



CALIFORNIA SCIENCE & ENGINEERING FAIR 2019 PROJECT SUMMARY

Name(s) Landon Collins	Project Number J1706
Project Title Beware: A Ghost Will Follow You Home	
<p style="text-align: center;">Abstract</p> <p>Objectives The objective of this study is to learn more about Pepper's ghost effect, a method of creating holographic images using light and reflections, and how it works. I then put these studied ideas into a physical model of Pepper's ghost effect.</p> <p>Methods I first researched my topic of Pepper's ghost effect on the internet via images and videos. After gathering enough information, I made a prototype model using cardboard, a sheet of plastic, two flashlights, hot glue, black paper, black felt, white gauze, and black pipe cleaners. After making a list of pros and cons, I studied these and attempted a better model. The second model used many of the same materials, but there was no black paper used and instead I used duct tape and white felt. I then gathered data by asking four of my peers what they thought about how well my project worked and also how much they enjoyed the overall product.</p> <p>Results My results from my prototype model were not as successful as my results from my final model. The experiment I conducted for both was a simple turning on of my flashlight and noting the results. When I would turn on the flashlight, this would reflect off of my ghost model which is hidden from the viewer to their right. It would then make an image in a plastic sheet directly in front of a viewer at a 45' angle. The prototype's results were as follows: The hologram did work, but was blurred and hard to make out. I believe this was a result of the box being too small and the ghost too large. I took these into consideration in making my final model, which I made larger with a smaller, lighter-weight ghost.</p> <p>Conclusions Repeated trials of observing my model revealed that, through recording weaknesses in the prototype, I was able to craft a more-successful model of Pepper's ghost effect. After doing this project, I have learned more about Pepper's ghost and have ideas as to how it could be utilized in new ways. Pepper's ghost has been used to create concerts of deceased musicians, but I believe that it could be used to revolutionize movie projecting. Similar to how these Pepper's ghost concerts work, the movies could be made on the computer and projected into a glass panel. This would then make a 3D image of these people.</p>	
Summary Statement I created a model of Pepper's ghost effect which is used on the ride The Haunted Mansion at Disneyland.	
Help Received I received help from my parents in corrections to writing and cutting objects with tools I could not use independently.	