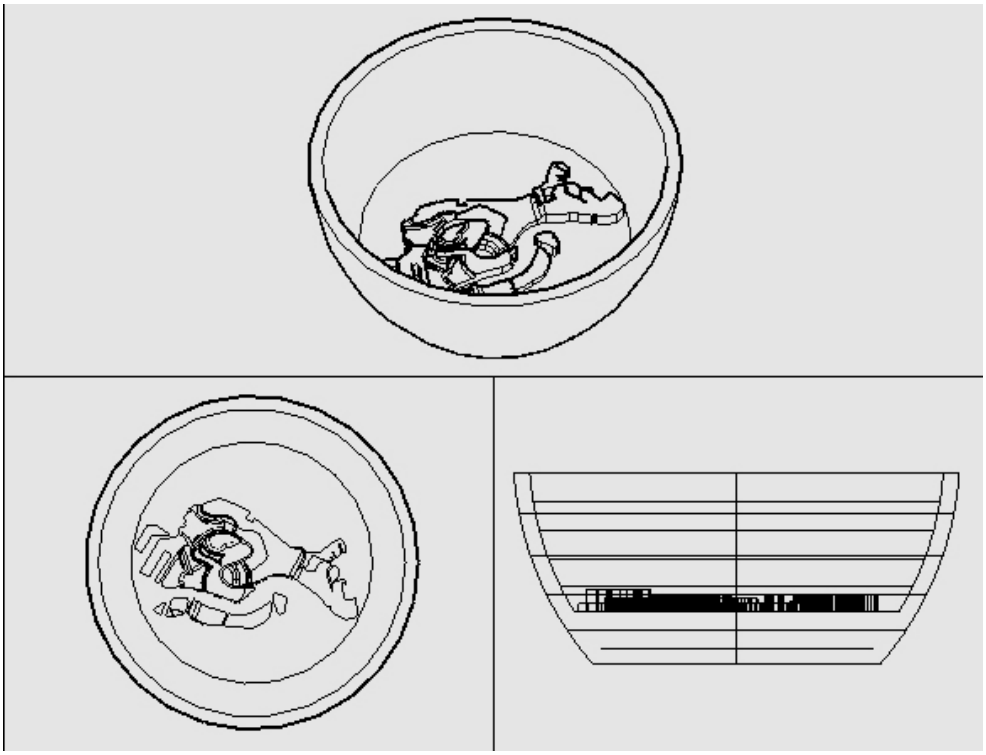


Figure 12 - Completed Brodo di Pesce 3D Bowl

2.1.3 Recommendations

Still to be incorporated into the current drawing is a piece that will connect this installation to the Urban Reality Game. As of now we were thinking of engraving a message or a password on the underside of the bowl but we are not 100-percent sure what it should read yet so it will be up to future teams to update the drawing file with this piece of the puzzle. Once that piece is added and the design finalized the drawing file can be sent to an online company, ponoko at http://www.ponoko.com/ , shapeways at http://www.shapeways.com/ , etc, who will then be able to make an actual 3D model out of whatever material you choose and will ship it to you when the model is completed. Just one model would be made during the first run through to see how the bowls would come out and then changes can either be made and the drawing resent or we could decide to use the original drawing for the production bowl and order more.

2.2 Scratchitti

The current estimated pigeon population in Venice is 120,000 which is nearly double the Venetian resident population. Before the act of feeding the pigeons became outlawed, Piazza San Marco could be transformed into a barrage of birds with a handful of birdseed. Licensed vendors would sell birdseed in the square to tourists and resident children alike, who all enjoyed taking part in the tradition. This simple act causes the pigeon population to grow even further, especially due to the rise in tourism. More tourists results in more birdseed purchased and more food waste produced, turning Piazza San Marco into a dining table for the birds. In addition to intentional feeding, the tradition of throwing rice at newlyweds on the square has inadvertently become a source of food. The fact that the square has become a reliable food source for the birds has resulted in them nesting their homes there among the delicate buildings.

In addition to banning birdfeed, several other actions were taken to reduce the population of the pigeons. More gentile approaches have been taken, including nets and spikes, however it has been reported that at one point Mayor Cacciari ordered the mass killings of the birds after the starvation failed to reduce the numbers. The fate of these trapped pigeons usually ended in either neck breaking or gassing. Another attempt to decimate the population involved lacing the birdfeed with contraceptive chemicals.

Despite the numerous attempts to lower the pigeon population in Venice, problems still persist with the many remaining birds. The pigeons continue to cause irreversible damage to important historical buildings and monuments as a result of pigeon droppings. Engineers claim that the pigeons are responsible for the corrosion of Piazza San Marco's bell tower which has been slowly shifting since its reconstruction in 1912. The droppings not only erode buildings but it is also very costly to clean up after. The birds are also known to peck at the marble and stucco sides of buildings, destroying the facades of numerous historical edifices. In addition to structural damages, the pigeons also pose threats to human health, as many carry pathogens.

2.2.1 Methodology

The original Scratchitti concept was very general and open for whatever use we deemed appropriate and we have decided to use it as what we like to call a "scarecrow for pigeons." The idea is to use a motion detector to detect when a pigeon has landed on a statue, building, or anything else you don't want them to land on and then to frighten them away by playing a loud, high pitched noise in their direction. A schematic of the process is shown below and continues onto the next page. Hopefully over time the pigeons will learn to no longer land on that surface and as a result it will help preserve the life of many statues, buildings, and other pieces of Venetian history.

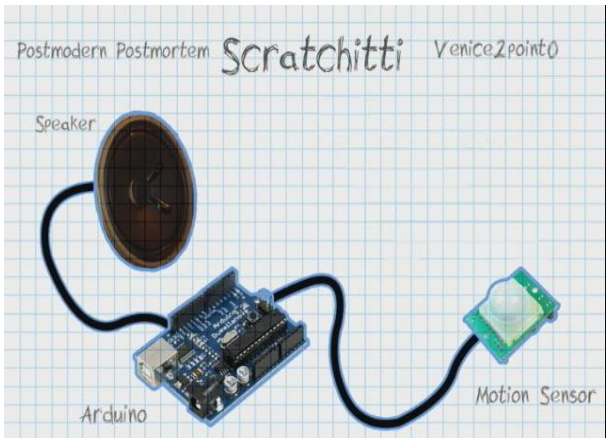


Figure 14 – Scratchitti schematic

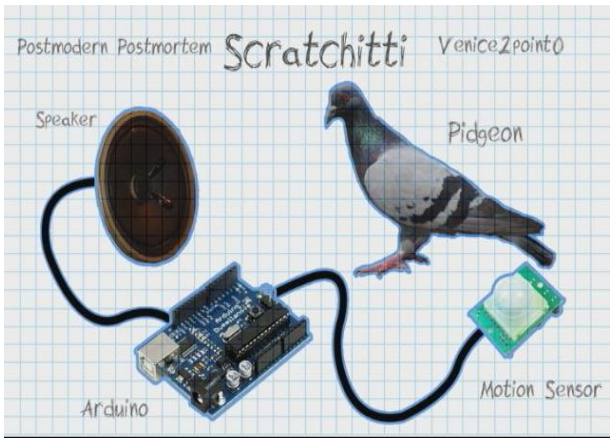


Figure 15 - Step 1: Detect pigeon motion

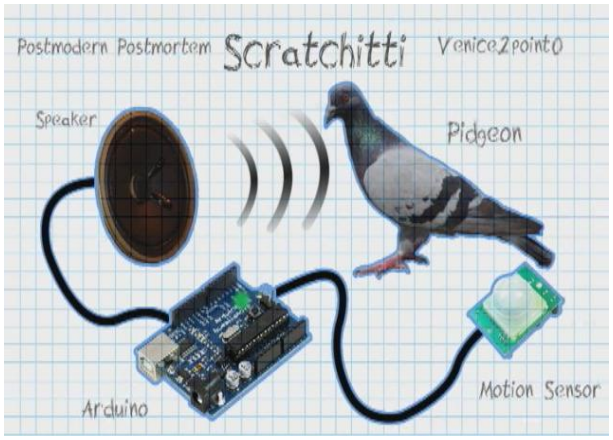


Figure 16 - Step 2: Play sound at pigeon

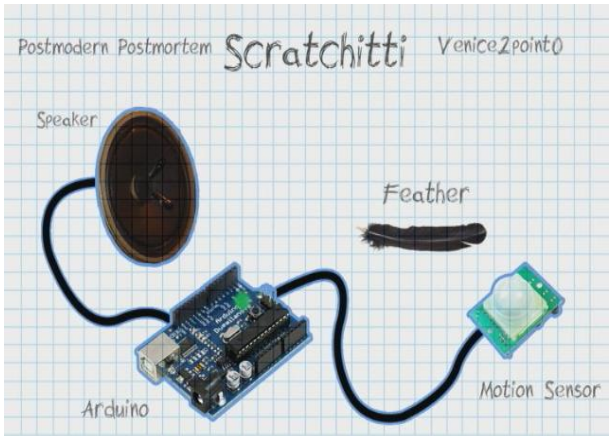


Figure 13 - Step 3: Pigeon flies away

Preventative maintenance for this installation would include either placing it in a location where it won't be damaged by water or placing a protective case over it so that it can still be heard but won't be damaged by either water or people. Maintaining its successful operation will require us to do weekly checkups to make sure it is still functioning properly and, if it isn't, to troubleshoot it and fix the problem. This installation is completely electronic so if somehow water does manage to get inside it would cause some major issues. Also, since it will be operating so frequently, the speakers will more than likely wear out over time in which case we would have to replace them. Then a final thing that could require some maintenance is the code that will be written for the arduino to function successfully. This would require someone with experience in programming to fix or we could always pose our problem to the arduino community and see what they have to say about as they have already been very helpful with figuring out some logistics of our project.

2.2.2 Results

The initial idea for this installation was to use what is called a soundbomb. Soundbombs were invented by German artist Felix Hardmood Beck and act as "Non-Visual Graffiti." These interactive installations allow the user to record a sound and then, using a motion detector, play it back when someone or something walks in front of it.[7] The drawback to these installations, however, is that they are extremely difficult to obtain. In order to even be considered to receive a soundbomb you must submit an application to Beck explaining why you want one. Then he will decide if he thinks your reason is good enough to get you one. Then if selected you can decide how much you are willing to pay for it but we don't imagine them to be cheap.[8]

Figure 17 - Soundbomb
(Beck 2006)

Due to the reasons mentioned above as well as the fact that you can no longer apply to receive a soundbomb we decided to explore alternate technologies. After doing some research in the arduino field we discovered that is possible to build a device very similar to the soundbomb using an arduino, a speaker add on kit, and a couple of codes written by the arduino community.

The first step in this process was to assemble and test the speaker add on kit for the

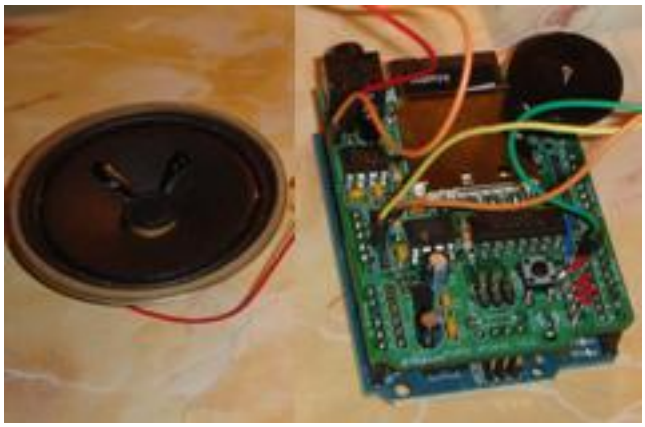


Figure 18 - Arduino with Wave Shield and Speaker

[7] Beck 2006
[8] Regine 2006

arduino, which we did, and after a few failed codes and formatting errors the speaker was working perfectly at the touch of a button. In order for this installation to be effective, however, we had to figure out another way to activate the speaker as we could not expect a pigeon to approach the arduino board and press the button. For this we turned to motion detection, and in particular, a PIR motion sensor that was arduino compatible. The motion sensor originally had a few second delay but we adjusted it and currently there is no delay between the time it detects something and when it activates the

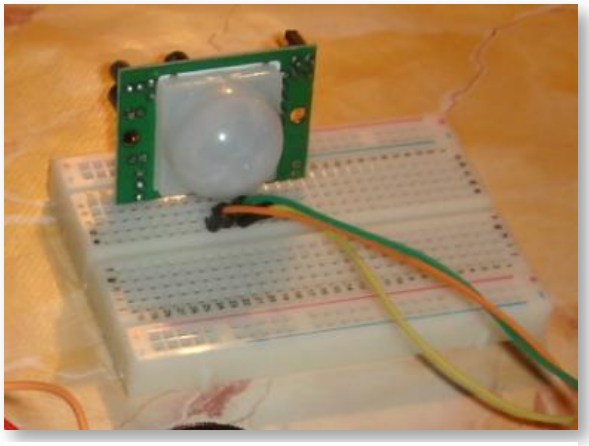


Figure 19 - PIR Motion Sensor

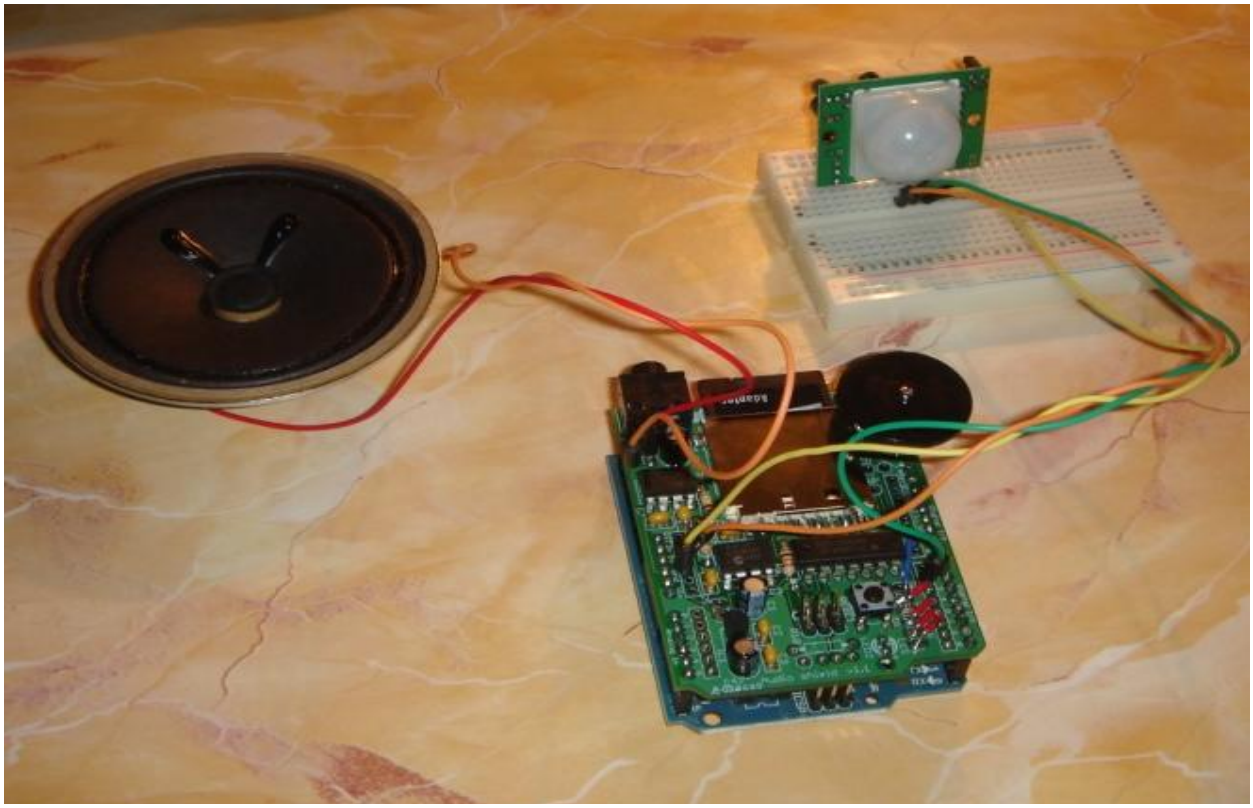


Figure 20 - Scratchitti Complete Set-up

speaker. The final completed prototype can be seen below.

A loud noise that resembles a combination of a baby crying and someone screaming was chosen as the output for this installation. When tested it proved to be quite frightening not only to pigeons but also to a little girl that happened to be walking by. A video of this test can be found online at http://vimeo.com/8171837.

2.2.3 Recommendations

The installation as of now is fully prototyped with only one minor, but rather annoying, bug. The bug is that sometimes after the motion sensor activates the speaker the speaker will then activate itself every few seconds until you disconnect the circuit by unplugging one of the wires. The reset button on the arduino you would think would solve this problem but nope it needs a wire unplugged to give it a complete reset. Obviously this cannot be done once it's actually out in the streets so the next group will have to figure out how to fix it. Also, for the final installation, a better speaker will be needed. The current speaker is actually quite loud but an improvement should be made for the final product.

2.3 M.I.A.

Public Art is a decorative and artistic element, usually existing in many forms and can be found in various public locations for viewing. Public art not only serves to please the eye, but also helps define the history of a society through sculptures, murals, monuments, and various other forms of display, and exists for everyone to experience. Each art piece contributes to the beauty of Venice and to its huge art collection, and should be considered very important. With over 4,230 pieces of public art in land area of 7.6 square kilometers, the prominence of the public art plays a huge role in the creation of the historic atmosphere of Venice.[9] However due to no form of maintenance, public art has deteriorated and could lose its historical and cultural value. Also, Venetian public art runs the risk of being vandalized, stolen, or removed for renovations to the buildings, and not replaced. With the natural atmosphere of Venice including moist, salty air and other weather conditions such as flooding vastly contributes to the deterioration. Over the past years, WPI students completed the catalog of lunette and portal and the Venice Project Center has a completed catalog of nearly all types of public art with similar entry styles, including wellheads, flagstaffs, keystones, and other various types of external sculpture. The problem of preservation of public art needs to be addressed to the people, so that the historical integrity of Venice can be maintained.

2.3.1 Methodology

This installation seeks to engage people's sense of sight as purely visual representation of the issue. The plan for M.I.A is to project a morph of several images of a piece of art, taken over the years, on top of the piece as it stands now to show the deterioration of the piece over time. It will only be able to be activated at night and will use a motion sensor to detect a person and then turn on the projection. A schematic of how it should work is shown below and continues on the next page. Hopefully this installation will make people more aware of what's happening to these pieces and both help locate the missing pieces of art and encourage people to take steps to preserve the remaining works.

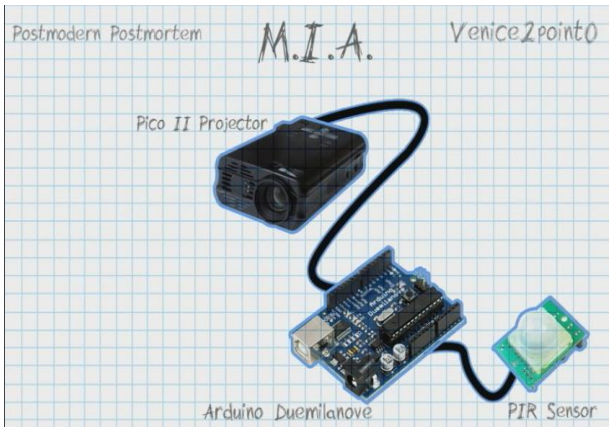


Figure 22 - M.I.A Schematic

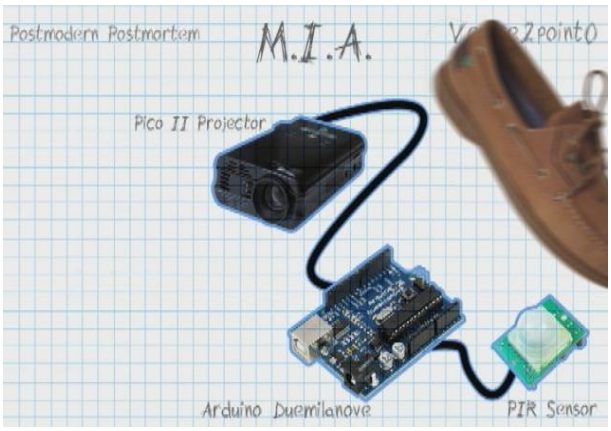


Figure 21 - Step 1: Detect Motion

[9] Elbag 2003

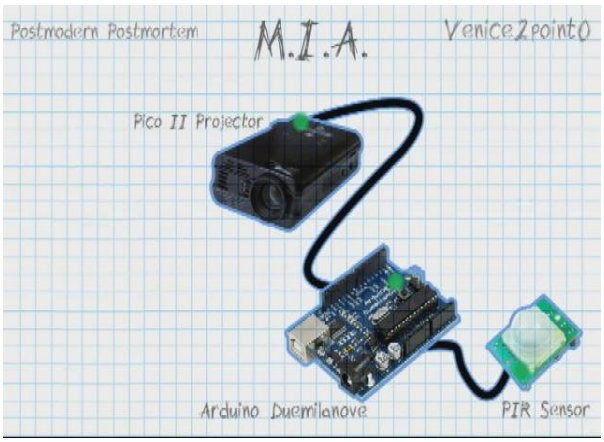


Figure 23 - Step 2: Activate Arduino and Projector

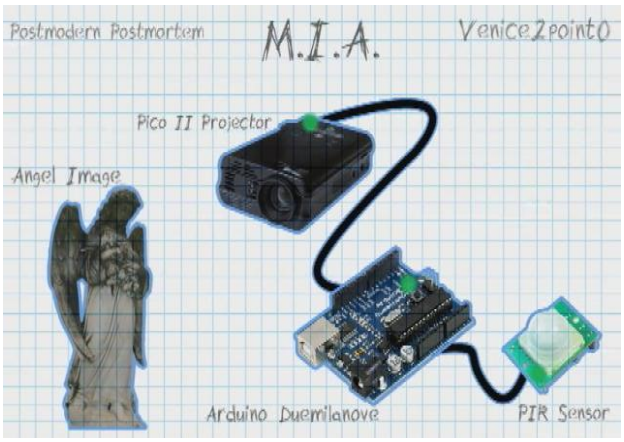


Figure 24 - Step 3: Project Morph

As far as maintenance goes the only thing we need to worry about with this installation in the projector. We plan on covering it with a protective casing so that it is not damaged by water or pedestrians, but there are other issues as well. The first is that light bulb within the projector is only rated to last a certain amount of hours so when it burns out we will need to replace it. The second issue is the clock on the projector, or the arduino, will be set to turn the projector on and off at certain times based on the amount of ambient light there is. So throughout the year the amount of ambient light will reach the same levels at different times of the day and thus we will need to change the timing function on the projector, or arduino, to accommodate for the time of year.

2.3.2 Results

The original concept for the M.I.A installation was developed in 2007 by Worcester Polytechnic Institute student Brendon Turcotte. His idea, as mentioned above, was to project an image of an original work of art on top of the destroyed or missing piece. Also, in consideration, was to put this installation in several locations as an effort to increase its effect. This however does not seem feasible with the current budget that we have for this project.

So we decided to focus on making just one of these installations for now and we chose an angel to assist us, which is, in fact, the piece of public art. It is located next to the Settimari, Professor Carrera's rowing club, and has been studied before by previous projects that focus on Public Art Preservation. Through these studies we have acquired four photographs of the angel that show its deterioration over the past seventy years. The four pictures from 1939, 1978, 2000, and 2007 are shown, respectively from left to right, below.

Figure 25 - Angel Deterioration Over the Years

After discovering the pictures we came up with the concept of morphing them from one year to the next. We decided that the best way to emphasize this concept and the deterioration would be to run the morph until it reached the full 2007 picture and then turn off the projector, leaving the angel as it stands now in plain sight of the passers-by.

So now that we had a set concept we then loaded the individual pictures into Photoshop to create the morph. We then exported it as an .avi video file so that it could be played on the projector. The actual video file can be found online at http://vimeo.com/8098440 but to the right you can see a mock-up image that is in the morphing stage between the years 2000 and 2007.

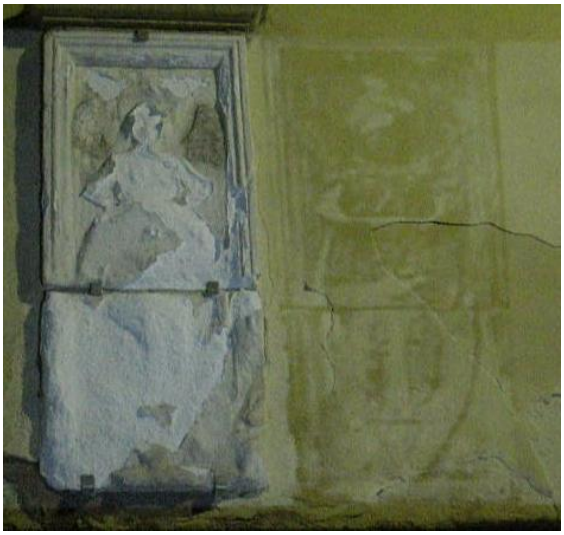


Figure 27 - M.I.A in Action

A test of this installation was done during the second to last week spent in Venice. For this we took the projector to the location of the angel at 6:00 PM and attempted to project the image on top of the original artwork. What we discovered was that there was too much artificial lighting, and the artwork was too light of surface, for the morph to be seen. We then attempted to project the morph beside the original and this, although we could distinguish the images, was also not a good enough location for the morph to be seen clearly. To the left is a picture of what the morph projected beside the original looked like.

Figure 26 - Angel Morph

2.3.3 Recommendations

The original plan for this installation was to have it be activated by a motion sensor but that process was never actually accomplished so we will leave that up to future groups to figure out. Also, the projector that we currently have, the AAXA Pico 2, is not nearly bright enough, or clear enough, for the final installation, as demonstrated by the fact that the morph could not be seen in the light that surrounded the actual angel at night. It is possible that once a higher quality projector is used the light and clarity will no longer be an issue but if they still happen to be we will have to move the installation to a different location. In this case it is possible to move it to the next building over, which is about 50 feet away and is not covered by artificial lighting.

2.4 Chocolate Leo

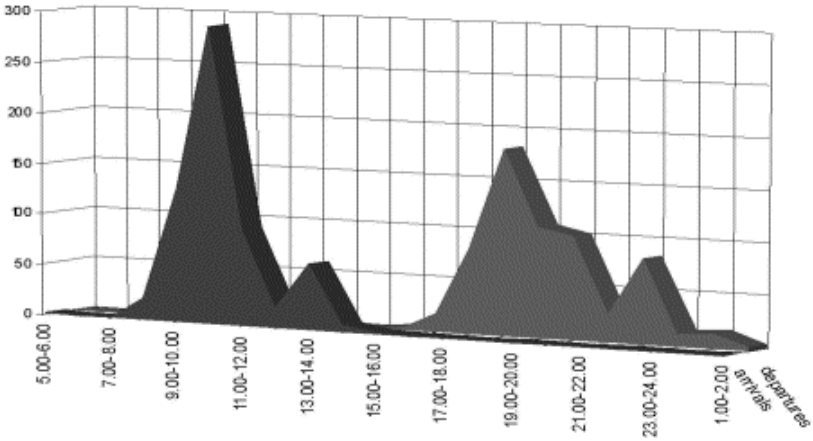


Figure 28 - Daily Pattern of Visits to Venice in a Nonworking Day (Russo 2002)

Many old famous cities around the world have to deal with their popularity and the flocks of people that gravitate towards their rich history and beautiful sights. Venice is no exception, with around 7 million people coming to visit the city each year. This great influx of tourists is both a driving economic force as well as a problem. Since Venice is becoming a tourist centered city, the residents of the area are being pushed farther and farther away. Some statistics indicate that in 50 years the population of the historic district has gone from 170,000 to 70,000. Also, overnight visitors to the city outnumber the residents by 50 to 1.[10] These statistics are only getting worse as more and more people want to travel to the beautiful city of Venice.

2.4.1 Methodology

First was the idea of the "Toasted Lion" which reflects the concept of the "Holy Toaster" in which the face of Jesus was burned onto a piece of toast. This was attempted by Fabio Carrera, using the same Jesus toaster insert template and a water-jet cutter. However, the resulting toast image was very difficult to recognize as the face of Christ.

Instead of utilizing toast and dealing with blurred burns on toast, the next item of interest was waffles. Not only are waffles great items for breakfast fun, it is also beneficial in making detailed shapes and features, a major quality for this winged lion. A schematic of a cast-iron waffle iron was drawn to scale with the design of the lion head on the inside. It displayed a lion's head with very large cartoon-ey qualities such as big Mickey Mouse ears, a big curvy crown, and a dollar sign necklace to represent the exploitation of Venice. Now determining a way of actually making the waffle iron with the custom design proved to be a challenge, especially after contacting various waffle iron manufacturers who denied our request. Even if we attempted to make this, acquiring and shaping materials

Figure 29 - The Moeca Lion Symbol (BANDIERE DEI POPOLI n.d.)

[10] Russo 2002

such as cast iron as well as tackling the voltage conversion issues would have proved more of an issue than the project's significance itself. A more inexpensive and easy method would be needed.

Finally, the idea of making a chocolate shaped lion arose. This method was vastly cheaper and easier to attain and accomplish than the other design ideas. The mold would simply be made with inexpensive material of silicone and the lion model itself would reflect a lion with "goofy" features, i.e. big crown, large ears, and a dollar symbol on its person. A second model of the lion was constructed to resemble the "Moeca" lion, with various tweaked features of the ears, Doge hat, and euro symbols. This second model is a better association to the Venetian Winged Lion and will thus serve a better purpose. Next, came theory application.

First, the lion head mold needed to be made. Using Sculpey Baking Clay, the head of the winged lion was created. After baking, the solid piece is ready to be molded. Mold Putty is placed on top of the piece and is set to cure for under an hour. Once cured, the lion head is removed and what remains is a silicone mold. Then, melted chocolate is inserted into the mold and left to cool. After some time, a chocolate Leo was born. The cute smiling lion wears a crown with a dollar sign symbol inscripted in the crown, and alongside the lion face are his two wings. This item will be introduced in various restaurants in Venice, and will only be served UPON request from the customer, who hopefully has discovered the Alternate Reality Game our project has set up.

2.4.2 Results

There are three prototypes that were made for this Moeca design.

The first prototype displayed a cute smiling lion wearing a crown with a dollar sign symbol inscripted in the crown, and alongside the lion face are his two wings. This lion has many cartoon-like qualities "goofy" features, i.e. big crown, large ears, and a dollar symbol on its person. However, this prototype did not optimally resemble the well-known Venetian Lion of Saint Mark.

Figure 30 - Model of Lion Prototype 1

Figure 31 - Model of Lion Prototype 2

The second prototype more closely resembled the Moeca Lion, revealing a majestic lion with a Doge Hat, Mickey Mouse ears, euro symbols within the ears, and a book with the inscription *Pax Venezia*. This prototype is a positive step in the right direction.

The third prototype was made with a sketch of the Winged Lion wearing a Doge Hat, larger Mickey Mouse Ears, euro symbols within the workings of the lion's winged feathers, and holding a book with the inscription *Pax tibi, Mickey Evangelista Mous* instead of the famous dedication *Pace tibi, Marce Evangelista Meus*[11]. The huge Mickey Mouse ears, the subtle euro symbols and the changing of the book inscription serve to illustrate the commercialism and exploitation of Venice, via the Winged Lion.

Figure 32 - Model of Lion Prototype 3

[11] Peace to you Mark, my Evangelist

This final prototype will be made into a chocolate, which will be served at a restaurant. This is an example of what the chocolate lion looks like using the second prototype mold.

Figure 33 - Chocolate Leo Prototype 2

Observing the finished chocolate Leo with his Mickey Mouse hat, euro symbols, and replaced text *Pax tibi, Mickey Evangelista Mous*, one can see the obvious satirical jab at the effects of tourism on the dwindling Venetian way of life. The fact of taking a feared and authoritative symbol of Venice and reducing it to a mere chocolate decked with amusement park characterisitics and money symbols brings sad correlation to the country of Venice and the state to which it has been reduced (ie appealing to tourists with adding more souvenir shops and closing down basic goods stores). This installation will make this concept known to people and will bring about a change in heart and perhaps a movement to make Venice a more livable place.

2.5 Spray it Forward

Almost all major cities around the world have to deal with the urban issue of graffiti. Urban artists run around and spray paint their work onto whatever surface they want to. This can be stores, buildings, bridges, and overpasses. Venice also has to deal with a graffiti problem. Many of the city's famous and historic buildings have had urban art painted on them. The city of Venice is asking for people to please stop spraying on the buildings as it is an eye-sore as well as costly to remove. The city can no longer afford the cost associated with cleaning up the city. [12]

Figure 34 - Graffiti on Venetian Building (Kofi 2007)

2.5.1 Methodology

The materials needed for this project required an assortment of expensive gadgets, which for the time being our team boiled down to 4 inexpensive practical items: a mac mini, Playstation 3 Eye Camera, AAXA pico2 Projector, and 5mW laser pointer, all of which are relatively small and thus easy to set up. Interestingly enough, the PlayStation 3 Eye Camera, originally used for gaming, can be manipulated for precise camera functions, as was discovered by the ingenious artists of the Santa Fe Complex. For prototyping and testing purposes, a brief test was performed for this project. Using a macbook pro 15.4" with built-in webcam, BenQ 1080i HD projector, and a flashlight, the experiment was successful, and the effects outstanding; however, for best quality effectiveness, a laser pointer rather than a flashlight is most desired since it directs a smaller beam of light on a smaller area, creating better light tracking and thus more "bona-fide" virtual graffiti. Also, the optimum placement of the projector and equipment should be within 10 feet of a building or fountain, so as to capture the best image quality.

[12] Venice asks for graffiti stop 2008

2.5.2 Results

Figure 35 - Spray it Forward Components

Using the AAXA Pico2 Projector, the PlayStation3 Eye-Camera, a red laser pen, an Inspiron Laptop, and the L.A.S.E.R tag software as seen in the following figures, a working prototype was developed and projected onto a building.

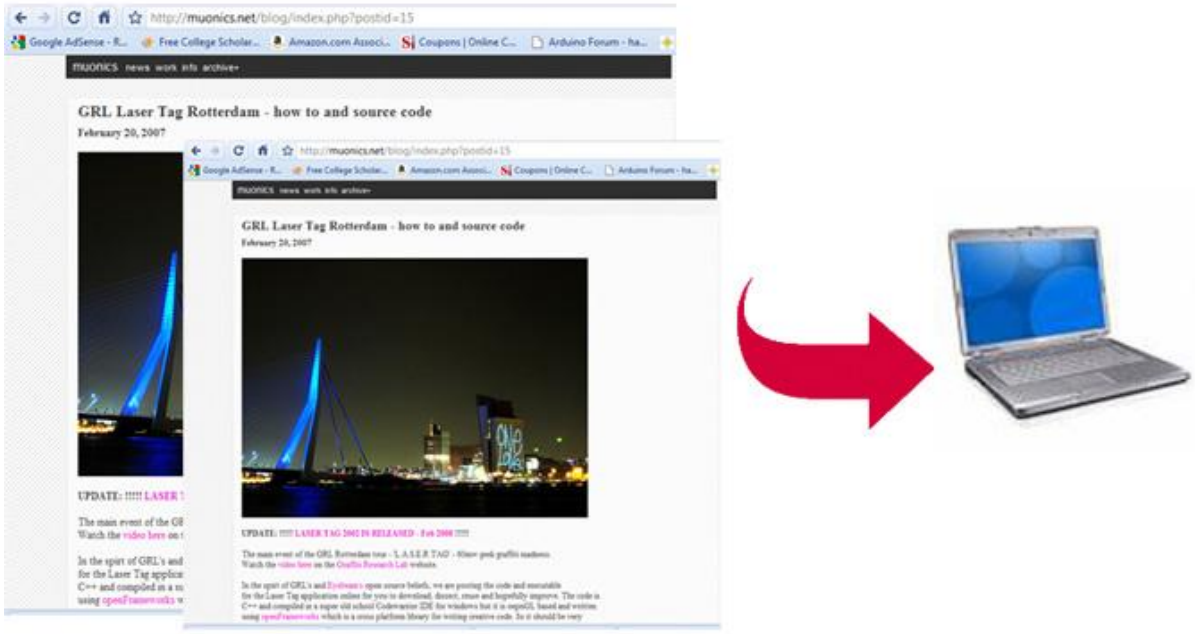


Figure 36 - L.A.S.E.R Source Code Download

After the setup and installation, the final prototype was projected onto the church wall in Campo San Giovanni e Paolo in the Cannaregio Sestiere as seen in the figure below.

Figure 37 - Spray it Forward Outdoor Prototype

Figure 38 - Different L.A.S.E.R tagging displays

Seeing the projected image of graffiti on a church wall, not only strikes some cords in the hearts of Venetians for the defacing of their beloved church, but also opens eyes in realizing just how the act of tagging destroys the architectural and historical integrity of an old monument or building, or in this case, a church.

Luckily, this installation brings this realization to the surface without destroying or causing any real damage; in addition, just manipulating the lasers and making different colors and pictures is a great way for youths to learn about their important city.

2.5.3 Recommendations

The only difficulty with this installation was actually fine-tuning and adjusting the thresholds (sat., hue, etc). Once this is established, coordinating the camera is also another issue. Be sure to install the appropriate driver for the PS3 eyecamera to function as a web-camera. For this particular installation, the most efficient and best method of effectively deploying would be with a MacBook Pro, since it contains a great graphics card, which is very ideal. Also, getting a bigger projector would make the extended desktop to screen ratio compatible.

2.6 Bubbletto

Being a city built on a lagoon, transportation is mainly limited to boating or walking. As gondolas became outdated and more of a novelty, Venice began to rely heavily on motorized waterbuses called "vaporetti." These waterbuses remain the primary method of transportation for the 271,000 residents and nearly seven million tourists venturing to Venice yearly. The main issue is that the means these motorboats use to stop is to propel in reverse, which creates a massive amount of energy in the water that barrages on the canal walls. Not to mention the use of the canals for transporting goods and for other public services, the resulting damage is becoming exponentially worse.[13] As the city is divided by islands, there is no other method of transportation except by water, and thus the motorboats continue to bombard the canal walls with its waves. Though the effect of the turbulence of each individual boat is practically negligible, the sheer number of passing boats creates a vicious effect over time.

2.6.1 Methodology

Using the idea of a "bobber" effect, the accelerometer placed in an oval water-proof case attached to the wall will float within a foot of the canal wall. Along with the accelerometer, a radio inside will be used to receive and transmit signals to and from the accelerometer. So, as the bob is rocked by the waves, a huge oscillation will be recorded by the accelerometer which the radio catches and then transmits signals to the bubble machine some feet away on the street. The bubble machine will then turn on upon receiving the signal. Inside the bubble machine an Arduino board attached with a Xbee shield, will receive the signal and turn the bubble machine on. This part will involve some dissection and manipulation of the machine to the Arduino board. Extensively searching into the Arduino Forum and website helped extensively with any issues and questions encountered while developing the design for this project. We will receive assistance from the artists of the Santa Fe Complex, specifically Dan Paluska and Simon Mehalek, who are blessed with vast

[13] Marshall 2007

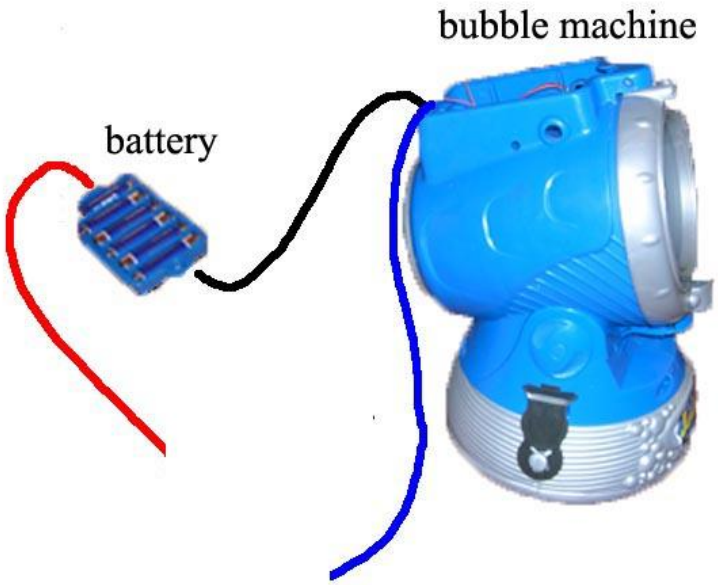
technical experience. The best place to insert these items would be in places of heavy *vaporetti* traffic and near open places where the bubbles can easily be seen, preferably on a table or near a restaurant.

2.6.2 Results

Bubbletto had many steps in development, and can be done in various ways depending on what sense is desired to be addressed.

To address the sense of sight, the following steps would be followed to build the installation:

1. Gut out the bubble machine, exposing two wires, one from the negative battery terminal holder and the other from the motor. This when touched will turn on the bubble machine.



2. Using a circuit board, an arduino duemilanove, and an NPN Mosfet, insert the two exposed wires as illustrated in the schematic below. Using a Mosfet will allow for manipulation and compatibility of

the bubble machine with arduino.

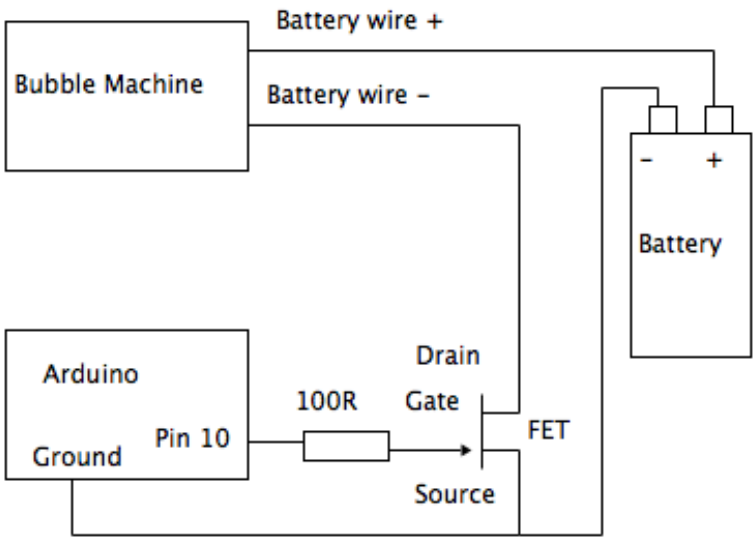


Figure 39 - Mosfet, Arduino, and Bubble Machine setup, using 100 Ohm resistor

This is our actual wiring scheme for the MOSFET and arduino with the bubble machine, as seen below. More can be seen at this link http://ve-postmortem09.blogspot.com/2009/11/touchy-bubbler.html.

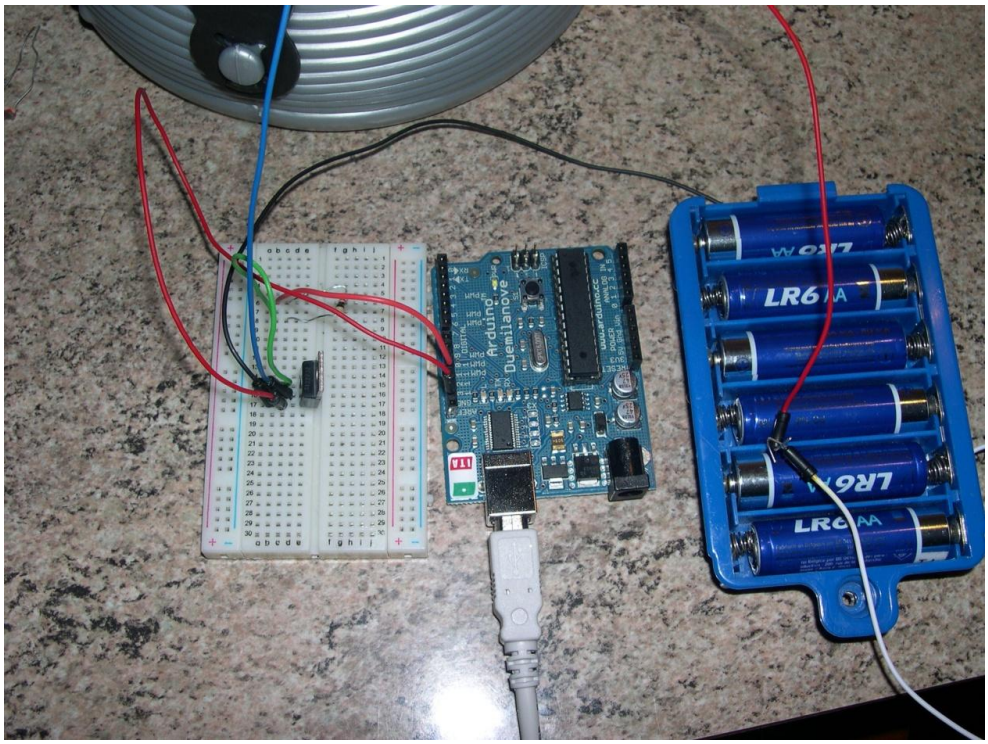


Figure 40 - Mosfet, Arduino, and Bubble Machine setup, using 100 Ohm resistor

3. As indicated by the installation concept, there must be some way to turn on this bubble machine whenever turbulence is detected in the canal. An accelerometer[14] is ideal for 3-D motion detection, or in this case, wave turbulence due to passing motorboats. The accelerometer would be placed within a protective canister with an arduino to compute the information.

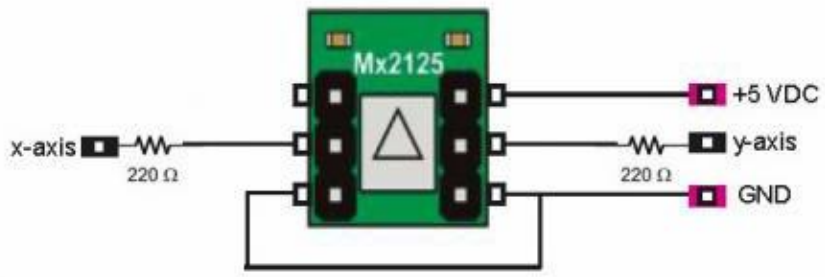


Figure 41 - Arduino Accelerometer Team Setup

4. Now how can the bubble machine turn on using the accelerometer, which are not even connected? The answer would be to use a Xbee Module which enables wireless communication from one arduino to another. So in this case, when the accelerometer detects any major turbulence, the arduino takes the data and the Xbee transmits this data wirelessly to another Xbee attached to the arduino of the bubble machine some distance away.

Figure 42 - Xbee Wireless Communication

[14] http://arduino.cc/en/Tutorial/Memsic2125?from=Tutorial.AccelerometerMemsic2125

All together the installation can be observed on Vimeo[15]. The following screenshots of the video show the basic setup and schematics for the installation.

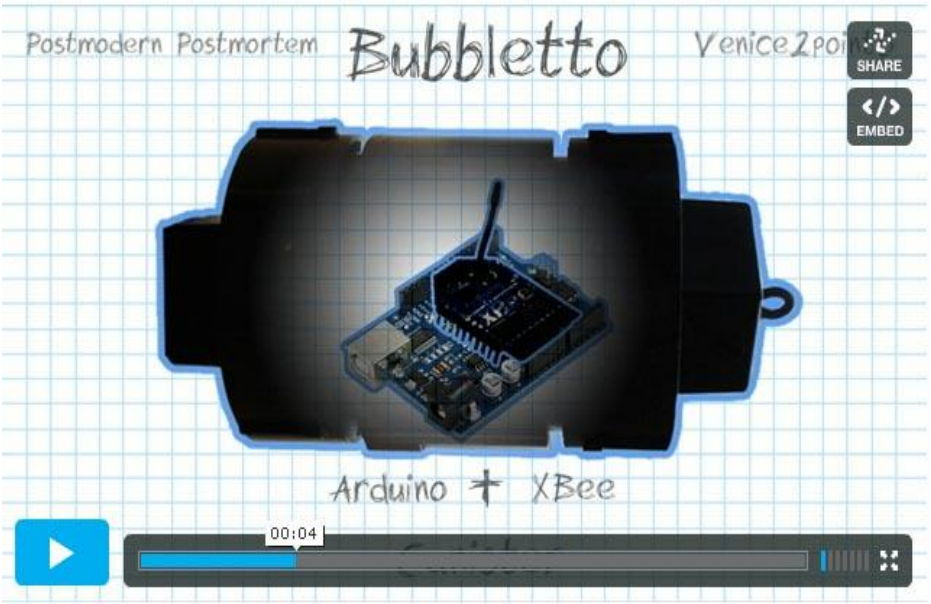


Figure 43 - Accelerometer and Xbee within Canister

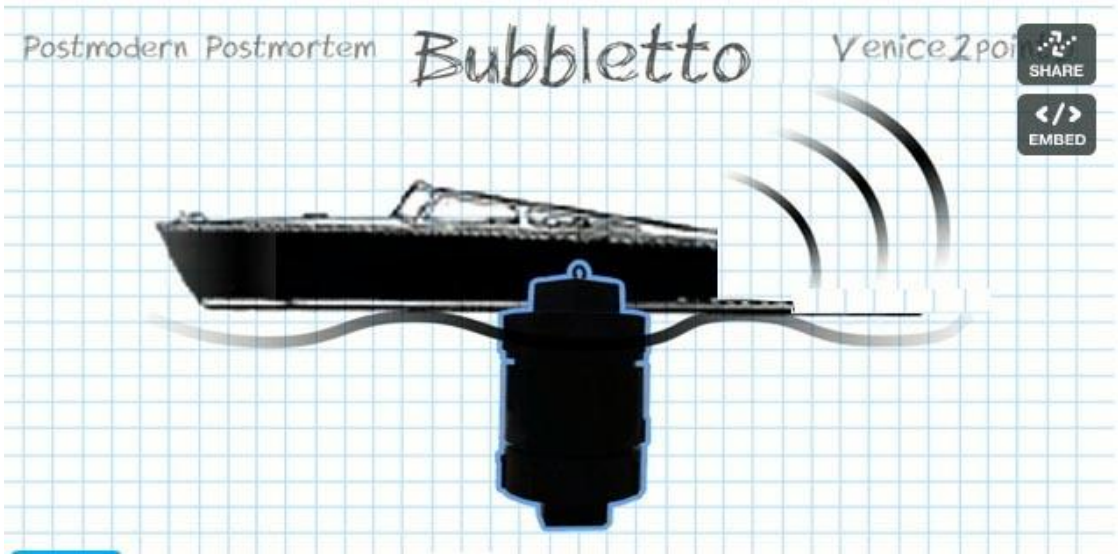


Figure 44 - Canister in the water sending signal after a boat passing

[15] http://vimeo.com/8205282
See Also the outdoor prototype: http://vimeo.com/8203984

Figure 45 - Xbee in bubble machine receiving signal

To address the sense of touch, the following steps would be followed to build the installation:

1. Gut out the bubble machine (similar to Step 1 of sight bubbletto installation), except make an aluminum touch sensor pad with the two exposed wires and 2 square pieces of aluminum, as can be seen in the figure below:

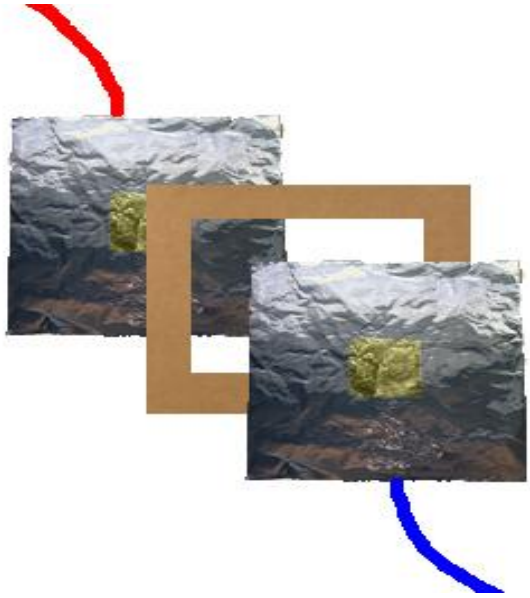


Figure 46 - Aluminum Touch Sensor

Once the two aluminum foils come in contact, the circuit will be closed and the bubble machine will turn on. The result should look like this:

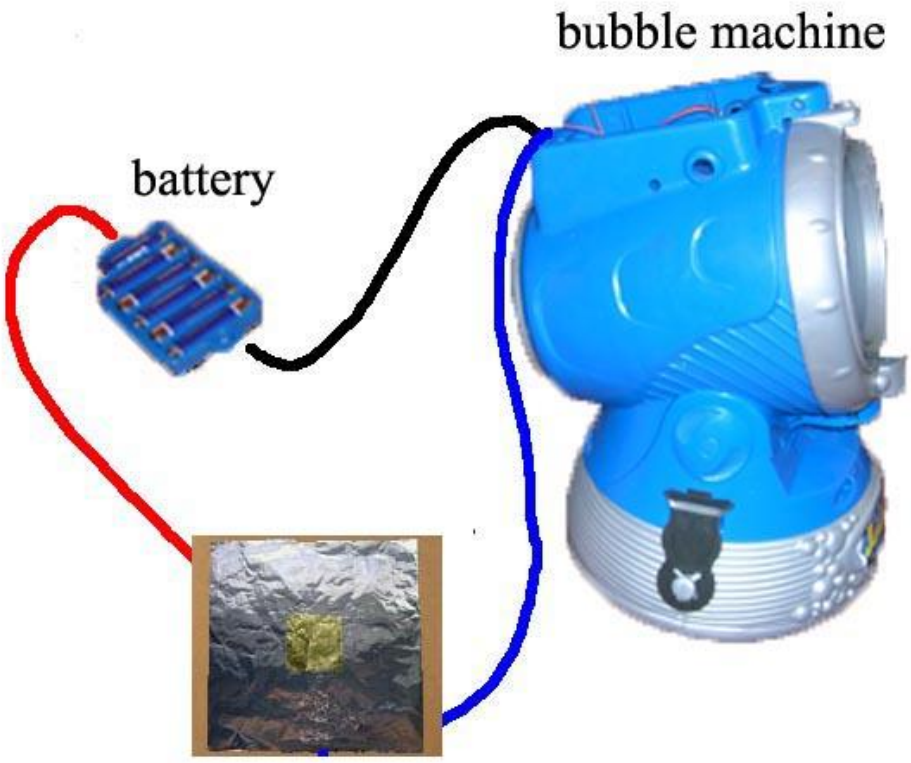


Figure 47 - Touch Sensor with Bubble Machine

2. Using the same accelerometer and setup as in the previous building of the sight bubbletto, a sort of "communication" system is required to relay the data from the accelerometer to the bubble machine. Thus, the concept of Light Emitting Diode(LED) communication was created and built. Using an Infrared(IR) light emitting diode that is inserted into the same circuit board as the accelerometer, a special arduino code was written in C++ (See Appendix B), to turn

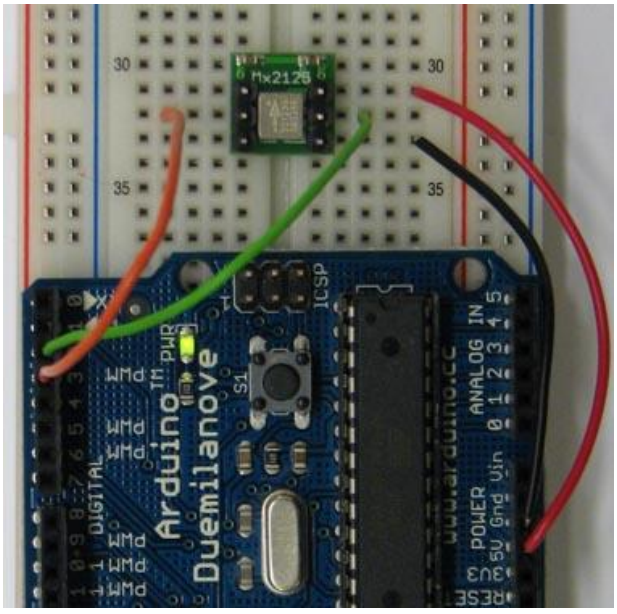


Figure 48 - Accelerometer setup

the IR LED on whenever the circuit board and accelerometer exceed a certain x and y threshold. This would be analogous to the threshold of waves caused by motor boats. The setup can be observed in the figure below as well as in a demo[16] video.

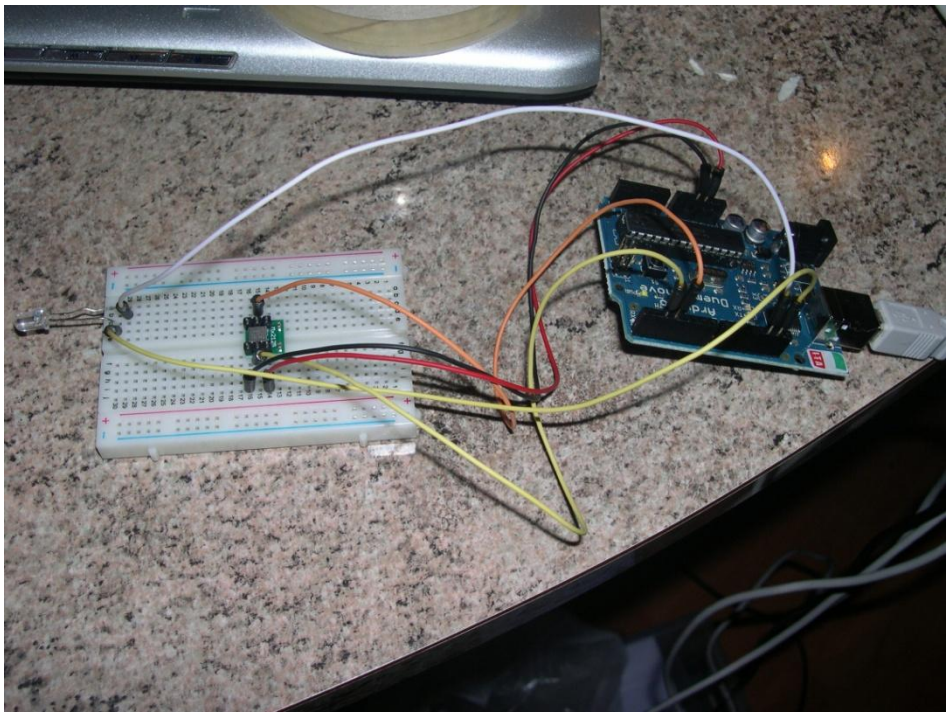


Figure 49 - Accelerometer and Infrared LED

[16] http://vimeo.com/8043368

3. Now once the accelerometer and IR LED are combined and setup, a circuit that will accept the IR light is necessary. Using a photoresistor and 4 LEDs and some arduino C++ coding (See Apendix B), four lights will light up when the photoresistor senses light emitted by the accelerometer setup. This can be seen in the figure below and on vimeo as well:

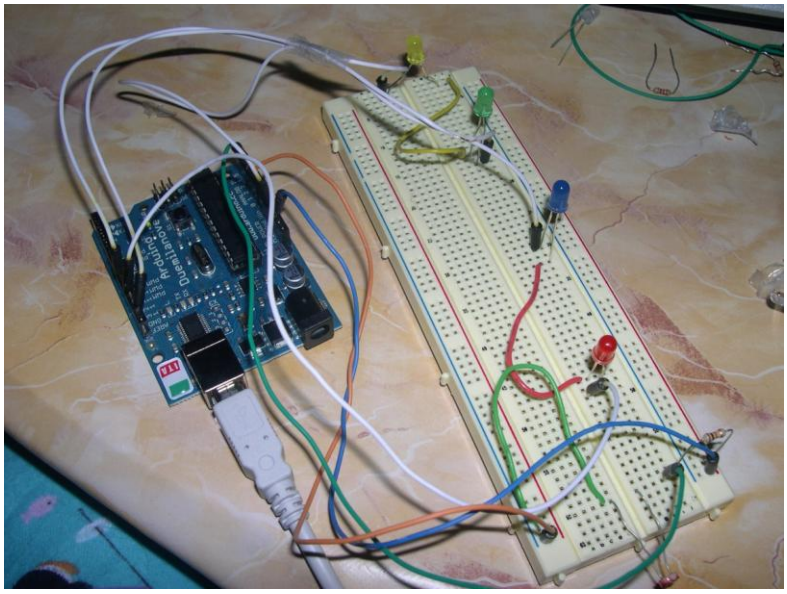


Figure 50 - LED and photoresistor setup

Now combining steps 3 and 4, the following result would be LED communication from one arduino to another, similar to the Xbees with the exception that the LEDs communicate at shorter distances. This is a screenshot from the Vimeo demonstration[17].

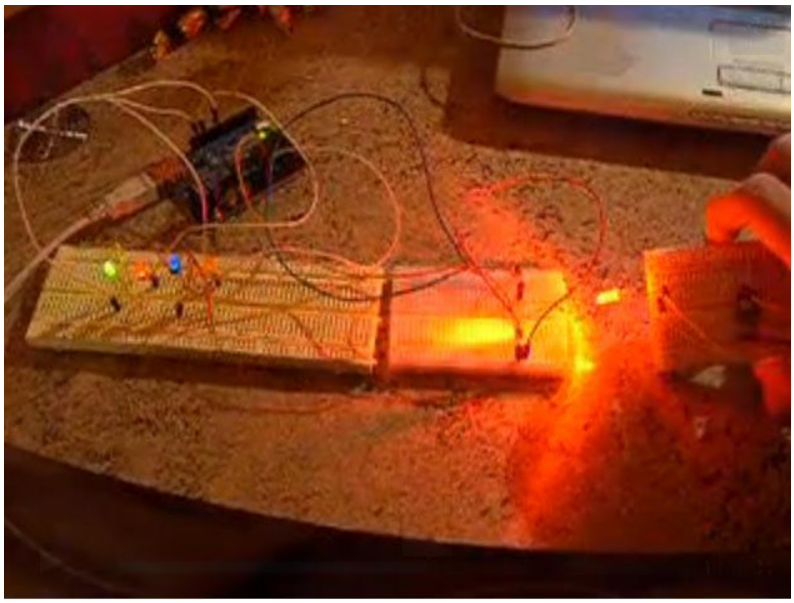


Figure 51 - LED communication

The next step would be to find a "container" for all these components that will both act as storage as well as an artistic element to the installation. An ideal container is a cardboard box that displays a drawing of a vaporetto zooming down a Venetian canal causing a huge tidal wave and eroding the walls on the front of the box. Also, the aluminum touch sensor as well as the circuit board rowed with LEDs were placed behind the picture.

Figure 52 - Drawing on Touch Bubbletto

[17] http://vimeo.com/8043437

Then using the accelerometer circuit board, shining the light on the photo resistor will turn the LEDs on, making the picture "come alive", and when the vaporetto is touched (ie the touch sensor), the bubble machine will turn on. The figure below as well as a Vimeo demo[18] displays the working touch bubbletto.

Figure 53 - Complete setup of Touch bubbletto

Once the setup of bubbletto is complete and set up outside, this installation will engage the passer-by with bubbles dancing in the air and in the streets of Venice. Of course, such a display will raise questions as to its reason for existing, and thus a raised interest in solving the mystery. This installation brings about a new realization to the state in which the Venetian canal walls exist, and ultimately, how these very walls are the foundations to many houses and buildings. Perhaps this installation will spark a flame of inspiration into the hearts of people, both tourists and inhabitants to actually take action and find more effective ways to repair the walls and maintain them.

2.6.3 Recommendations

This installation's original intention was to effectively function using the least amount of components as possible so that it will execute the point and not collapse after a certain amount of time. So for this installation, building it according to the sense of sight would be optimal. The point that needs to be continued is actually integrating the Xbees with the circuit board MOSFET and accelerometer and having the two communicate with one another using C++ arduino programming. The next step would be to actually find containers that will hold these components and prevent them from coming apart due to weather, human interaction, etc.

[18] http://vimeo.com/8108020
See also the outdoor prototype: http://vimeo.com/8170226

2.7 The Toll

An ever growing problem in Venice within the past century has been its steady population decline. Between the years of 1966 and 2006, the population had dropped from 121,000 full-time residents to a mere 62,000. This number decreases by 800 people every year, and this rate of decline is only expected to grow due to the fact that 25% of Venice's population is over 64 years old. Both tourism and flooding have been held responsible for the shrinking population. More and more residents are turning out to be only part-time foreign residents, for instance, those who own summer houses in Venice. To accommodate tourism, more temporary lodging had to be built, resulting in the conversion of large houses into hotels. This ends up having a cyclic effect, since as permanent residences wither away, there becomes less accommodations for new permanent residents to settle. Also, the damage incurred during the flood of 1966 destroyed the ground levels of about 16,000 buildings and residents fled from these homes. Afterward, the presence of strict building codes made it nearly impossible to reconstruct these houses.[19] As long as these problems persist, as they most likely will for the foreseeable future, finding a solution to reverse the demographic decline of Venice will prove to be an obstinate task.

2.7.1 Methodology

Regarding hardware, this installation will require some type of audio source, whether it is standard or directional speakers, and a control device with wireless capabilities to input the toll data. Additionally, a motion sensor could be implemented to conserve energy and power down when no listeners are present. In order to install this piece an ideal location must be decided on, and any necessary permits must be acquired.

Since this installation is strictly audio-based, the ultimate setting should be in a high traffic location that is not easily disturbed by noise.

As the installation stands now, a computer is required to be hooked up to the device. The maintenance required would be theft prevention and weather protection, so as not to lose or destroy the computer.

[19] Browne 2008

2.7.2 Results

After finding that a real time data steam for births and deaths did not yet exist in Venice, we decided to prototype our installation design with another type of similar data. The concept that we chose to implement for this installation was to create a device activated by motion that will play a certain preset sound based on the prior day's population. If the population has increased, a sound clip of increasing pitch will play, but if the population has decreased, a clip of decreasing pitch will play. Based on this idea, the use of stock market data seemed to fit the criteria we needed for our data feed. We were able to find a simple RSS (Really Simple Syndication) feed that presented us with stock data in real time.[20] We then found a guide online for a different project dealing with RSS data.[21] By modifying a piece of Python code from this guide to fit our needs (see Appendix E), we were able to scrape the data indicating whether the value of a specific stock had increased or decreased from the RSS feed. Then, using a piece of Arduino code from the same online guide (Appendix F), completed the software development. The Arduino code interprets the output of the Python code as to whether the stock had risen or fallen, and tells the Arduino board what to do based on this information. Attached to the Arduino is a breadboard with an LED. When the Arduino software indicates that the stock has gone up, the LED will light. If the stock has gone down,

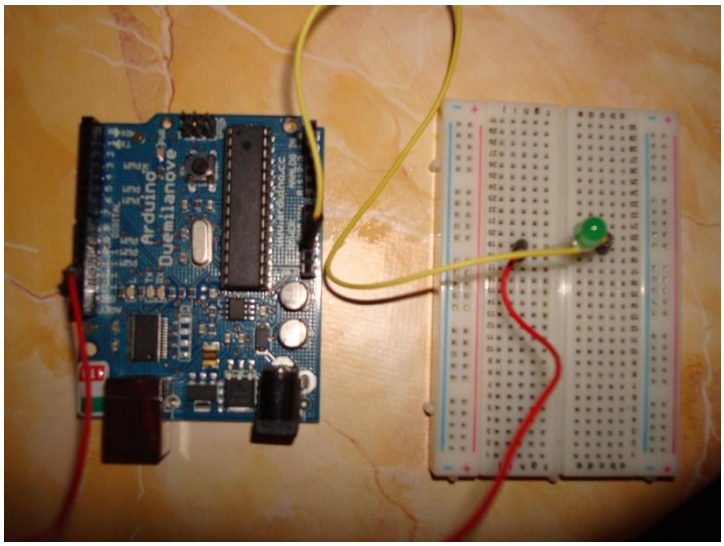


Figure 55 - LED wired to the Arduino

NASDAQ.com Stock Tracker

Track your favorite stock and link to NASDAQ.com for the full details.

16 Dec 2009 16:00:00 EST - The latest stock information is now available for your stocks

Wednesday, December 16, 2009 4:00 PM

F	
Last	9.49
Change	+▲0.10
% Change	1.06%
Volume	71,460,489
As of: 16 Dec 2009 16:00:00 EST	
View: Stock Quote | News	

Figure 54 - Data available from the RSS feed at http://www.nasdaq.com/aspxcontent/NasdaqRSS.aspx?data=quotes&symbol=f

[20] NASDAQ.com Stock Tracker n.d.
[21] Matthews 2008

the light shuts or remains off. A loop in the Python code enables the program to check the RSS feed every minute, or any other predetermined length of time.

The prototype of this installation is a step in the process of accomplishing our ultimate goal. As is, the installation has the ability to intake data from an RSS feed, pick out the piece of information it wants to evaluate, and control the Arduino based on that information. While we are using stock market data currently, we wait for the day that real time data regarding the population of Venice is made publicly available online so that the data feeds can be switched to run based off of whether the population has increased or decreased. Also, once the Arduino code is modified such that the device can output audio, the intention of this installation is to capture the attention of passersby who trigger the motion sensor and become intrigued by what they hear as a result.

2.7.3 Recommendations

Future development on this installation should implement the usage of an Ethernet shield to connect the Arduino to the internet. This will eliminate the need to use a computer, and will solve any issues regarding leaving a computer out in the streets. Also, as you can see, our current output is the activation of an LED, but our desired output is sound. Changing this will require additional modification to the Arduino code.

2.8 Scents and Sensibility

The Municipal Hygiene Regulation for the Municipality of Venice allows for the abandonment of garbage strictly between the hours of 6am and 8am, Monday through Saturday. During that time frame residents and businesses are permitted to dispose of their trash either directly outside of their door or in a place that will cause the smallest inconvenience to pedestrian and cargo traffic. Despite these regulations the city of Venice continues to experience a significant amount of illegal dumping. While most of the illegal dumping takes place and is dealt with overnight, the exclusion of Sunday as a collection day results in some garbage being left outside for an additional day. This illegal dumping causes an unpleasant odor to fill the streets of Venice and is, to say the least, not very aesthetically pleasing. A recent study was done by a team of students from the Worcester Polytechnic Institute on the rate of illegal dumping observed particularly on the island of San Lio. Over the span of a week it was found that the total waste generated on the island was 191,700 liters, of which 19,970 was dumped illegally. This means that almost ten-percent of the waste was illegally disposed of. It was estimated that if the 10-percent figure holds across the entire Historical Center, the volume of waste dumped illegally over a year would fill up Piazalle San Marco to a depth of over four meters.[22] This is a significant issue that must be addressed in order to preserve the overall cleanliness of Venice.

[22] Lorente 2002

2.8.1 Methodology

Simply put, this installation will require a sensor, a controller, and an actuator. The sensor could be a Playstation floor mat controller that has pressure sensors within. The mat would be the trash platform and we could indicate this by posting a sign stating that trash could be placed there. Of course this would be located on the side of a street where actual garbage dumping is permitted. When pressure is sensed on the platform, the Arduino controller will activate an electronic, automatic air freshener which can be set to spray at certain intervals.

The functionality of this installation requires that it be set up at a known garbage dumping area. This area should be one that receives sufficient pedestrian traffic, where garbage is placed in a non-obstructive location. To avoid damage to the device, this area should also be located in a higher elevated are of Venice, such that when the tides rise the street should not be at immediately high risk of floods.

The maintenance for this installation will require replacement of batteries and air freshener canisters when necessary. The manufacturer states that the batteries can last about 4 to 5 canisters, and the canisters last up to 60 days on the 36 minute interval setting. Also, the electrical connections should be monitored periodically to ensure that the device is working properly.

2.8.2 Results

The initial design for this installation included the use of an Arduino as a controller. After giving thought to the complexity of using the Arduino to activate the air freshener, we had found a much simpler solution. We were able to prototype a platform that also served the function of a sensor for garbage. The platform was constructed out of two plates of aluminum foil, each of which was wired back to the air freshener. The wiring in the air freshener was adapted such that the wires connecting to the battery terminals were lengthened to connect with the plates on the platform. When an item is placed on the platform, the two plates touch, completing the circuit and switching the power on. This device is to be placed at an area that garbage is frequently abandoned so that bags will be placed on the platform, activating the device.

Figure 57 - Air Wick air freshener

Figure 56 - Pressure sensor

The final design for our prototype of the Scents and Sensibility installation consists of an Air Freshener which is activated by the presence of garbage. When a Venetian leaves trash bags in the street, the pungent smell that typically accompanies the trash will be combated by the scent of the air freshener that it triggers. As long as the trash is present, the air freshener will continue to spray at constant intervals until the bags are removed from the platform. The longer the device is activated, the stronger the fragrance becomes. The hope is that the pleasant scent of the air freshener being sprayed to an excessive extent will produce an opposite but equally pungent smell to capture peoples' attention regarding this issue.

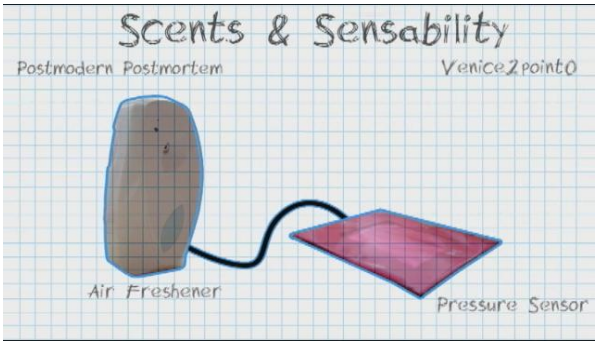


Figure 58 - Vacant preseeure sensor

Figure 59 - Air freshener sprays when the trash is detected

A video of the installation in action can be view here: http://vimeo.com/8251187.

2.8.3 Recommendations

To further improve this device, the prototyped pressure sensor platform should be improved upon. As the platform's electrical connections are merely built out of tin foil, a more sturdy and reliable platform should be devised. Also, the platform or the area around it should indicate in some way that it is intended for garbage dumping to ensure that a Venetian won't see the platform and avoid placing the garbage on top of it.

2.9 Sewerround Sound

The city of Venice is very unique with its complex system of canals as opposed to the hardtop roads and expansive highways of most other major cities around the world. These canals however are not just used for transportation. Venice does not have a true sewage system, and thus the canals themselves are being used to carry the waste out of the city and into the lagoon. This has caused a problem with pollution and elevated levels of pathogens in the water. According to the article, "Venice canal samples were often contaminated with high levels of both HAV and enteroviral genomes, reflecting the high degree of sewage contamination of these waters."[23] Because of Venice's unique structure, setting up a modern sewage system is not a feasible idea, and this issue must be brought to the attention of everyone to possibly find a solution.

2.9.1 Methodology

The components required for this installation will be a microphone to intake the sounds of the sewer, a speaker to stream this audio into the street, and a music source hooked up to a second speaker which will play simultaneously with the sound of the sewer. To implement interactivity with the public, the installation will be activated by an Arduino motion sensor.

Since this installation is audio-based, the device should be set up in a high traffic area that is not easily disturbed by noise. It is also required that it be located at a sewer outlet, to allow us to capture its sounds with a microphone.

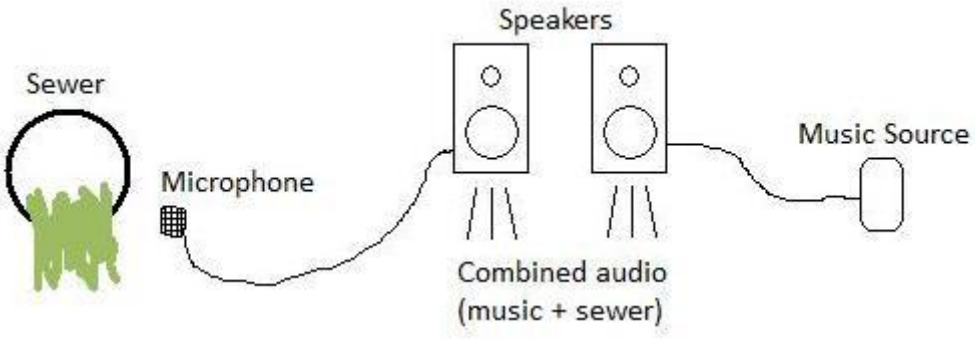
In order to maintain this installation it is recommended that the electrical connections are routinely monitored, as it involves a number of wires and cords to connect each component.

2.9.2 Results

The current setup for this installation calls for a microphone situated at the opening of a sewer outlet. The resulting audio from this microphone will be streamed directly to a speaker in the streets. Meanwhile, an Arduino motion sensor is set in the same street so that when activated, a second audio source will be triggered to play certain preset music.

In order to raise awareness of the lack of a proper sewage system in Venice, we have devised an installation which will play music controlled by the sound of the sewer. A microphone set up at a sewer outlet streams its own sound to a speaker, while a motion sensor activates a second sound source to play music over the sound of the sewer through a second speaker. Our hope is that passersby will take note of the presence of these sounds which indicate the lack of a proper sewage system, and thoughts for improvement will be prompted.

[23] Rose 2006



Sewerround Sound
Location: Sewer outlet
Input: Sewer sounds
Output: Sewer sounds + music
Equipment: Microphone, speakers, music source (ipod), Arduino
Power control: Arduino motion sensor

Figure 60 - Schematic layout of Sewerround Sound

2.9.3 Recommendations

As this installation has merely been conceptualized at this point in time, it is necessary for all developmental steps to be taken from here.

2.10 Storefronts

Venice has to cope with the economic and urban issue of its small retail stores having great difficulty keeping their doors open in Venice's economic environment. Fueled by the complex mix of social, economic and political dynamics, there is a huge exodus of inhabitants and capital leaving the city, producing devastating effects on the infrastructure, economy, and society. A cause for this is a lack of sufficient basic supplies stores in the country, as well as a lack of appeal in an area, driving business straight to the ground in defeat. Since World War II, Venice has taken a turn for the worst. The huge migration is a major detriment to the number and type of stores dotting Venice's streets. With the incoming attention of tourists, more and more supply stores were transformed to souvenir shops, leaving less available stores providing living necessities to the actual Venetian residents. This along with the high cost of living for residents and high real estate costs force many residents to move out to the mainland. With all the empty houses, wealthy foreigners are willing to pay top dollar for them as second homes, thus forcing the cost of living to escalate. Due to this decrease in actual residents, the remaining supply stores have fewer customers, and without enough income to pay the rent, some are forced to close down. Also with the introduction of the euro in January 2002, prices in some cases almost doubled, forcing store owners to increase their store prices to stay afloat to meet

up with this high cost of living.[24] More often than not, the prices drive the population to shop further for cheaper prices, thus causing decreased income for shops and eventual foreclosure. Also, the number of educated middle-class jobs available in Venice is limited, since an inability to handle inflated real estate cost forced such companies as doctors' offices, banks, and insurance companies out to the mainland. This detrimental cycle repeats itself over and over again; with stores closing down due to lack of customer support, and customers leave because there are not enough stores to sustain their everyday living.

2.10.1 Methodology

This installation is going to require the creation of video as well as a means to project it onto a storefront. The video could be created by recording ourselves or other students acting out the part of employees and clientele in shops. (how are we recording the video?) Alternatively, we could record actual video of Venetian retailers working in their natural environment. In order to create silhouettes videos from the raw video we will using video editing software that comes on the Mac Mini we are purchasing. Because of the nature of displaying video outside, this installation would most likely need to be set up at night.

The video is going to be projected onto screens that are placed in the windows of the designated shop. The motion sensor, which will detect the presence of people, is going to be constructed from a customized arduino board, which is then hooked up to an AAXA Pico 2 projector. The video can be read from the projectors internal memory, a memory stick, or some sort of external device such as a laptop or iPod.

As for location, our selection may be limited to stores that allow us to use their windows to display the video (can we use abandoned stores) The stores will need to have windows that are adequately large enough to display a discernable sized video. There also needs to be enough space so that the projector can be placed at an acceptable distance, as well as angle.

2.10.2 Results

This installation addresses the sense of sight and is a very interesting illusion. Firstly the components for storefronts are the pico 2 projector, a tall white canvas, and one light. The pico projector would be left outside at night, and will turn on using a Pyroelectric Infrared (PIR) motion sensor. Therefore, the projector will only turn on when someone passes by the motion sensor.

[24] Modeste 2005

Figure 61 - Pico Projector activated by PIR motion sensor

A prototype of "storefronts" was developed using two people acting behind a tall white canvas with a light shining behind. This illusion is used to demonstrate the regular "goings-on" of a store-front, or what it used to do before it was closed. The figures below are taken from the Vimeo[25] demos of the actual prototype.

Figure 62 - Screenshot of Storefronts Video, 1

[25] http://www.vimeo.com/8198215

Here the two shadows interact with one another and engage in whatever dealings or bargains that were commonplace for that particular closed store upon which this prototype is projected.

Figure 63 - Screenshot of Storefronts Video, 2

Here the two shadows conduct business by exchanging money for food and drink.

This prototype is meant to make a closed store look alive once again with bustling activity and customers. It creates the almost surreal illusion of the "ghosts of the past" reliving their daily activities within a particular store. It also reveals a certain warning for current Venetians and tourists alike; with the conversion of basic need shops to expensive tourist-oriented shops, such as mask and glass shops, the population of actual Venetians inhabiting Venice decreases, and if left this way, the country will be a ghost town, a museum for tourists to come and go.

2.10.3 Recommendations

A method of integrating the Pico 2 projector with the arduino motion sensor with technical and software work is still required to be done. The pico 2 should be able to turn on when the PIR motion sensor detects motion and project the storefronts prototype in a store window.

2.11 X-Ray

As the islands of Venice are separated by numerous canals, bridges are necessary to facilitate a means of walking to and from islands. These 473 bridges form the background of inter-island pedestrian transportation and are an integral aspect of Venice as a whole, as the main methods of transportation within Venice are either by boat or by foot. Other than serving as a pathway between islands, bridges are also used to carry pipes which house important utilities such as electricity, telephone lines, water, and gas. Another example of hidden infrastructure in Venice is the sewage disposal system, which in the past have consisted of brick settling tanks beneath houses that piped out of the canal walls.[26] Gradually, more modern methods of septic disposal have been implemented in homes, but problems persist as many residents still do not understand exactly how these systems work.

Figure 64 - Canal Wall Under Construction
(Canal Repairs 2006)

2.11.1 Methodology

This installation will require an Arudino motion sensor as a controller, an image depicting the hidden infrastructure housed within the bridge, and a projector with which to make viewing the image possible outdoors.

Since this installation utilizes a projector, the device should only operate at night. The chosen location should be one that receives sufficient pedestrian traffic and allows for placement of the projector so that it is the proper distance and angle from the projection surface.

Maintenance for this device will require replacement of the projector bulb, as well as monitoring the battery life. The projector could potentially be manually set up for two hours at a time and run off of the battery, otherwise this installation will require an outdoor electrical outlet.

[26] Venipedia - X-Ray n.d.

2.11.2 Results

The first step we took in the process of developing this installation was seeking out a street or bridge in Venice with the underlying structure exposed. One day we stumbled upon an area undergoing construction and captured several pictures of the pipes and wires beneath the bricks. From this point, we took one of these images and edited it using Photoshop so that it was evident that the utilities were beneath bricks, leaving an opening in the bricks to reveal the pipes. An Arduino-based motion sensor will be responsible for activating a projector in the presence of a passerby, which will display the image on the side of a bridge at night.

Figure 65 - X-Ray image projected onto side of bridge at night

The idea behind X-Ray is to use a projector to cast the image of pipes and wires and all the inner workings of the bridge onto the bridge so that everyone can see it. This image will show what is going on inside the bridges as people walk on top of them and just how important they really are.

The idea behind X-Ray is to expose the hidden infrastructure of Venice to its inhabitants. The goal is to make people aware of the importance of bridges beyond being a means of transportation. Beneath bridges and walkways lie countless vital utilities, which are rarely visible. By projecting the guts of these bridges onto the outside of the bridges, we hope to capture the attention of passersby and highlight the significance of bridges in Venice.

2.11.3 Recommendations

Develop communication between the Arduino and the projector such that the motion sensor will activate the projector.

2.12 Wake Up

After World War II, motorboats replaced rowboats as a faster and more efficient means of transporting people, goods, and waste in the Venetian canals. However, the powerful motors of the new boats introduced a new problem to Venice; moto ondoso, which roughly translates to "wake impact." The canal walls were designed and built long before the motor boat's introduction, and was thus not properly equipped to deal with the constant force of the boat wakes. Because of this, the walls began to slowly deteriorate over time and fall apart. This issue is not only connected to the canal walls but also to buildings,

since canal walls serve as the foundations to the buildings of the city, both residential and business. Therefore, this problem is not only corrosive, but also very dangerous, causing destruction to the underlying structure of Venice itself. As a boat moves through the water, it creates underwater turbulence that is caused by the spinning propellers. Wake is the portion of the turbulence that is seen on the surface of the water. The wake and turbulence combine to impact the canal walls, weakening and eroding them, calling for constant repair, coming from taxpayers, which increases the cost of living in Venice.

Figure 66 - Motor boats and wakes
(Citta' Di Venezia n.d.)

Moto ondoso can be aggravated further by clogged sewer outlets, boat collisions, and biological and chemical agents such as sulfuric acid, pollution, and algae, which thus increase the rate of canal wall erosion. The Venetian dependence on the canals is vital; not only do the canals transport people and goods, but they also play a major role in the waste disposal system of Venice. The canals divide Venice into more than 100 islands, all of which need to be accessible by boat such as garbage collection and ambulances. Also, since Venice's economy is dependent on tourism, the use of the canals for sightseeing and tourist transportation is essential. This along with the large number of boats and inefficient motion of various boats causes congestion.[27] Although there are many measures to help reduce this issue, this is still an ongoing issue that needs to be addressed.

2.12.1 Methodology

The concept behind the idea is very simple that appeals to the sense of sight. An image of a damaged canal wall will be projected onto an undamaged canal wall. The image will be circled in red and around the outside of the red it will say how much it is going to cost to repair that section of wall. The message will be written in English first and then will fade out and the same message in Italian will fade in. This installation is to be activated by a passing boat by using an accelerometer to pick up the intensity of the wake caused by the boat and then use a xbee to relay a signal to the projector to turn it on.

[27] Chiu 2002

2.12.2 Results

The concept for Wake Up as previously mentioned is the projection of a damaged canal wall on top of an undamaged canal wall with a red circle around it. The installation, so far, has been prototyped using Powerpoint to create the animation of the messages fading in and out. To start we took a picture of a damaged canal wall. Then we imported it into Powerpoint and put the red circle around the damage. We then added the writing, in English, above the circle. It reads "It will cost $? to fix this wall." The slide was then duplicated and the English was translated into Italian to read "Costera €? ripare questo muro." Animations were then added so that after three seconds the English message fades in and ten seconds later it fades out and the Italian version fades in. Pictures of the two circumstances can be seen on the right and a video made of the transformation can be found at http://vimeo.com/8171917.

Figure 67 - Wake Up: English Version

Figure 68 - Wake Up: Italian Version

This installation was tested with the AAXA Pico 2 projector on a canal wall at the end of the street next to the Ca' Corte apartments. The canal is no more than 15 feet wide and the projection could barely be seen when projected across. The projector was not nearly bright enough and the resolution not nearly high enough for the final installation.

2.12.3 Recommendations

For this installation we were not able to determine the actual cost to fix a canal wall that has been damaged so that will be something for a future group to determine before the final product is installed.

Another concept for a future Postmodern Postmortem team to develop is the interactive activation of this installation. The plan is to have it activated by the boat wakes using an accelerometer and arduino set-up similar to what was used on the bubbletto installation. This concept was not able to be developed due to

time constraints and the fact that the xbee modules got stuck in customs and were not received until three days before we were scheduled to leave Venice.

One final problem that needs to be resolved with this installation is the projector. The AAXA Pico 2 projector that we have been using to prototype the installations is not nearly bright enough or clear enough to be used in the final installation. A higher quality projector should be purchased to achieve the optimal results.

3 Alternate Reality Game

An alternate reality game is an amazing way to publicize and get people involved with something you are trying to get attention to. Many companies use it as a form of advertisement, such as Microsoft using *I Love Bees* to publicize the video game *Halo 2* as well as using *The Beast* to publicize the movie *A.I.: Artificial Intelligence*. Both *I Love Bees* and *The Beast* were both alternate reality games that enticed players in with challenging puzzles and an intriguing story that made them want to find out more. *I Love Bees* followed the story of an alien ship that has crash landed on earth, and in an attempt to get help sends its artificial intelligence into a nearby home computer and takes it over. The computer houses a website that the A.I. tries to use to send out the message, and this is where players of the ARG find it and slowly unravel a story involving many different characters and plot twists. Along the way the players must solve puzzles and complete certain tasks in order to get information for the game. An example of a puzzle in *I Love Bees* is that players were given a list of GPS locations as well as times. The players had to figure out that the GPS locations were payphones around the United States and the times listened when the phones would ring. Players needed to be at these phones when they were going to ring in order to progress in the game. At the end of *I Love Bees* players found out that the story had a tie in with the video game *Halo 2* and the whole thing was a large marketing campaign to get players into and excited about the game.

3.1 Role of the Alternate Reality Game

We are creating an ARG to publicize and connect all of the art installations that will be scattered around the city. When a player comes across any one installation they will wonder why it's here and what its meaning is. On each installation there will be a poster telling people to go to our website in order to solve the mystery behind what the installation is and why it's there. Once there they will be pulled into the story of Polo Zen, Niccolo Bianchi and the city of Venice. They will solve puzzles and progress through the story just like *I Love Bees* and when they reach the end will find out about the installations and the issues they address.

The website for the ARG is going to be the central hub for the players to get information, solve the puzzles, and progress the story. The website starts out with only one icon at first, which will be the first installation that the players need to go to.

Figure 69 - Example Icons

The icon will tell the exact location of the installation as well as a small description of the issue the installation addresses. There will be a box for them to submit a password, as well as a hint in the form of a written phrase. This hint will guide the player in looking for the password in order to progress. The players will need to come back to this site after visiting each installation, and thus gives us a way to track the progress of the players if we want to implement that. That would give us a way to see if they are getting stuck at certain points and nudge them back on track.

A login system may be required not only as a way to save the players progress, but also as a means of obtaining an email address to send communications and clues from Niccolo to the player. This is the main way that the story will be told. Players can receive emails from Niccolo and email him back. After each puzzle is successfully solved the player will need to email it to Niccolo so that "he can progress too". Also, players will unlock journal entries from Polo. These are journal entries that Polo made chronicling his life in Venice as he became increasingly fed up with the issues and as he looked for "The Lost Son". The players are given the journal entries out of order, in whatever way makes the story more dramatic and intriguing.

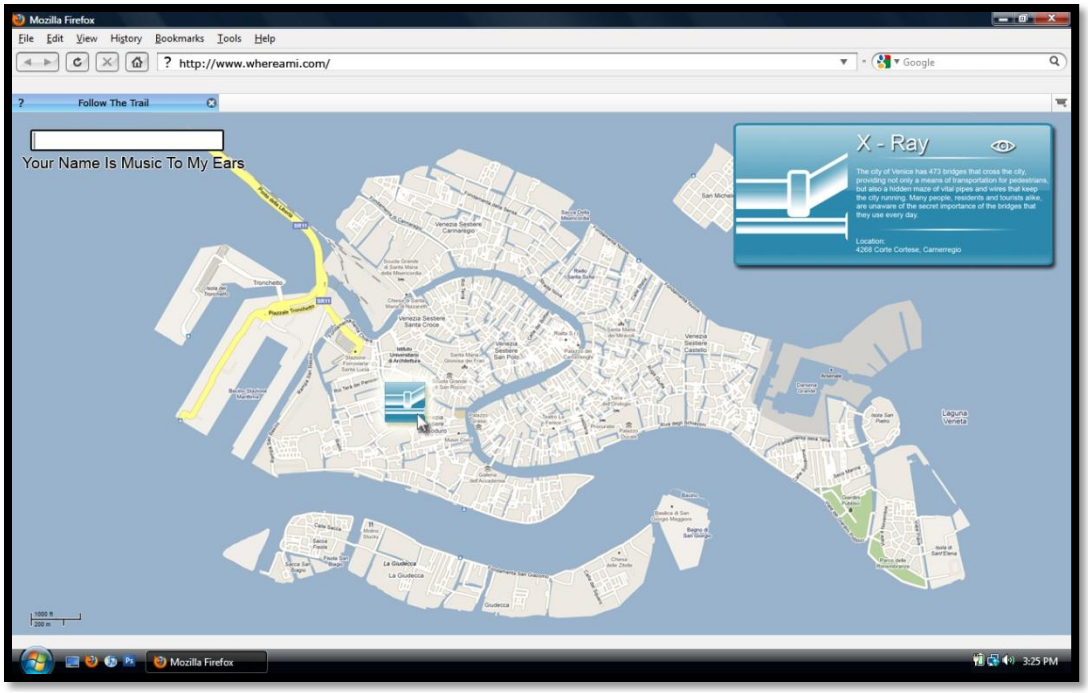


Figure 70 - Website Mock Up

The puzzles for this ARG have a few requirements. They must have some sort of correlation to the story in some way. We don't want to throw arbitrary puzzles at the player just to slow them down. In order to immerse them we need to have them thinking about the story at all times. Also, each puzzle needs some sort of instant gratification. Since we have people running all over Venice, we don't want them to think they have an answer, then walk for 20 minutes to find out its wrong and then have to go back. The players need to be sure of where to go online after seeing the installation and not need to go back. Another requirement is that each puzzle will need to give the location of the next installation, and continue like that in a linear fashion until the end. This puzzle structure also means that the story and flow of the puzzles will have to be linear.

3.2 Flow of Our Puzzle

0.) Rabbit Hole – message in bottles scattered around the city, t-shirts saying "ask him", and posters put up near the installations. All of them basically have the same message, which tells people to go to the website.

a. The Plea – "Hello, my name is Niccolo Bianchi. And now you know more than I do. My friend Polo Zen made this website. Atleast I think he did. The last thing polo sent me was a link to this

site. I haven't been able to make contact with Polo in a few days and I'm getting worried. A lot of strange things happened all at once. Polo is gone, he sent me this empty site, and all of these…things…started popping up around the city. You may have seen them. You probably have. I am the one who put up the posters around them. I figured that they would draw a lot of attention, however I am not the one who made these. Look at Polo's facebook page for clues."

1.) X- Ray

a. Hint On Website: "Your Name Is Music To My Ears"
b. Niccolo Hint: N/A
c. Hint On Installation: "tinyurl", ".com/", and "underthesurface"
d. Site: http://tinyurl.com/underthesurface
e. Puzzle: Venipedia page needs to be deciphered with quote in Polo's Facebook profile
f. Solution: "If you don't like this, I'll stop writing music."
g. Password: "Antonio Vivaldi"
h. Unlocks: The Toll
i. Notes: The basic idea behind this puzzle is to have the players learn about the issue of infrastructure as well as leading them into the next musical installation (The Toll) by having the answer be musically related. When players see the hidden URL on the installation they will then need to go to that site. That site is the Venitian Utilities page on Venipedia, and the players will need to decipher a hidden message from it using information from facebook. The message is "If you don't like this, I'll stop writing music", and when players google this Antonio Vivaldi comes up as having said it. Players will remember that the website hint was "Your name is music to my ears" and will know that "Antonio Vivaldi" is the password.

2.) The Toll

a. Hint On Website: "The Password Is Right In Front Of You "
b. Niccolo Hint: N/A
c. Hint On Installation: says "tiny url" and "The Tolling Of The Bell"
d. Site: http://tinyurl.com/thetollingofthebell
e. Puzzle: Put (scattered) morse code from Facebook into a morse code translator
f. Solution: "dropbox.com" with .txt with paragraph, capitals say "Password Is Very Easy"
g. Password: "Very Easy"
h. Unlocks: M.I.A.

i. Notes: This puzzle is intended to be an auditory one, since the installation is musically related. Players go to the installation and hear a spoken URL from the installation speaker. After going to the URL they are directed to a morse code decoder, and on Polo's facebook page there are hidden snippets of morse code. When the player puts them in dropbox.com is revealed. Here the players must use Polo's email (pzen12@gmail.com) and a secret password to get in. The hint on the website says "The Password Is Right In Front Of You" and thus the password for dropbox is "rightinfrontofyou". Once inside there is a text document which says "The Password Is Very Easy". The players will then know that "Very Easy" is the password.

3.) M.I.A.

a. Hint On Website: "Shoulder Width/Head + Foot (In Inches Of Course)"
b. Niccolo Hint: N/A
c. Hint On Installation: Hidden slide put into morph animation (Vitruvian Man)
d. Site: http://en.wikipedia.org/wiki/Vitruvian_Man
e. Puzzle: On wiki page, solve a math problem based on the ideal body proportions

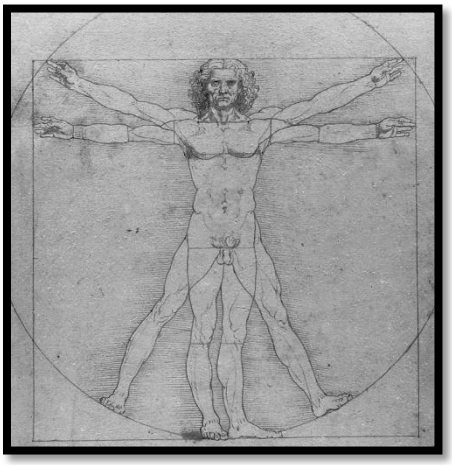


Figure 71 - Vitruvian Man

f. Solution: 14 Inches
g. Password: 14 Inches
h. Unlocks: Brodo Di Pesce
i. Notes: This puzzle is intended to be an art related one, since the installation deals with the deterioration of art. Players go to the installation and witness the video, followed for a quick second by the image of the Vitruvian Man. This is all the players are given and must use Wikipedia to learn more about the Vitruvian Man. On Wikipedia there is a list of how all of the Vitruvian Man's body parts are in proportion to each other, and the hint on the website is a math problem using body parts. The players figure out the answer (14 Inches) which is also the password for the next installation.

4.) Brodo Di Pesce

a. Hint On Website: "I'll Have What He's Having"
b. Niccolo Hint: "Him and Polo always used to go there, Polo always got Brodo Di Pesce"
c. Hint On Installation: "1 Soup: $6, 1 Service: $1, 1 Password: Priceless"
d. Site: N/A
e. Puzzle: People must go to the restaurant and order Brodo, receive the receipt
f. Solution: 1 Password: Priceless
g. Password: Priceless
h. Unlocks: Storefronts
i. Notes: This puzzle requires a Hint from Niccolo. The installation is located at a restaurant, and Niccolo tells the player that it was Polo's favorite, and he would always get Brodo Di Pesce. The players go there and ask for Brodo, and eat it. After it is done they are given a receipt with the phrase "1 Password: Priceless". The players now know what the password is.


Guest:

1 BRODO 6.29
1 WATER 1.00
1 SERVICE 1.00
1 PASSWORD PRICELESS

Sub. Total: 8.29
Tax: 0.52
Total: 8.81
Discount Total: 0.00

CASH 8.29
Change 0.00
Cashier: Register:
1/3/08 13:18:31

Order #: 597035
THANK YOU!

Figure 72 - Example Receipt

5.) Storefronts

a. Hint On Website: "P=x; Solve for x"
b. Niccolo Hint: N/A
c. Hint On Installation: After Video large QR Stays on screen, people need to take picture
d. Site: http://venipedia.org/index.php/Retail
e. Puzzle: Skim through the retail page and find the equation
f. Solution: P=F*k/t^2
g. Password: F*k/t^2
h. Unlocks: Scratchitti
i. Notes: This puzzle uses QR codes to get the player to a website. Players take a picture of the QR then upload it to a decoder side, which then gives them a URL. In this case the Venipedia retail page. The players skim through the page and look for the something that has to do with the hint on the website. When the players find the equation they are looking for they can put it into the website and move on to the next installation.


Figure 73 - QR Example

6.) Scratchitti

a. Hint On Website: ".-- .... .- - / .. ... / - .... . / ..-. .. .-. ... - / .-.. .. -. . / .- --. .- .. -. ..--.." (What Is The First Line Again?)
b. Niccolo Hint: "Those symbols remind me, polo sent me this image a few days before he went missing" (1/4 of a QR, to be used in next installation puzzle)
c. Hint On Installation: Funiculi Funicula, Peppino Turco (installation says this)
d. Site: http://en.wikipedia.org/wiki/Funicul%C3%AC,_Funicul%C3%A0
e. Puzzle: Players search the key words said, and find the first line of the song
f. Solution: "Yesterday evening, my love, I went up"
g. Password: "Yesterday evening, my love, I went up"
h. Unlocks: Bubbletto
i. Notes: Players can use the morse code decoder site they used earlier to decipher the hint on the website. The installation says the name of an Italian song as well as its composer. Players need to look up the first line of the song and put that in as the password. Players are also given ¼ of a QR code from Niccolo because he realized it was significant after the last puzzle. It is used for the next puzzle, not this one.

7.) Bubbletto

a. Hint On Website: "Sending Signals"
b. Niccolo Hint: N/A
c. Hint On Installation: Other ¾ of the QR are on the bubble machine
d. Site: http://zxing.org/w/decode.jspx (Found on FB Profile)
e. Puzzle: Combine QR and text the given message to the given number
f. Solution: Password is texted back
g. Password: "Marco Polo"
h. Unlocks: Chocolate Leo
i. Notes: This is a visual as well as technical puzzle. The exact detail would need to be worked out. On the installation there is a ¾ QR code which the players combine with last ¼ they received previous to this. This QR gives them a message as well as a phone number instead of a URL. The players need to send that message to that given number, and will then be given the password to continue.

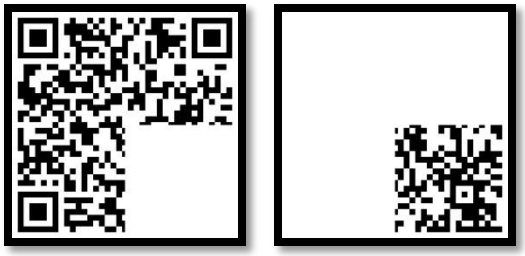


Figure 74 - QR Parts that must be combined

8.) Chocolate Leo

a. Hint On Website: "Who's The Leader Of The Club That's Made For You And Me…"
b. Niccolo Hint: "It seems that there is another restaurant Polo especially liked, they made a special chocolate lion for him. That's all I can think of."
c. Hint On Installation: "L.E.O. L.I.O.N." printed on the back of the chocolate
d. Site: N/A
e. Puzzle: Ask for Chocolate Lion
f. Solution: L.E.O. L.I.O.N.
g. Password: L.E.O. L.I.O.N.
h. Unlocks: Wake Up
i. Notes: This is a puzzle similar to Brodo. The players receive the installation location as well as a hint from Niccolo, saying that the restaurant was a place Polo always used to get a specific food. The players go there and ask for the special food. After being given the item they look at it and see that the password is printed on the back.

9.) Wake Up

a. Hint On Website: "Who Said That?"
b. Niccolo Hint: N/A
c. Hint On Installation: Words on image have lower case letters that say "streetsfullofwater", and flash "tiny url" for a second
d. Site: http://tinyurl.com/streetsfullofwaterpleaseadvise
e. Puzzle: Players find the name of the person who said the quote in the tiny url
f. Solution: Robert Benchley
g. Password: Robert Benchley
h. Unlocks: Sewerround Sound
i. Notes: This puzzle is similar to the first two. Players go to the installation site and see a hidden URL. They go to the URL and are directed to another site. The hidden URL contains a quote that is said by someone in the article they are directed to, and the player also knows that the website hint is asking for a name. The player will then know that the name of the person who said the quote is the password.

10.) Sewerround Sound

a. Hint On Website: "My Brother"

b. Niccolo Hint: N/A
c. Hint On Installation: Plays Mario Theme between playing regular sounds
d. Site: N/A
e. Puzzle: Must recognize the Mario theme song
f. Solution: Mario's brother
g. Password: Luigi
h. Unlocks: Scents & Sensibility
i. Note: This is probably the least developed of all the installations, and as such the puzzle for it is very simple. This puzzle is an auditory one. When the players get to the installation location they will hear the installation start to play the Mario brothers theme song after a while. The hint on the website refers to someone's brother, and Luigi is very recognizable as Mario's brother, and is thus the password.

11.) Scents & Sensibility

a. Hint On Website: "I Know That Smell"
b. Niccolo Hint: N/A
c. Hint On Installation: The machine sprays out a very recognizable scent
d. Site: N/A
e. Puzzle: Players must recognize the scent the machine sprays out
f. Solution: The machine sprays out an apple scents
g. Password: Apple
h. Unlocks: Spray It Forward
i. Notes: This puzzle only requires the sense of smell. Players go to the installation location and are sprayed by the recognizable smell. The players realize this and now know the password for the next installation.

12.) Spray It Forward

a. Hint On Website: "Fine Them That Much"
b. Niccolo Hint: N/A
c. Hint On Installation: Multiple QR codes that create a URL
d. Site: http://tinyurl.com/paintthetownred
e. Puzzle: They must put all the QR's together and find the correct URL, then read the article and see how much beggars are fined

f. Solution: Beggars are fined 500 euros
g. Password: 500 euros
h. Unlocks: End Game
i. Notes: Players will see multiple QR's each containing a different part of a URL. These QR's are flashed when the screen is wiped for more graffiti to be drawn. After correctly piecing it together they must read the article they are linked to find the correct password relating to the hint on the website.

13.) End Game

a. Players go to the final location on the map and see one final QR without any sort of installation attached to it. The players are then taken to our separate web page that explains all of the installations and the whole postmodern postmortem project as well as venice2point0.
b. Players could possibly receive an "Ask Him" shirt as a prize, and would thus continue the cycle and provide ways for more people to get into the ARG.

Story

The story of our ARG follows a man who goes by the name of Niccolo Bianchi as he tries to make the city of Venice aware of its problems. He does this by creating a fictions character named Polo Zen, and then asks the people of Venice to help find him since he has gone missing trying to find someone or something known as "The Lost Son" that can save Venice. He sets up art installations around the city and has the people go around trying to find Polo's location, even though all he really wants is for the people to learn about the city of Venice. He has the people go through each installation one at a time, solving puzzles and at the same time learning about the problem that the installation is trying to address. He keeps dangling the fact that the player is getting closer to Polo in order to keep them going, when in fact he is the one producing all the content from Polo.

The overall goal of Niccolo is to teach the people of Venice about the problems the city is facing and that they are partially responsible for it. "The Lost Son" that is going to save Venice is revealed at the end to just be a symbol for the people of Venice, and he is trying to tell them that it is only them that can make a difference and save it.

Plot

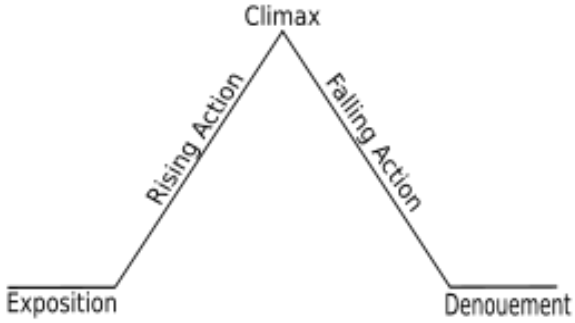


Figure 75 - Freytag's Pyramid
http://upload.wikimedia.org/wikipedia/commons/a/af/Freytags_pyramid.svg

A plot can often be split into 5 different acts. This structure was analyzed by Gustav Freytag, and Freytag's pyramid (Figure 1) shows the general structure of a plot. These acts are the exposition, rising action, climax, falling action, and denouement. The first part is known as the exposition, and this is where most of the characters are introduced, as well as the main conflict in the story. The next part is the rising action, which is where the characters navigate their way through the story, overcoming many different challenges and obstacles that are in their way. The climax is when the story all comes together and the characters come face to face with the conflict and must resolve it. The falling action is the unraveling of the story after the conflict has been dealt with, and any mysteries from the story are explained. The final part, the denouement, is the ending of the story and either ends with the characters better off than at the start or worse off. This is what the viewers of the story are left with.

Not all stories follow this structure exactly, as it is more of a guideline. Most storylines have a structure with at least some recognizable parts of a 5 act structure though.

Our story will basically follow the 5 act structure. For our story the exposition will be the rabbit hole, or introduction, part of our ARG. The players will be introduced to the characters and the initial problem. Niccolo Bianchi will entice the players into wanting to find Polo by giving them a plea to help find his friend. Players will get this plea as an e-mail from Niccolo. They receive this by signing up for the website they found out about by seeing the posters, messages, and "ask him" shirts around the city. Niccolo will say that the last thing Polo was working on was these art installations that are scattered throughout the city, and that those would probably hold the key to his location.

The rising action will be the main part of the ARG. The players will move from installation from installation as they gather clues and piece together what happened to Polo. Each installation will lead to another installation as well as a journal entry from Polo to further the story. This part of the story will have the most content, with the mystery of Polo slowly coming together piece by piece as they work to pinpoint his location.

The climax will be when the players have finally pinpointed the location of Polo, and need to rush to go find him. This will be after all the installations have appeared on the map and almost all of Polo's journal entries have been received. The players will receive the last journal entry from Polo, explaining who "The Lost Son" actually was, and that it was up to

During the falling action Niccolo thanks al the players for playing his game and apologizes for the little ruse. He explains that there was no Polo Zen and his motives behind the installations and the lies. He leaves the people with a message that the future is theirs to work with.

Since this is an interactive story there really isn't much of a denouement since it doesn't end after the game is over. Niccolo Bianchi wanted to teach a lesson, and after its done it's up to the people to decide how it goes from here. The future of the city of Venice is left up to if the players learned anything from the game and story.

4 Further Development

Beyond the need for our prototypes and concepts to be improved upon and finalized, several other actions should be taken to improve the project as a whole. The fact that this project is currently on-going makes it possible to include any additional issues found in Venice. We have witnessed several other issues firsthand in our time here. While garbage receptacles can be found scattered generously throughout the city, there is an evident lack of public recycling. Our project could be used to encourage the recycling of reusable materials here in Venice, and make doing so more convenient and interesting with an interactive art installation. There is also a serious issue of dog owners not cleaning up after their pets. Most streets can be found bombarded by feces and any unfortunate pedestrian that happens to pass by must endure the smell and carefully avoid stepping in it. Also, illegal vendors are often seen lining busy streets and harassing tourists and residents alike to make a purchase. These vendors slow pedestrian traffic in busy areas and are fairly off-putting to those trying reach a destination or enjoy the view along the Giudecca Canal, not to mention the fact that the vendors are breaking the law.

For exposure and publicity purposes, a "pre-game" web presence should be active. Our website can be used to attract any other artists interested in contributing to the project with their own installation ideas, making this a globally collaborative project. Information should be made available to artists for how to proceed with an installation idea, and what criteria they should follow in order to fit into the overall scope of the project.

Our ultimate and most ambitious goal with this project would be to have the ARG entered into the Venice Biennale Art Exhibition, either by having each street installation adapted for indoor purposes or by presenting documentation of the installation in its outdoor location and including a description for the exhibition-goers.

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Appendix A: Material Budget

Material Item	Quantity	spec	Cost (shipping not included)
Laser Pointer pen	1	5 mW, Green beam	$7.00
Arduino Duemilanove Starter Kit	3	Breadboard, Arduino Duemilanove w/Atmega328, 10K potentiometer, 1K potentiometer, 2 small pushbuttons, 5 red diffused bright LEDs, one each of red, green and blue ultra-bright LED, 5 100 ohm resistors, 5 1K resistors, 5 10K resistors, and a CdS photocell sensor.	$135.00
Xbee Adapter kit v1.1	1	3.3V regulator, 250mA, two LEDs	$10.00
Memsic 2125 Dual-axis Accelerometer	1	Simple, pulse output of g-force for X and Y axis, Analog output of temperature (TOut pin), Low current 3.3 or 5V operation: less than 4 mA at 5 vdc, Arduino compatible.	$29.99
Arduino Protoshield	1	0.1"x0.1" prototying grid	$12.50

		with big pads, A IC pattern for adding DIP ICs up to 20 pins, Power rails down the middle and sides	
Play Station 3 EyeCamera	1	Resolution: 640X480 at 60Hz 320X240 at 120 Hz	$28.95
Music & sound add-on pack for Arduino	1	3" diameter (77mm), 8 ohm impedence, 200Hz to 10KHz	$35
DDR dance mats	2	36 ½" x 32 ½" x 1 1/2", High Density 1" Foam	$8.28
Air wick Freshmatic Ultra Automatic Spray Kit	1	3 time settings, lasts up to 60 days (on 36 minute setting), Each refill contains 2,400 sprays	$13.99 Refills-$5.89
Sculpey Oven Baking Clay	1 box	Net weight: 1.75 lbs	$12.99
Amazing Mold Putty	1	20 A hardness, food grade approved	$19.99
Activa InstaMold	1	12 oz	$8.99
Candy Melts	2 bags	Dimensions: 1.03" h x 4.42" w x .89" l, .91 pounds	$2.49
AAXA Pico 2 Projector	1	33 lumens of output, an 800 x 600 native resolution	$219.00
Mac Mini	1	Intel Core Duo 1.66 GHz Memory: 512MB DDR2 SDRAM Hard Disk: 60GB Graphics: Intel GMA 950 graphics processor 64MB	$399.00
PIR motion sensor	1	12 V, 7-14mm spectral range	$10.00

Group	Total Cost:		$331.06
Fabio	Total Cost:		$618

Appendix B: Accelerometer C++ Arduino Code

```
/*
    Memsic2125

    Read the Memsic 2125 two-axis accelerometer.  Converts the
    pulses output by the 2125 into milli-g's (1/1000 of earth's
    gravity) and prints them over the serial connection to the
    computer.

    The circuit:
       * X output of accelerometer to digital pin 2
       * Y output of accelerometer to digital pin 3
       * +V of accelerometer to +5V
       * GND of accelerometer to ground

    http://www.arduino.cc/en/Tutorial/Memsic2125

    created 6 Nov 2008
    by David A. Mellis
    modified 30 Jun 2009
    by Tom Igoe
       modified 1 Dec 2009
       by Amanda Rinaldi
 */
// these constants won't change:
const int xPin = 2;        // X output of the accelerometer
const int yPin = 3;        // Y output of the accelerometer
int LEDpin = 13;   //LED connected to digital pin 13
int thresholdx= 100;
int thresholdy= 100;
// variables to read the pulse widths:
  int pulseX, pulseY;
  // variables to contain the resulting accelerations
```

```
  int accelerationX, accelerationY;
void setup() {
  // initialize serial communications:
  Serial.begin(9600);
  // initialize the pins connected to the accelerometer
  // as inputs:
  pinMode(xPin, INPUT);
  pinMode(yPin, INPUT);
  pinMode(LEDpin, OUTPUT);
  // variables to read the pulse widths:
  int pulseX, pulseY;
  // variables to contain the resulting accelerations
  int accelerationX, accelerationY;
  // read pulse from x- and y-axes:
}
void loop() {

  // read pulse from x- and y-axes:
  pulseX = pulseIn(xPin,HIGH);
  pulseY = pulseIn(yPin,HIGH);
  // convert the pulse width into acceleration
  // accelerationX and accelerationY are in milli-g's:
  // earth's gravity is 1000 milli-g's, or 1g.
  accelerationX = ((pulseX / 10) - 500) * 8;
  accelerationY = ((pulseY / 10) - 500) * 8;

  if (accelerationX >thresholdx)
  digitalWrite(LEDpin, HIGH);
  else digitalWrite(LEDpin, LOW);

  if (accelerationY > thresholdy)
  digitalWrite(LEDpin, HIGH);
  else digitalWrite(LEDpin, LOW);
  // print the acceleration
  Serial.print(accelerationX);
```

```
  // print a tab character:
  Serial.print("\t");
  Serial.print(accelerationY);
  Serial.println();
  delay(100);
}
```

Appendix C: Photoresistor and LED communication C++ Arduino Code

```
// variables for input pin and control LED
  int analogInput = 3;
  int LEDpin = 12;
  int LEDpin2= 9;

// variable to store the value
  int value = 0;

// a threshold to decide when the LED turns on
  int threshold = 90;

void setup(){

// declaration of pin modes
  pinMode (analogInput, INPUT);
  pinMode (LEDpin,  OUTPUT);
  pinMode (LEDpin2, OUTPUT);

// begin sending over serial port
  Serial.begin(9600);
}

void loop(){
// read the value on analog input
  value = analogRead(analogInput);

// if value greater than threshold turn on LED

if (value < threshold) digitalWrite(LEDpin, HIGH);
else digitalWrite(LEDpin, LOW);

if (value < threshold) digitalWrite(LEDpin2, HIGH);
else digitalWrite(LEDpin2, LOW);
```

```
// print out value over the serial port
  Serial.println(value);

// wait for a bit to not overload the port
  delay(500);
}
```

Appendix D: PIR Sensor and Waveshield C++ Arduino code

```
#include <FatReader.h>
#include <SdReader.h>
#include <avr/pgmspace.h>
#include "WaveUtil.h"
#include "WaveHC.h"

SdReader card;    // This object holds the information for the card
FatVolume vol;    // This holds the information for the partition on the card
FatReader root;   // This holds the information for the filesystem on the
card

uint8_t dirLevel; // indent level for file/dir names    (for prettyprinting)
dir_t dirBuf;     // buffer for directory reads

WaveHC wave;      // This is the only wave (audio) object, since we will only
play one at a time
// Function definitions (we define them here, but the code is below)
void lsR(FatReader &d);
void play(FatReader &dir);
int pirPin = 6;  // The digital pin connected to the PIR sensor output
int ledPin = 13;
int incomingByte;   // a variable to read incoming serial data into
void setup() {
  Serial.begin(9600);           // set up Serial library at 9600 bps for
debugging

  putstring_nl("\nWave test!");  // say we woke up!

  putstring("Free RAM: ");       // This can help with debugging, running out
of RAM is bad
  Serial.println(freeRam());
```

```
  // Set the output pins for the DAC control. This pins are defined in the
library
  pinMode(2, OUTPUT);
  pinMode(3, OUTPUT);
  pinMode(4, OUTPUT);
  pinMode(5, OUTPUT);
  pinMode(pirPin, INPUT);
  digitalWrite(pirPin, LOW);
  pinMode(ledPin, OUTPUT);

  //  if (!card.init(true)) { //play with 4 MHz spi if 8MHz isn't working for
you
  if (!card.init()) {         //play with 8 MHz spi (default faster!)
    putstring_nl("Card init. failed!");  // Something went wrong, lets print
out why
    sdErrorCheck();
    while(1);                           // then 'halt' - do nothing!
  }

  // enable optimize read - some cards may timeout. Disable if you're having
problems
  card.partialBlockRead(true);

  // Now we will look for a FAT partition!
  uint8_t part;
  for (part = 0; part < 5; part++) {     // we have up to 5 slots to look in
    if (vol.init(card, part))
      break;                            // we found one, lets bail
  }
  if (part == 5) {                      // if we ended up not finding one
:(
    putstring_nl("No valid FAT partition!");
    sdErrorCheck();      // Something went wrong, lets print out why
    while(1);                           // then 'halt' - do nothing!
  }

  // Lets tell the user about what we found
  putstring("Using partition ");
```

```
  Serial.print(part, DEC);
  putstring(", type is FAT");
  Serial.println(vol.fatType(),DEC);     // FAT16 or FAT32?

  // Try to open the root directory
  if (!root.openRoot(vol)) {
    putstring_nl("Can't open root dir!"); // Something went wrong,
    while(1);                             // then 'halt' - do nothing!
  }

  // Whew! We got past the tough parts.
  putstring_nl("Files found:");
  dirLevel = 0;
  // Print out all of the files in all the directories.
  lsR(root);
}

////////////////////////////////// LOOP
void loop() {
  root.rewind();
  play(root);
}

////////////////////////////////// HELPERS

// this handy function will return the number of bytes currently free in RAM,
great for debugging!
int freeRam(void)
{
  extern int  __bss_end;
  extern int  *__brkval;
  int free_memory;
  if((int)__brkval == 0) {
    free_memory = ((int)&free_memory) - ((int)&__bss_end);
  }
  else {
    free_memory = ((int)&free_memory) - ((int)__brkval);
  }
```

```
  return free_memory;
}

/*
 * print error message and halt if SD I/O error, great for debugging!
 */
void sdErrorCheck(void)
{
  if (!card.errorCode()) return;
  putstring("\n\rSD I/O error: ");
  Serial.print(card.errorCode(), HEX);
  putstring(", ");
  Serial.println(card.errorData(), HEX);
  while(1);
}
/*
 * print dir_t name field. The output is 8.3 format, so like SOUND.WAV or
FILENAME.DAT
 */
void printName(dir_t &dir)
{
  for (uint8_t i = 0; i < 11; i++) {     // 8.3 format has 8+3 = 11 letters
in it
    if (dir.name[i] == ' ')
        continue;         // dont print any spaces in the name
    if (i == 8)
        Serial.print('.');           // after the 8th letter, place a dot
    Serial.print(dir.name[i]);      // print the n'th digit
  }
  if (DIR_IS_SUBDIR(dir))
    Serial.print('/');       // directories get a / at the end
}
/*
 * list recursively - possible stack overflow if subdirectories too nested
 */
void lsR(FatReader &d)
{
  int8_t r;                     // indicates the level of recursion
```

```
  while ((r = d.readDir(dirBuf)) > 0) {     // read the next file in the
directory
    // skip subdirs . and ..
    if (dirBuf.name[0] == '.')
      continue;

    for (uint8_t i = 0; i < dirLevel; i++)
      Serial.print(' ');        // this is for prettyprinting, put spaces in
front
    printName(dirBuf);          // print the name of the file we just found
    Serial.println();           // and a new line

    if (DIR_IS_SUBDIR(dirBuf)) {   // we will recurse on any direcory
      FatReader s;                 // make a new directory object to hold
information
      dirLevel += 2;               // indent 2 spaces for future prints
      if (s.open(vol, dirBuf))
        lsR(s);                    // list all the files in this directory
now!
      dirLevel -=2;                // remove the extra indentation
    }
  }
  sdErrorCheck();                  // are we doign OK?
}
/*
 * play recursively - possible stack overflow if subdirectories too nested
 */
void play(FatReader &dir)
{
  FatReader file;
  while (dir.readDir(dirBuf) > 0) {    // Read every file in the directory
one at a time
    // skip . and .. directories
    if (dirBuf.name[0] == '.')
      continue;

    Serial.println();            // clear out a new line
```

```
    for (uint8_t i = 0; i < dirLevel; i++)
       Serial.print(' ');       // this is for prettyprinting, put spaces in
front

    if (!file.open(vol, dirBuf)) {       // open the file in the directory
      Serial.println("file.open failed");  // something went wrong :(
      while(1);                           // halt
    }

    if (file.isDir()) {                    // check if we opened a new
directory
      putstring("Subdir: ");
      printName(dirBuf);
      dirLevel += 2;                       // add more spaces
      // play files in subdirectory
      play(file);                          // recursive!
      dirLevel -= 2;
    }
    else {
      // Aha! we found a file that isnt a directory
      putstring("Playing "); printName(dirBuf);       // print it out
      if (!wave.create(file)) {            // Figure out, is it a WAV proper?
        putstring(" Not a valid WAV");     // ok skip it
      } else if (digitalRead(pirPin)== HIGH) {
        Serial.print("Found Movement!!!!!");
        Serial.println();
        wave.play();
        Serial.print('H');
        Serial.println();

         while (wave.isplaying) {           // playing occurs in interrupts,
so we print dots in realtime
          putstring(".");
          delay(100);
        }
      }
```

```
        else if (Serial.available() >0) {
          //read teh oldest byte in the serial buffer:
          incomingByte=Serial.read ();
          //if it's a capital H (ASCII 72), turn on the LED:
          if (incomingByte == 'H') {
            Serial.print( "Fall in Line!!!!");
            Serial.println();
            wave.play ();

            while (wave.isplaying) {
              putstring(".");
              delay(100);
            }
          }
        sdErrorCheck();                     // everything OK?
//        if (wave.errors)Serial.println(wave.errors);     // wave decoding
errors
      }
    }
  }
}
```

Appendix E: Python Code for The Toll

Modified code from http://www.j4mie.org/2008/02/15/how-to-make-a-physical-gmail-notifier/

```
import serial, sys, feedparser, time

SERIALPORT = "COM3" # Change this to your serial port!

d =
feedparser.parse("http://www.nasdaq.com/aspxcontent/NasdaqRSS.aspx?data=quote
s&symbol=mgm")

while(True):
        # Set up serial port
        try:
                ser = serial.Serial(SERIALPORT, 9600)
        except serial.SerialException:
                print "no device connected - exiting"
                sys.exit()

        # Output data to serial port
        if "greenarrow" in `d`:
                ser.write("m")
                print "stock up"
        else:
                ser.write("n")
                print "stock down"
        #print data to terminal


        # Close serial port
        ser.close()
        time.sleep(60)
```

Appendix F: Arduino Code for The Toll

Modified code from http://www.j4mie.org/2008/02/15/how-to-make-a-physical-gmail-notifier/

```
// led wired + to pin 12, resistor to positive +5v

int outPin = 12; // Output connected to digital pin 12
int mail = LOW; // Is there new mail?
int val; // Value read from the serial port
void setup()
{
 pinMode(outPin, OUTPUT); // sets the digital pin as output
 Serial.begin(9600);
 Serial.flush();
 mail = HIGH; // start off with lights out
}

void loop()
{
 // Read from serial port
 if (Serial.available())
 {
   val = Serial.read();
   Serial.println(val, BYTE);

   if (val == 110) // n = 110 in dec
   {
     mail = HIGH;  // HIGH is off because led is connected to +5v on the
other side
   }

   else if (val == 109) //109 = m in dec
   {
     mail = LOW; // LOW is on because led is connected to +5v on the other
side
   }
 }
```

```
 // Set the status of the output pin
 digitalWrite(outPin, mail);
}
```

Appendix G: Passwords for Alternate Reality Game website[28]

Installation	hint	password to enter
x-ray	Your name is music to my ears	rays
the Toll	The password is right in front of you	notgettinganyyounger
MIA	Shoulder width/Head + Foot (In Inches of course)	Leonardo
Brodo	I'll have what he's having	fish
Storefronts	P=x; Solve for x	cost
Scratchitti	.-- .... .- - / .. ... / - .... . / ..-. .. .-. ... - / .-.. .. -. . / .- --. .- .. -. ..--..	morse
Chocolate Leo	Who's the leader of the club that's made for you and me...	MickeyMouse
Sewerround Sound	my brother	splash
Scents&Sensibility	I know that smell	smelly
Spray it Forward	fine them that much	lasers
Wake up	who said that?	snooze

[28] **NB**: The actual ARG website will still need to be fixed and coordinated with these hints and passwords

Appendix H: Account Passwords

Account		Password
Youtube	PostmodernPostmortem	veawesome
Vimeo	ve09-post@wpi.edu	veawesome
Ponoko	ve09-post@wpi.edu	veawesome
slideshare	PostmodernPostmortem	veawesome
Issuu	PostmodernPostmortem	veawesome