

Thesis Portfolio

Design and Construction of a Kinetic Art Weather Display
(Technical Report)

An ANT Analysis of the Analog Photography Renaissance
(STS Research Paper)

An Undergraduate Thesis

Presented to the Faculty of the School of Engineering and Applied Science
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Bachelor of Science, School of Engineering

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Table of Contents

Sociotechnical Synthesis

Design and Construction of a Kinetic Art Weather Display

An ANT Analysis of the Analog Photography Renaissance

Thesis Prospectus

Sociotechnical Synthesis

The STS research topic is focused on determining the factors leading to the renewed interest in film photography and the technical project is concerned with the design and manufacturing of a kinetic art weather display. The STS research and technical project are not strongly related and had different sources of inspiration, but they are loosely connected by a theme of art and their tangibility when compared to digital counterparts. The weather clock and film are objects that have depth, dimensionality, and they require physical processes to function.

The technical project, a kinetic art weather display, was inspired by the windowless labs in the University of Virginia's Mechanical Engineering building. Oftentimes these labs are undecorated and one can easily lose awareness of the passage of time with no visual indicators from the outside world. To add liveliness to these labs and have a visual means of communicating the conditions outdoors, the objective of the technical project was to produce a functional piece of wall art that would use mechanical movements and electronics to display various outdoor conditions. Using advanced manufacturing techniques such as 3D-Printing, CNC machining, and lasering cutting, the project group managed to produce a visually pleasing and easy to process means of communicating outdoor conditions such as rain, snow, clear skies, daytime, nighttime, etc. An approximately 30-inch diameter, wall-mountable, circular display was created. The lower half features an LED display for numerical data, such as date and time. The upper half features a semi-circular viewing window for the moving components that communicate outdoor conditions and the time of day through pictorial means. As the day progresses, figures representing the sun and moon rotate through the upper window to indicate the passage of day and night.

The STS research was inspired by a personal interest in film photography. Specifically, by determining the reasons why film photography has seen renewed interest, I hoped to determine for myself whether or not film photography has a lasting future. By utilizing Actor-Network Theory, it was determined that actors are being introduced to film technology through social media and actors with outward influence who use film. Despite all the challenges associated with film photography when compared to digital photography, actors were still persistent in interacting with film technology for its affordances.

Although the technical project and the STS research may not have much in common, I have gained insights on user experience and how people value objects throughout both. My capstone group could have much more easily programmed a digital display to convey all of the same information that our mechanical weather clock does, but we collectively agreed it would have more value and intrigue as a product with physically moving parts. Nearly everyone can get the weather on their phone, so the idea of owning a physical piece of art that tells you the weather is much more enticing than having another screen that goes on the wall to display the weather. The same goes for opting to shoot film, it has more value and intrigue than using a digital camera. Photography is much more easily done with a DSLR or smartphone, but there is a tangibility with film that cannot be replaced. When I get a roll of film developed, I can hold that film in my hand, see my original photos in the real world, and have comfort knowing that a hard drive failure will not erase their existence. I am certain that many other people who use film feel the same way. As many of our experiences with technology in today's world shift to the digital space, there is a greater value being placed on tangible experiences.