

Plasticene

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# Plasticene

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## ABSTRACT

*Plasticene* is an alternative term for Anthropocene, the proposed epoch that follows the Holocene and designates the beginning of significant human impact on Earth. While this moniker carries numerous implications across a range of disciplines, the scholarship of this thesis project is motivated by the creation and exhibition of a body of work that investigates the materiality and physical presence of technological convenience.

*Plasticene* is an exhibition of four looping, digital video animations alongside two interactive sculptural installations. The video-based pieces are explorations into the medium of digital video and how it functions as a carrier of visual information. They were created through iterative manipulations of how that information is digitally compressed, organized, archived, and revealed. The sculptural works are attempts to amplify the physical presence of technologies that can often be hard to see. They were built to perform simple gestures and rely on engaging multiple senses to call into question the routine way in which we interact with different technological devices.

This paper examines the essay “The Question Concerning Technology” by Martin Heidegger as a philosophical influence for this investigation before discussing several works by other artists to frame the works in *Plasticene* within a contemporary context. The individual works from the exhibition are then discussed with regard to their intention, conceptual motivation, and the process of their creation.

# Plasticene

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## GENERAL AUDIENCE ABSTRACT

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## Introduction

Plasticene is an alternative term for Anthropocene, the proposed epoch that follows the Holocene and designates the beginning of significant human impact on Earth. While this moniker carries numerous implications across a range of disciplines, the scholarship of this project is motivated by the creation and exhibition of a body of work to investigate the materiality and physical presence of technological convenience.

*Plasticene* is an exhibition of four looping, digital video animations alongside two interactive sculptural installations. The videos explore the literal medium of video and how it functions as a carrier of visual information. They were created through iterative manipulations of how that information is digitally compressed, organized, archived, and revealed. The sculptural works amplify the physical presence of technologies that can often be hard to see. They perform visually and aurally engaging gestures that prompt viewers to reconsider the routine way in which we interact with different technological devices.

“The Question Concerning Technology,” by Martin Heidegger, provides a philosophical framework for this investigation. In this essay, Heidegger seeks to uncover the true essence of technology and ascertain how humans can best position themselves towards it. Similarly, an examination of influential works by other artists place the works in *Plasticene* within a contemporary context. Lastly, the works from the exhibition are individually discussed with regard to their intention, conceptual motivation, and the process of their creation.

## Philosophical Context

Martin Heidegger was a German philosopher who worked mostly in the first half of the 20<sup>th</sup> century. He is a controversial figure due to his affiliation with the Nazi party. He was a member of the National Socialist from 1933 through the end of the World War II. Despite this, his teachings are still regarded as very influential to Western thought (Zuern, “Martin Heidegger”). In his essay “The Question Concerning Technology,” he articulates how humans can have a “free” relationship with technology. Heidegger would consider that relationship to be free if it “opens our human existence to the essence of technology” (3). It is important to note that he put forth these ideas in the late 1940s and early 1950s, and thus, though he does not directly address it, are undoubtedly informed by the destruction modern technology enabled during the global conflict of the prior decades.

He begins by defining what technology is: both “a means to an end” and “a human activity” (Heidegger 4). Heidegger labels these the “instrumental” and “anthropological” definitions (5). However, while these definitions describe technology, they fall short of uncovering its true essence. The anthropological definition is straightforward; technology is indisputably created by humans and thus a human activity. However, to better get at the essence of technology, he first examines causality. If technology is a means to an end, then it also causes an effect. Heidegger references Greek philosophy to examine four different types of causality: *causa materialis*, *causa formalis*, *causa finalis*, and *causa efficiens*. Heidegger uses the example of the silver chalice to illustrate the differences between these four causes. Silver, the material out of which the chalice is made, is the *causa materialis*. The form of the chalice into which the silver

enters is the *causa formalis*. The *causa finalis* is the ritual for which the chalice is intended. The silversmith, the agent responsible for the finished chalice, is the *causa efficiens* (Heidegger 6).

All of these causes work together to bring the chalice into being, or reveal its existence. This revealing is the true essence of technology (Heidegger 12-14). However, danger arises from the human desire to master technology (Heidegger 5). This has led to an “enframing,” or way of thinking, that causes us to see the world as something Heidegger calls “standing-reserve (Heidegger 23).” Our desire to master technology causes us to view the world as something to be classified and quantified – something that is a resource. There are obvious examples of this with coal and other fossil fuels, but Heidegger is broad with his interpretation to include every worldly thing (literally everything that exists), from forests, to airplanes, to even humans. Heidegger gives the example of viewing the Rhine river as a resource for the hydroelectric power plant versus the Rhine as described by the poet Hölderlin. And even if someone were to claim that the Rhine still exists as the poet described it, Heidegger counters by saying such a view also serves as a resource for the tourism industry (Heidegger 16).

But within this enframing is also an implicit responsibility to safeguard the world (all things that “presence”), as well as the revelation that we as humans are necessary to its revealing (Heidegger 31). But realizing this requires a shift in how the world is viewed. Rather than viewing the world as a resource to be counted, measure, classified, and catalogued, humans should instead view the world like artists, who see the world and try to exemplify its existence (Zuern, “Guide”).

*“Because the essence of technology is nothing technological, essential reflection upon technology and decisive confrontation with it must happen in a realm that is, on the one hand, akin to the essence of technology and, on the other, fundamentally different from it.*

*Such a realm is art. But certainly only if reflection on art, for its part, does not shut its eyes to the constellation of truth after which we are questioning (Heidegger 35).”*

This is my intention with the works in *Plasticene*. I am not trying to empirically claim anything about technology, or the relationship modern humans have with it. Rather, I want to create an instance that characterizes its existence. Doing so provides an opportunity for a viewer to reposition themselves towards the technology in their life. This opportunity prompts a shift in perspective, whereby a viewer thinks critically towards modern technologies and endeavors to see them as they are, rather than acquiescently accept their effects.

## Influences

From brushes and pencils to microcontrollers and servo motors, artists have a long tradition of incorporating, adopting, repurposing or subverting technological advancements into the creation of their work. The works of several artists were particularly inspirational to the development of the works in Plasticine with regard to the material and aesthetic choices, conceptual motivation, and in terms of Heidegger, their ability to characterize the presence of technology.

### **Jean Tinguely | Méta-Matics**

Jean Tinguely, 1925-1991, was a Swiss painter and sculptor associated with the Dadaist movement. His *Méta-Matics* series from the late 1950s and 1960s features a collection of kinetic, mechanical sculptures. While their dimensions vary, they are generally table-top sized and larger, and when powered, perform repetitive, erratic gestures that create automatic drawings (Arlot). The commentary of the *Méta-Matics* is twofold. First, they are a direct response to abstract expressionism, substituting intuition for automated mechanisms as the impetus for artistic output. They also suggest a skepticism of modern technology and its increasing role in human life (Til, et al. 42).

The over-developed, hyperbolic aesthetic of the *Méta-Matics* in motion is captivating. The sporadic movements of the drawing arm, the connection holding the drawing surface, and all of the gears and moving parts in between create a spectacle that caricaturizes the creative process. The squeaking and clanking sounds emitted as a byproduct of these movements lend themselves towards this characterization. Also, not

only are the drawings they create art objects in their own right, but they also serve as lasting, visual records of the performative event that created them.

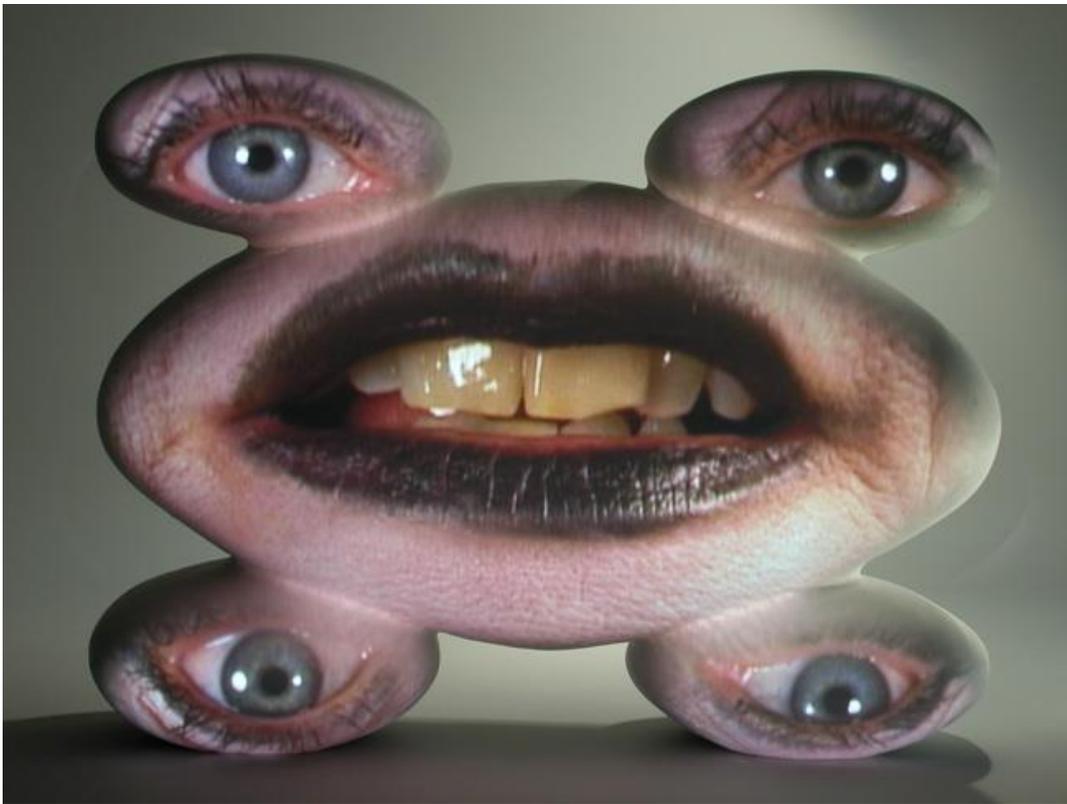


**Figure 1.** Jean Tinguely. *Méta-Matic No. 6*, 1959. From “Conférence RVH 2017.” *Conférence Guillaume Weil, Rendez-Vous De L’Histoire 2017, Les Machines Ont-Elles Détrôné L’artiste?*, lezard-curieux.heb3.org/confGW.html.

### **Tony Oursler | Metro Pictures Exhibition**

Tony Oursler, born in 1957, is an American artist who lives and works in New York. He received his BFA from the California Institute of the Arts in 1979 and has developed a creative practice that integrates sculpture and video as a means of exploring the relationship that humans have with technology (“Tony Oursler – Biography”). A notable series of works that exemplify this investigation are the multimedia sculptures that were included in his 2003 exhibition at the Metro Pictures gallery in New York.

This exhibition features a number of bulbous fiberglass forms bestowed with caricatured eyes and mouths from mapped video projections. Accompanying each work is a spoken aural component through which the work addresses the viewer, utilizing intimate language and sounds that references both “pillow talk” and the manner people speak to their pets (“Metro Pictures”). These characters are simultaneously humorous and unsettling. They assert an experience with the viewer that is provocative, embarrassing, and uncomfortable.



**Figure 2.** Tony Oursler. From Metro Pictures Exhibition, 2003. Fiberglass sculpture and DVD projection. From “Metro Pictures, New York: May. 3 - Jun. 21, 2003.” *Tony Oursler*, <https://tonyoursler.com/metro-pictures-new-york>.

These works rely on the distortion of facial features achieved through digital editing software alongside intimate spoken recordings to explore the relationship between humans and technology. In particular, Oursler is concerned with the emotional aspect of

this relationship rather than any practical benefits. He is interested in how “technology serves as a surrogate friend,” how such relationships come to be, and what they might look like going forward (“Metro Pictures”).

### **Rafael Lozano-Hemmer | Tape Recorders**

Tape Recorders is a 2011 installation by Mexican artist Rafael Lozano-Hemmer. Lozano-Hemmer was born in 1967 in Mexico City and received a BS in Physical Chemistry from Concordia University in Montreal. He utilizes robotics and computer technologies to create participatory interactive installations (“Artist Biography”). In Tape Recorders, wall-mounted motorized measuring tapes are repurposed to “measure” the amount of time that a viewer observes the work. A computer system keeps track of a viewer’s location in the space and signals the nearest measuring tape to extend upwards. Once the tape reaches approximately three meters in height, it falls to the floor and resets itself, rewinding back into its housing. Accompanying this is an hourly printout of the total number of collective minutes spent in the installation (“Tape Recorders”).

During the creative process of the sculptural works in *Plasticene*, I struggled to justify the conceptual significance of art that reacts to the presence of a viewer. While this subject will be discussed further in a later section, I initially found it difficult to distinguish the relevance of interactive features against the novelty of the technological mechanisms that deliver them. However, Tape Recorders utilizes interactivity in a way that temporally describes an individual’s experience with the installation as part of a group. In contrast to its methodical extension, the abrupt collapse of the measuring tape subverts the expected orientation of the relationship a viewer has with the work by

intruding into their own personal space. Through Tape Recorders, Lozano-Hemmer uses technological materials to translate invisible digital signals to analog mechanical movement.



**Figure 3.** Rafael Lozano-Hemmer. Tape Recorders, 2011. Motorized measuring tapes, Kinect tracking system, computers, cameras, thermal printer, custom-made hardware and software. From “Tape Recorders.” *Rafael Lozano-Hemmer*, [www.lozano-hemmer.com/tape\\_recorders.php](http://www.lozano-hemmer.com/tape_recorders.php).

### **Cory Arcangel | Iron Maiden’s “The Number of The Beast” compressed over and over as an mp3 666 times**

Cory Arcangel, born in Buffalo, New York in 1978, works with technologies such as software programs and other digital materials to explore their social and cultural implications with regard to the speed with which they are adopted and the similar rate they become obsolete (“Cory Arcangel”). In his 2004 work Iron Maiden’s “The Number of The Beast” compressed over and over as an mp3 666 times, he also addresses the material quality of a .mp3 audio file. In particular, he explores the effects of how such

digital files are digitally archived. As the title of the work indicates, Arcangel showcases the deterioration and loss of audio quality intrinsic to digital file compression through exaggerated over-application (Arcangel).

Arcangel elegantly and humorously blends pop culture with the technological efficiency that enables its dissemination. His iterative use of the compression process, to the point of separating the digital file from the content that it carries, seeks to reveal the material characteristics of .mp3 files and how those files are interpreted by computer processing systems. He provides listeners with an opportunity to examine the nature of digital media by reflecting on what is lost through the process of storing it.

### **Janet Cardiff | Forty Part Motet**

Janet Cardiff is a Canadian artist who was born in 1957 known for her work with sound installations (“About”). Her 2001 work *The Forty Part Motet* features an elliptical arrangement of 40 speakers mounted on stands. The installation is a adaptation of “Spem in Alium,” an arrangement by Thomas Tallis from 1573, with each speaker carrying the voice of an individual vocalist. Cardiff intended this work as an opportunity for viewer-listeners to experience the sonic structure of music across physical space. Rather than the traditional concert experience, visitors are able to hear the sounds as they move between speakers and gain a sense of the spatial construction of the music over its temporal evolution (“The Forty Part Motet | 2001”).

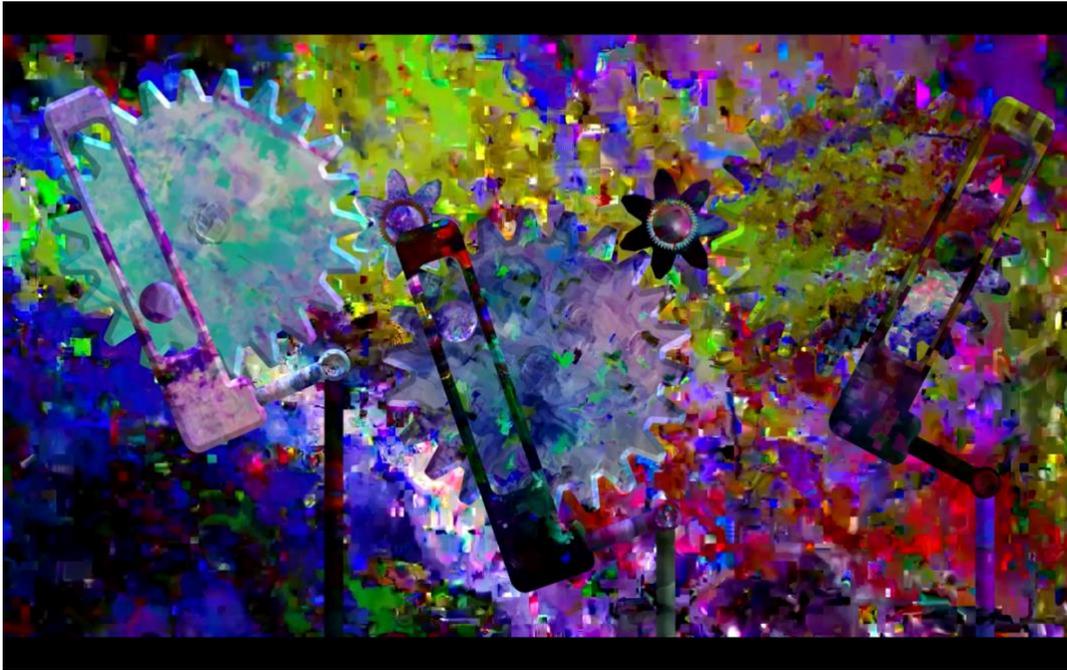
I saw an installation of this work at The North Carolina Museum of Art during their 2018 exhibition *You Are Here: Light, Color, and Sound Experiences* (“You Are Here”). I was struck by the orderly management of technological materials. The speakers,

stands, and all accompanying wires were arranged to minimize their visual impact, allowing visitors to focus on the sonic elements of the experience. However, there was a moment where all of the cables came together into a leg-sized bundle before burrowing through a hole in the wall. This moment, though likely intended as the least obtrusive way to realize the installation within the physical limitations of the space, served as a poignant indication of the characteristics of the technology that enables it.



**Figure 4.** Janet Cardiff. *The Forty Part Motet*, 2001. 14-minute loop with 11 minutes of music and 3 minutes of intermission. 40 loud speakers mounted on stands, placed in an oval, amplifiers, playback computer. From Hill, Kathy. "ST201066." *Newlyn Art Gallery & The Exchange*, [newlynartgallery.co.uk/activities/janet-cardiff/st201066/](http://newlynartgallery.co.uk/activities/janet-cardiff/st201066/).

## Animations



**Figure 5.** Churning, 2019. Digital video. 30 second loop.

The works in *Plasticene* can be divided into two distinct material categories. There is a series of four looping, digital video animations as well as two interactive sculptural works. Each digital video animation began as an iterative investigation into the material of digital video. There is implicit contradiction in the nature of this investigation, as unlike its predecessors, digital video does not rely on an obvious physical matrix in the same way that analog video technologies rely on film. Digital video is stored on computer storage devices in the form of binary digits, or bits. Each individual bit has two modes, either true, typically represented by a 1, or false, 0. Most modern digital storage devices today contain either arrangements of small magnets or capacitors, and bit information is stored on them in the form of a series of North and South polarities or Charged and Uncharged electrical currents (Smithee).

To some degree, the magnets or capacitors could be said to comprise the actual, physical medium of digital video. They are the actual objects responsible for the video existing. However, without the magnetism or electric charge they carry, the video would not exist. Thus, though digital video relies on magnets and capacitors as containers, there is nothing intrinsic to either of those objects that distinguishes them as digital videos from any other type of information aside from the charge they carry. The animations in *Plasticene* investigate and manipulate this charge in an attempt to access its material qualities, an effort made difficult, if not entirely futile, by the fundamental intangibility of electrical and magnetic currents. As such, this series of works inevitably falls into a conversation of how this information is interpreted by computer processing systems.

Each of these animations was created through iterative manipulations of the same source file. In turn, the source file was created by stitching together short video clips from videos that I had accumulated on my cell phone. The origination of this source file is important because of the insignificance of the clips. They were all recorded out of an impulse to capture and share a brief moment of my life. Often, videos like these have a brief public existence. Even though they are only watched only once or twice, they remain as electrical charges on the hard drive of my cell phone. It is this very disposability that plays a part in driving the motivation for this investigation. Advancements in camera quality and portability has fueled a culture through social media that requires the creation and subsequent archiving of countless videos such as these. Over time, these videos accumulate, and occupy storage space on devices that operate as extensions of our own selves.



**Figure 6.** Unaltered frame from one of the source video clips.

Digital videos are stored as a series of frames. However, in order to make the files smaller, complete pixel information is stored only for certain frames. These reference frames are called intra coded frames, or I-frames. Other frames only contain information for the change in pixel values relative to the most recent I-frame. These are called P-frames, or predicted frames. B-frames, or bi-directional predicted frames, refer to both the previous I-frame and the P-frame after (Karam 7).

Not only do smaller video files occupy less storage space on computer hard drives, but they also are simpler and quicker to transmit over the internet. Interfering with the compression process exposes the fragile dependence digital video has on the sequence of charges that describe these different kinds of frames and the relationships between them. For the digital video works in *Plasticene*, the imagery that results from this interference is no longer recognizable. It does not carry the same communicative

meaning that was present in its original form. Compression processes are used to facilitate communication by making digital video file sizes smaller and more manageable. These digital video works demonstrate how the communicative outcome of digital video fully depends on the integrity of any compression it uses.



**Figure 7.** Wringing, 2019. Digital video. 27 second loop.

Through the use of several video editing programs, I was able to access and manipulate these frames by either deleting the I-frame references or duplicating the P-frames, thereby affecting the visual output on the screen. Manipulating video in this way follows a process in the realm of glitch art called datamoshing. I used this methodology to iteratively manipulate the digital video medium until it lost connection with any particular content that it carried. For me, this process permits for a painterly interaction with video. The outcome of this process is serendipitous. Though I had autonomy over which particular frame was affected and in what manner, I had no foresight into what

visual effect those changes would bear. I contend that this allows for the material qualities of the video medium to show through. Since the electrical charges that dictate how the video is displayed on the screen cannot themselves be seen, this process allowed me to access and manipulate the electrical charges as a material without imparting unto it any expectations.



**Figure 8.** Dialing, 2019. Digital video. 44 second loop.

In contrast with this serendipity, I modeled the animations after different mechanical devices. The reason for this is two-part. First, the structure and precision of these mechanisms is a reference to the logical and straight-forward way in which a computer interprets the electrical charges that comprise digital video files. Even if these charges are manipulated, the computer still interprets them in the only way that it knows how. Secondly, the mechanisms portrayed in the animations reference the sculptural works in Plasticine. Their titles, *Churning*, *Wringing*, *Dialing*, and *Shearing* describe not

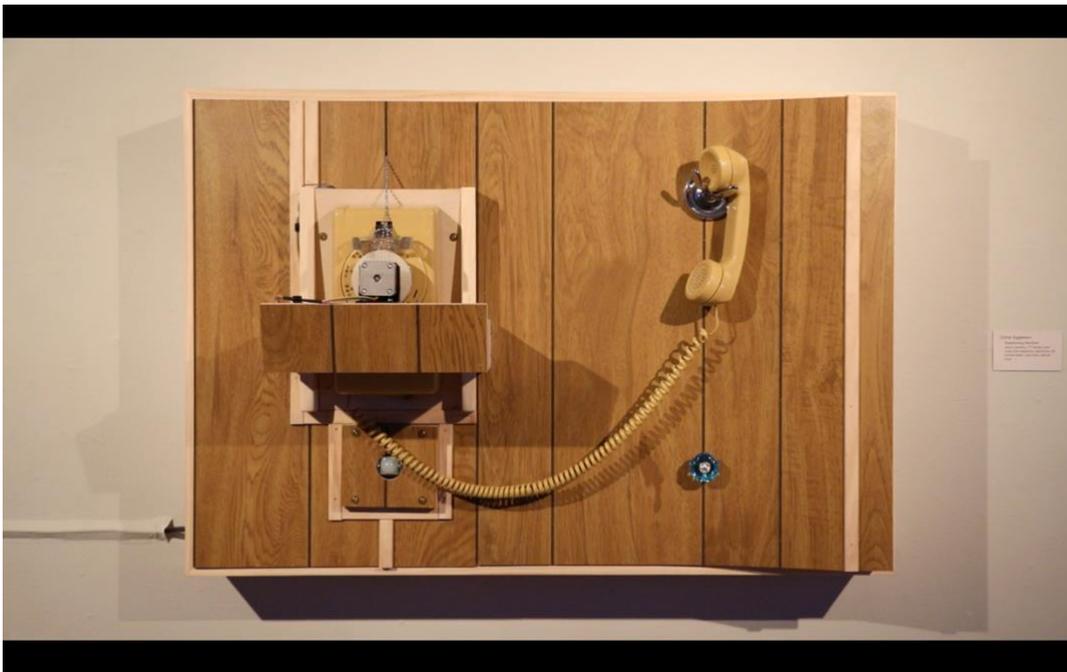
only the visual movements they portray, but also point towards the kinetic elements in *The Questioning Machine* and *The Rub (Down to The Wire)*. This is an effort to allow them to engage in conversation with the motors and physical movements of the sculptural works that also occupy the space.



**Figure 9.** Shearing, 2019. Digital video. 23.5 second loop.

## Sculptures

There are two sculptural works in Plasticine. One, *The Questioning Machine*, uses a series of motors and a motion sensor to place calls to semi-random phone numbers on a rotary phone when approached by a viewer. The second, *The Rub (Down to The Wire)*, is an installation of 12 wall-mounted boxes each with their own motion sensors. When triggered, a servo motor on each box pulls the chain of a light fixture, turning on a light bulb, before pulling the chain again to turn the light off 10 seconds later. The chain for each light extends to the floor of the gallery. At the end of each chain is an awl, which drags across a flat piece of soft modeling clay, a motion determined by the movement of the pull chain.



**Figure 10.** *The Questioning Machine*, 2019. Wood, paneling, ITT harvest gold rotary wall telephone, electronics, 3d printed dialer, robe hook, cabinet knob.

Both *The Questioning Machine* and *The Rub (Down to The Wire)* employ similar materials and aesthetic choices. They rely on wooden structures to house electronics and

motors that perform actions when activated by motion sensors. The mechanical devices that enable the kinetic elements of the sculptures are exposed and easily visible. They also both prominently feature wood paneling, a material that references a time when the mechanisms that facilitated technology often were not as obscured as they typically are in modern devices today. This material in conjunction with either a rotary telephone or pull chain light fixtures, which both carry a similar connotation, is intended to provide contrast for the more modern technological components, such as microcontrollers, motors, sensors, and wires.

Both sculptures also rely on interactivity. Early versions were not interactive, but instead operated on timed intervals. By being interactive, *The Questioning Machine* and *The Rub (Down to The Wire)* depend on the presence of a viewer to be fully realized. The viewer is an integral element of the artwork. The interactivity of these two sculptural works is fundamental to revealing the relationship that a viewer has with technology, and it does so in a way that implicates them personally.

Interactivity also instigates a sense of bodily awareness in the viewer. According to Roberto Simanowski, among other things, “interactive art is conceptualized as a place to encounter one’s own body (120).” As a viewer navigates the installation, they become aware of the reaction of the art work to their presence. Accompanying this moment of realization is a concurrent awareness of the viewer’s own body, and in particular the position of their body in the installation space. As stated earlier, my intention with the works in *Plasticene* is to provide viewers with an opportunity to reorient themselves towards the technology in their lives. However, any shift in orientation relies on a viewer

having knowledge of where they currently are. The interactive elements in these works are integral to prompting such an awareness.

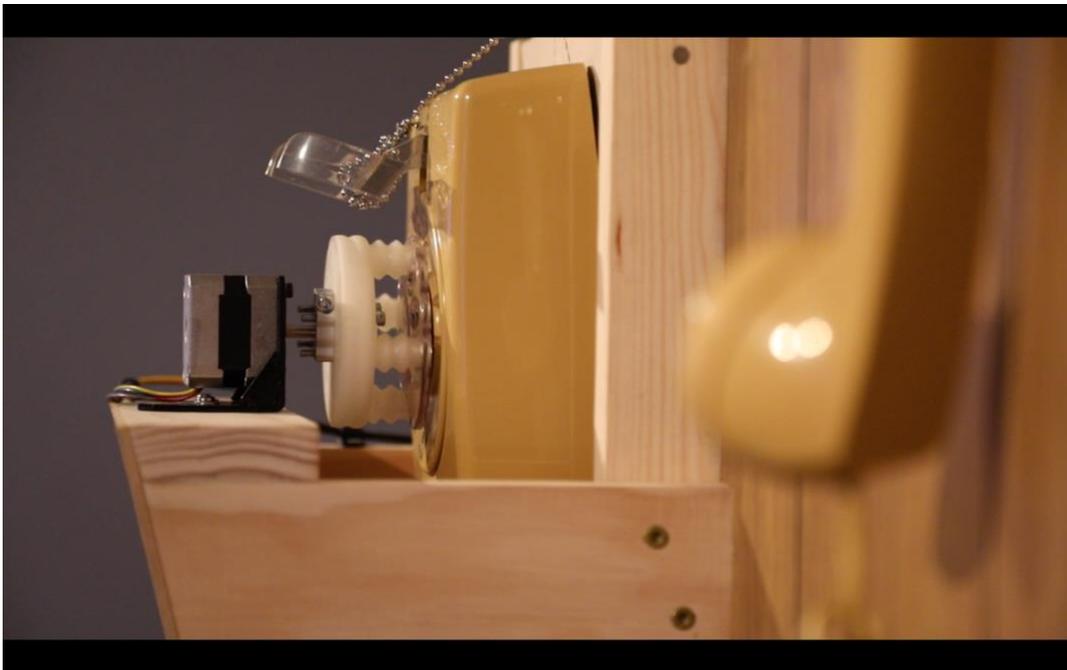
## The Questioning Machine

The Questioning Machine is a wall mounted sculpture that measures three feet wide, two feet tall, and approximately 14 inches in depth. The piece features an ITT harvest gold rotary wall telephone. A dialing mechanism attached to a stepper motor is positioned in front of the rotary dial. The receiver hangs on a hook to the right of the phone and a PIR (passive infrared) motion sensor is located below the phone. When a viewer walks in front of the motion sensor, a signal is sent to an Arduino microcontroller which turns another stepper motor to lift the hanger. Script on the microcontroller then generates a semi-random telephone number and translates each of the digits of that number to the corresponding amount of rotation of the dialing mechanism. The particular nature of the call is then allowed to transpire over the course of two minutes, during which the viewer may interact with the receiver to whatever degree they feel comfortable with.

### **Process**

There were two notable technical challenges that arose during the creation of this work. The first involved translating the digital number generated through the microcontroller to an analog motion on the rotary dial. In the original iteration of this project, buttons were depressed on an analog cell phone using a series of corresponding linear actuators. However, since the rotary phone uses a singular mechanism to dial all

numbers, I used a stepper motor to control the degree of rotation of the dial. The challenge arose from determining how to best link the motion of the motor to movement of the dial. Earlier efforts relied on a chain and sprocket system that had multiple moving parts. It proved difficult to sufficiently remove the slack from this system so as to fluidly operate the dial. I eventually made the decision to place the motor directly in front of the dial and use 3D modeling software to design and print an attachment that would connect to both the motor and the rotary dial on the phone.



**Figure 11.** The Questioning Machine, 2019 (detail).

The process of arriving at this decision reflected a greater struggle between aesthetic idealism and working functionality. Originally, I explored design decisions that would allow for the rotary dial to be most visible. I wanted the viewer to be able to clearly see the number being dialed on the phone. By doing so, I hoped to impart a sense of specificity to the number, despite the semi-random method by which it was generated.

Random numbers have become a familiar institution now that cell phones are so available and prolific. By working to keep the rotary dial as visible as possible, I hoped that the slow and methodical speed at which the dial was turned would allow for a viewer the time to reflect on the particular destination towards which that number points. However, as important as I felt such visibility was, I thought that the functionality of the piece was more important to the transmission of its meaning.

The second challenge was in developing a script to generate a phone number to call. Generating a 10-digit number yields 10 billion unique possibilities. Early testing suggested that working with a number pool this large was unlikely to result in an active phone number. My effort to limit the size of this pool began with research into how phone numbers are constructed.

Under the North American Numbering Plan, each phone number in the US begins with the country code “1.” The three digits that follow comprise the area code. There are over 325 different area codes in the US (“United States Area Codes”). The three digits after that are known as the prefix, while the last four digits are the line number (Foster). While there may exist a way to algorithmically generate active phone numbers, the expertise required to do so exceeds the bounds of my current knowledge. Area codes and prefixes are non-sequential. However, I was able to cross-reference valid prefixes against different area codes to construct an array of each wherein for any given area code, each prefix from the corresponding array is valid. After determining a list of prefixes that worked for the seven area codes in Virginia, I added additional area codes from other geographic locations around the US that also worked with those prefixes. The last four digits, the extension, are still selected at random.

## Conceptual Motivation

The title of this work is given as an analog to the answering machine. Answering machines are familiar if bygone devices that “answer” a missed call and allow for a caller to record a message. By contrast, *The Questioning Machine* places calls when approached by a viewer. There is humor implicit in this gesture, but it also attempts to access a more serious question regarding advancement in communications technologies. Even though development in this technology has vastly increased the speed and accessibility with which humans can communicate with each other, such convenience does not necessarily make it any easier to talk. Through the gesture that it performs, *The Questioning Machine* places viewers in the uncomfortable position of being on the outgoing end of a random phone call. Though the viewer is not compelled to actually participate, the location of the receiver is intended to offer such opportunity.

The work is also in conversation with the phenomenon of the robocall. Speaking personally, I receive automatic calls on my cell phone from unknown numbers multiple times a day. Like most others, I view these calls as an annoyance. The frequency with which I receive them bears responsibility for my aversion to answer calls from numbers I don't recognize, or more accurately, numbers my phone doesn't recognize. As mentioned before, this work places viewers on the other end of that relationship. Rather than being on the receiving end of a call from an unknown source, the viewer is given the opportunity to be a human participant in what is typically an automated process.

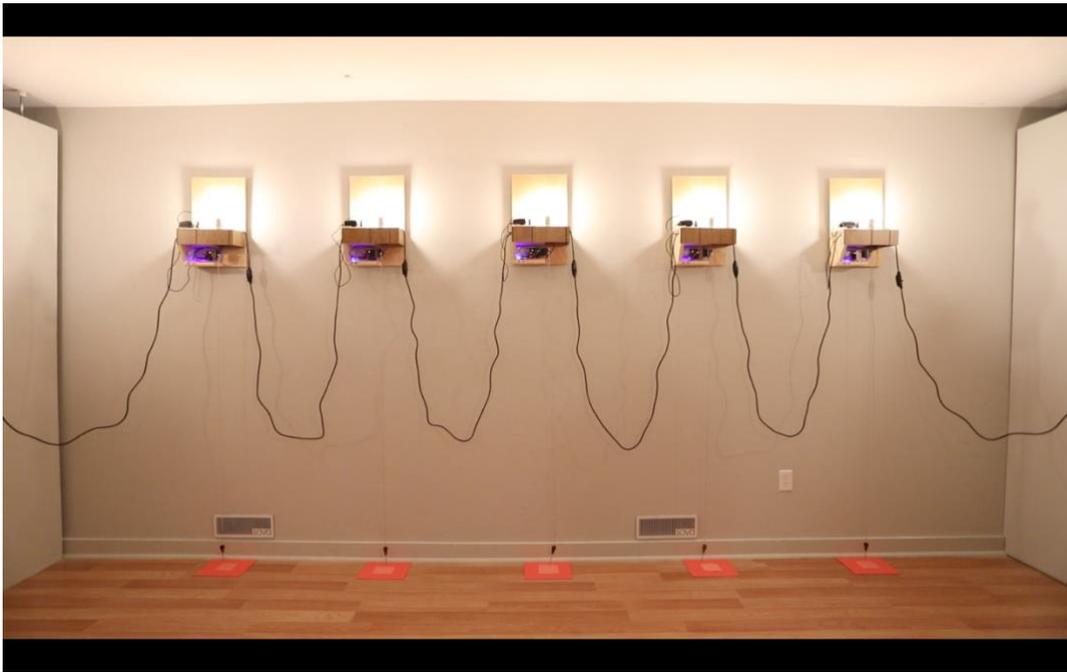
This work also extends in reach beyond the physical limitations of the gallery space. Traditionally, the experience a viewer has with a work of art is constrained by the geographic area of the space that contains it; a viewer must be or have been in the

presence of a work of art to have an experience with it. In some cases, like the interactive works in *Plasticene*, the presence of the viewer is necessary for the work of art to be fully realized. The communicative nature of *The Questioning Machine* permits the work to have a reach that extends as far as the geographic range of the numbers it calls – a much greater range than the space it occupies. This quality works to not only increase the presence of the work but also, in the case of the recipients of the numbers that are called, compels their participation in the gesture.

## The Rub (Down to The Wire)

*The Rub (Down to The Wire)* is an installation comprised of 12 identical sculptural objects. Each object consists of a wall-mounted wooden structure that measures approximately 20 inches tall, 12 inches wide, and six inches in depth. A shelf just below the midway point holds a light fixture and a receptacle. The pull chain of the fixture passes through hole in the shelf and extends roughly six feet to the floor. Below the shelf is an open-faced compartment that houses an Arduino microcontroller, a PIR motion sensor, a blue LED light, and a servo motor which attaches to the pull chain. An awl is attached to the end of the pull chain. Below each awl lies a nine by twelve-inch coral painted canvas upon which rests a roughly six-inch, square-shaped, slab of flesh-colored modeling clay. Three of the objects are hung on a curved, wood paneled wall. The remaining nine are evenly spaced along the other three walls of the gallery room. Electrical cords attached to each wooden structure allow the structures to plug into each other in a series. When a viewer enters the space, if the sensor on any of the objects is triggered, the servo motor pulls the chain down to turn the light on, waits 10 second, then

pulls the chain again to turn the light off. When the chain is pulled, the weight of the awl creates a wave in the chain. This motion causes the awl to poke into and drag across the soft surface of the modeling clay. Over time, these marks accumulate to create a record of the actions performed by each object in the space.

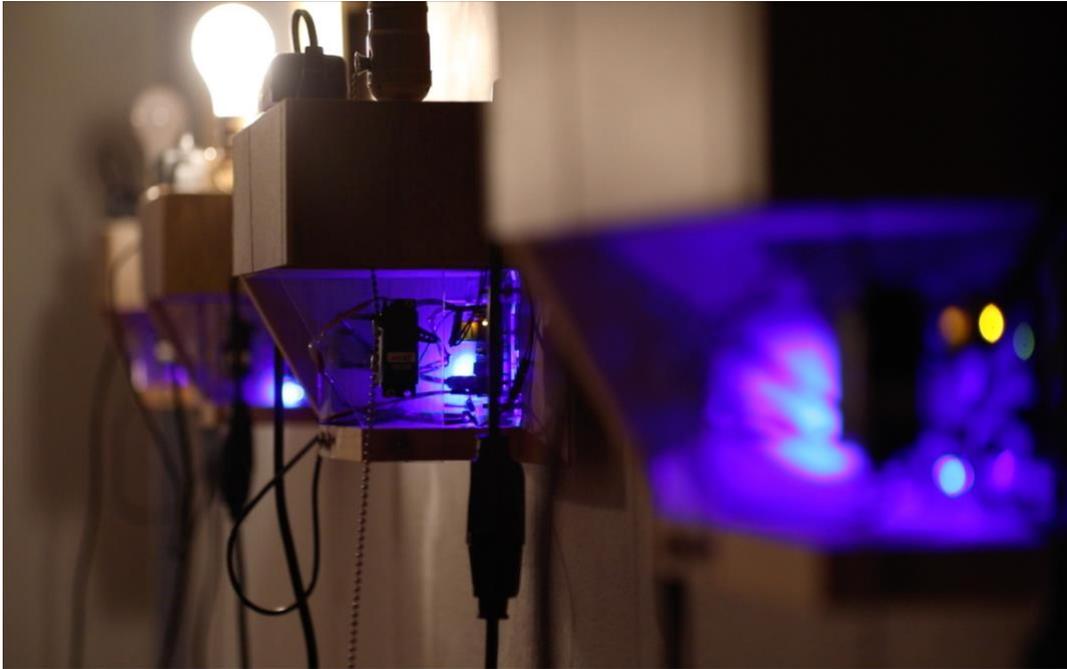


**Figure 12.** The Rub (Down to the Wire), 2019. Wood, paneling, acrylic, receptacles, extension cords, light bulbs, light fixtures, pull chains, electronics, awls, plasticine, painted canvas.

## Process

The development of this installation reflects a process of conceptual problem solving grounded in intuition. The physical appearance of the individual elements arose from an initial idea: a kinetic object that would turn itself on and then turn itself off. The aesthetic outcome of this object resulted from a series of design decisions made in furtherance of this idea. After electing to use a light bulb to indicate whether or not the object is on or off, the decisions that followed were made with regard towards how best to emphasize this gesture. Using a servo to pull a chain exaggerates the motion while also

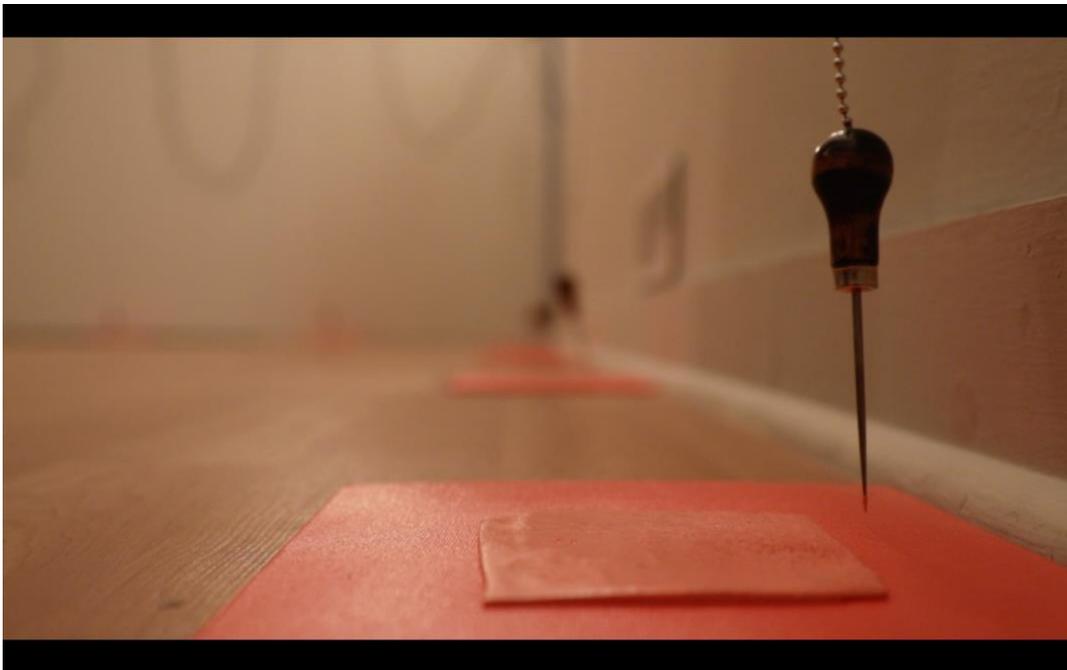
providing sonic reinforcement. Positioning the electronic components in open view points towards the digital logic that executes the analog action.



**Figure 13.** The Rub (Down to the Wire), 2019 (detail).

Working this way allows for the possibility of unexpected opportunities to reveal themselves through the creative process. In the case of this project, this was evident in the development of the pull chain as more than just a device to turn on the light bulb. While constructing an early iteration, I tested the functionality of the work using a pull chain that was much longer than necessary. I found the movement of the chain intriguing, especially as a way to elongate the electric instantaneity of the gesture. This discovery led me to explore ways to record the gesture in a lasting manner. Originally, I attached a Sharpie marker to the end of the chain so that it would create a drawing on a sheet of paper below the work as dictated by the motion of the chain.

However, the drawings this method produced proved to be without much variety, and I decided to explore a reductive process for the creation of this artifact rather than an additive one. The sharp point of the awl creates a much finer mark than the felt tip of a Sharpie. The pliable nature of modeling clay is very receptive to the marks the awl makes. The type of modeling clay I used is plasticine, a material known for its non-drying properties. The name of this material served as inspiration for the homonymic title of the exhibition.



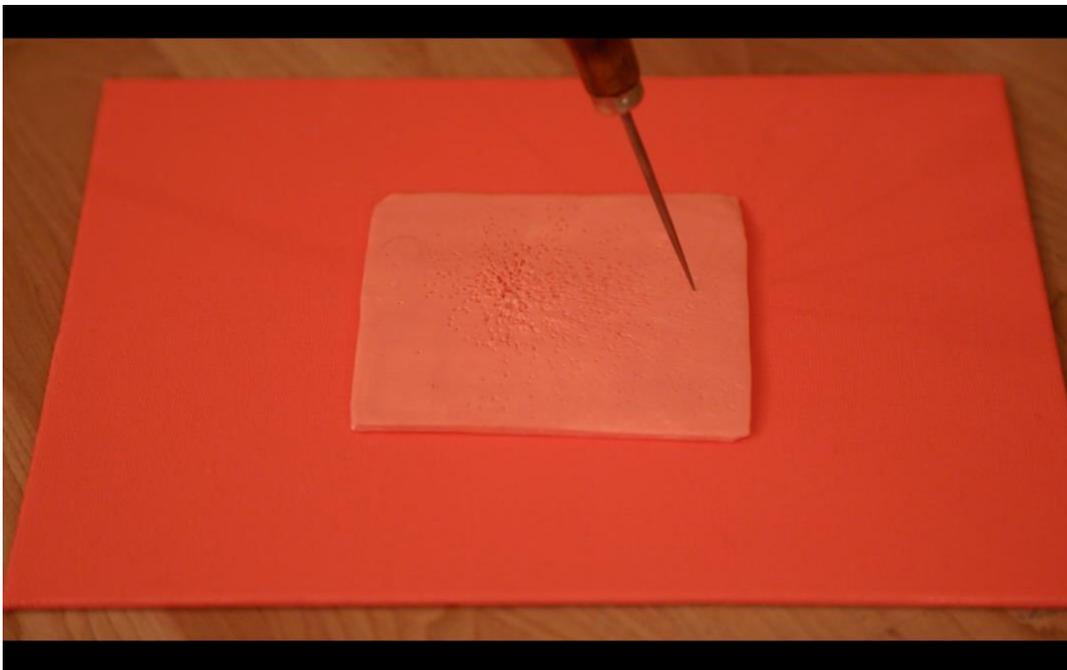
**Figure 14.** *The Rub (Down to the Wire)*, 2019 (detail).

### **Conceptual Motivation**

As previously stated, this project began as an idea to create a work that would turn itself on and then turn itself off. This idea was prompted by an interest in the putative utility of technology. Despite the capabilities of the technology used, the function each individual object in *The Rub (Down to The Wire)* performs is not very useful. The logic

turns the light on, only to turn it off again 10 seconds later. The futility of this gesture is an effort to conceptually separate the effect of the technology from the physical components that enable it. In turn, this separation hopefully draws attention to the character of the technological components used.

The 12 objects in the installation are arranged to surround a viewer when they enter the space. Such an arrangement is intended to immerse the viewer within the work. There are two elements that are critical to the successfulness of this immersion. First, the interactive component, as discussed earlier, prompts an awareness in the viewer of their bodily presence in the space. Secondly, the mechanical elements of *The Rub (Down to The Wire)* create loud and agitated sounds when activated. This sonic component creates an experience that is multisensory, and reinforces the visual movements created by the pull chain, motor arm, flickering lights, and shifting shadows.



**Figure 15.** *The Rub (Down to the Wire)*, 2019 (detail).

## Reflection and Future Research

Part of the challenge of artistic creation is as difficult as it is to discover an answer, properly articulating the question is often even more elusive. The works in *Plasticene* were created by following my instinct and intuition. I like to work with all of my materials in front of me and find the challenge of determining how disparate elements can fit and work together to be stimulating and rewarding. This process can sometimes take my work in a different direction than my original intention. As exciting as it is to arrive at unexpected ends, it also taxes the already difficult task of characterizing the nature of the investigation. Creating art within the structure of a thesis project has been insightful and challenging. The cognition and reflection necessitated by the written and oral defense has allowed me to better understand my own motivations for the art that I create. I am excited to continue this direction of research and create work that further explores, questions, and reflects on the nature of the relationship humans have with technology.

This project would not have been possible without the support and encouragement of the community of artists at Virginia Tech. It is easy and convenient for the work of an artist to be a solitary journey, but critical discourse between differing perspectives is invaluable to learning, understanding, and the creative process. I hope to attain a university-level teaching position within art and technology as a means to continue my membership with the academic community and share my knowledge and interests with students.

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