Sound-themed Exhibit

Overview
Discovery Space of Central Pennsylvania is a children’s science museum in downtown State College. This year, Discovery Space was in need of a hands-on exhibit on the topic of sound or music. The project was open-ended and could be any design, but needed to be no larger than 4 feet in length or width, safe, durable, and be aesthetically similar to the rest of the exhibit.

Objectives
- The exhibit needs to be simple for a child to use and able to foster creativity.
- The exhibit needs to be able to be easily transported and powered by a wall output.
- The exhibit needs to remain in the 4 x 4 feet size constraints.
- The exhibit needs to have matching aesthetics with the rest of the museum.
- A user manual needs to be included so that Discovery Space can troubleshoot any issues with the exhibit.

Approach
- The team met with the sponsor to draft out the requirements for the project.
- The team researched existing museums with different sound exhibits.
- Due to the open-endedness of the project multiple concepts were generated.
- Each idea was put through a concept selection matrix and the Light Harp was the concept of choice.
- The team built an alpha prototype out of PVC pipe to test the concept of the light harp.
- The team created SolidWorks models to dimension the final product.
- The frame for the final exhibit was created and all internal components were installed.
- The operation of the exhibit was tested by the team and improvements such as a cooling fan were installed.
- The exhibit was installed for a weekend at Discovery Space to test its durability and functionality.

Outcomes
- The team was able to create a light harp instrument for under one thousand dollars.
- The instrument was safe and easy for a child to use.
- The instrument could play two notes at the same time.
- The sensitivity of the instrument could be adjusted based on the amount of ambient light in a room.