Thesis Project Portfolio

Gravity Powered Light

(Technical Report)

A Sociotechnical Analysis of the Development of Light Technology

(STS Research Paper)

An Undergraduate Thesis

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Sociotechnical Synthesis

Light technology has developed immensely over the past few hundred years, allowing the world around it to become much more functional and practical. Without the ability to harness light, our workdays would end as the sun goes down, we wouldn't be able to travel at night, and many of the luxuries we currently enjoy would no longer be available. In a world of self-automated cars and space exploration, most people probably wouldn't consider the further development of light technology as an instrumental component of society. However, there is still much being done in the advancement of light technology in order to harness light more efficiently and for more of the population.

For my technical project, my team and I began to develop a mechanical means to power a light using gravity. This machine was designed to use a falling weight to spin a generator and power a light. As we were thinking through various design constraints, we decided that we wanted this to be a portable machine that could not only be used for recreational activities, like camping, but could also be an asset to people who do not currently have access to a power grid. This motivation – the desire to decentralize the power supply to make it more accessible, has become a common motivation today. All over the world, people are thinking through ways to bring electricity to areas that have previously been accessible.

I began to do more research on current strides in light technology. I also became curious about the history of light technology and the motivations that drove innovators to make specific design decisions. As I dove deeper into the past advancements in light technology, I saw how interconnected the social and technical aspects of light technology were, and how this interaction constantly spurred the improvement of the technology. For my STS research paper, I decided to analyze the development of light technology from a sociotechnical perspective.