

Dimple Mirpuri
Culmination Proposal
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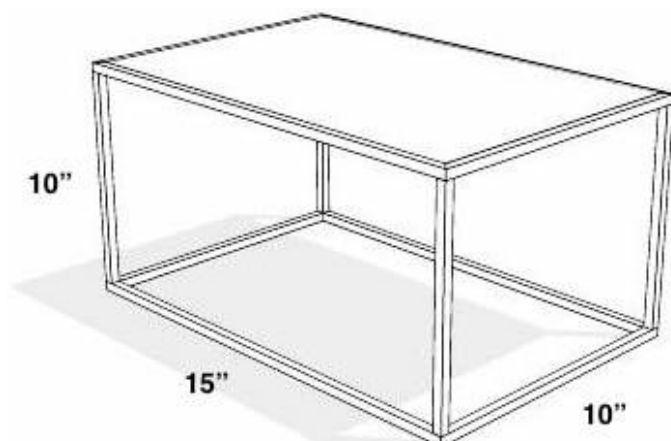
Project Description

During my time at City Tech, for the most part, I have focused on Media Computation. I enjoy programming and have proficient skills in the programming languages of JavaScript, Python, and C++. When I was introduced to the Tangible section however, I was profoundly inspired, and it has piqued an interest for greater experimentation. Therefore, for my culmination project I will integrate Tangible Media and Computation.

I plan to work with ferrofluid that will be displayed in a glass-like tank and controlled by a participant's hand motion. Ferrofluid is a liquid that becomes strongly magnetized in the presence of a magnetic field (Wikipedia). It is well known that when a magnet is introduced to ferrofluid, the fluid forms spikes along magnetic field lines. I have never worked with ferrofluid before, so this will be very challenging for me. I will be experimenting with its characteristics and transform it into an art display.

Methods

The idea is to have the ferrofluid in a glass-like tank. The cuboid tank 10"x15"x10" (image below) will consist of a 5x5 grid plate. Each grid will be 2"x3" with an electromagnet solenoid sitting in it. Each plate will have the ability to turn on and off the magnetic field hence attracting the ferrofluid to that plate. These electromagnetic solenoid will be controlled by an Arduino using an external power source. Kinect is a motion sensor device that will capture a human's body motion. Using your hand movement will control the direction of this fluid. The Kinect sensor will capture the motion data, and I will use this data to control the solenoids. I will use C++ for programming the Kinect and Arduino which uses C.



Project Deliverables

- Display (Glass Enclosure)
- Interaction with ferrofluid
- OpenLab Portfolio
- Complete documentation
- Poster
- Web Presentation including videos

Schedule or Calendar

Please see attached

Required Resources

- Arduino Mega
- Kinect
- Laser Cutter
- Wood Shop
- OpenLab-321

Budget

Please see attached

Proposed Table of Contents/Portfolio Outline

- Introduction
- Methods
 - How it works?
 - Materials
- Project Budget
- Project Calendar
- Documentation
- Demonstration
- Conclusion & Credits

Culmination Project Agreement

Please see attached