

CySyphus

Kinetic Art Table

PIRM I

sdDec20-4 Team Leader Email: adl@iastate.edu

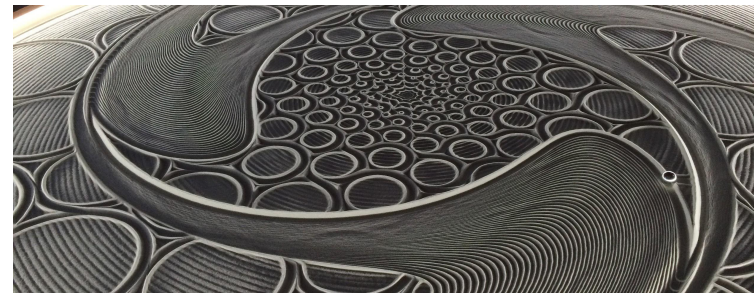
Sean Gordon, Morgan Funk, Aaron Lawrence, Daniel
Laracuenta, William Maston, and Samuel Christianson

The Table

The table we have is a sisypus coffee table designed and produced by Sisyphus Industries. Created by Bruce Shapiro, a artist that has been working with motion control as a artist medium for 25 years.

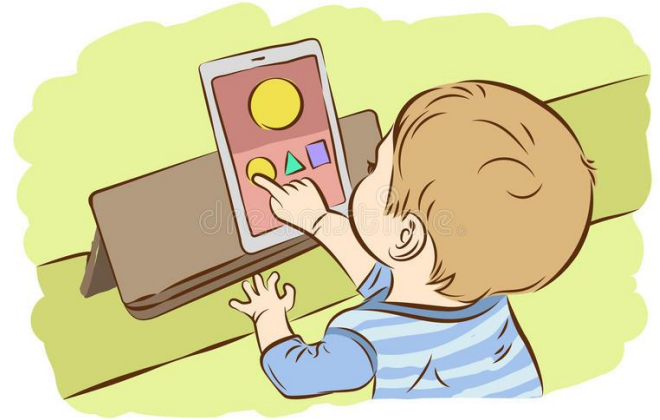
The table has a bed of sand that is shaped by a small magnetic ball. How it works is by utilizing a type of raspberry pi and a few servos or stepper motors to direct a magnet that pulls the ball along a predetermined programed track.

The computer is fed programs that take the form of rho theta files or scalable vector graphic files. These files can be created by any user. The table breaks down all files into theta rho files, theta can be thought of the angle our ball is within the table, rho is the distance the ball is from the center.



Our Mission and its Benefits

- Introducing a different and simple kind of outlet to express creativity
- Adding more functionality including but not limited to: turning an image into a track, internet connectivity, reading camera data, and turning custom drawings into a track
- Reading a live feed of data provided by the user's interaction with a tablet and/or camera in which the user can see their creation taking shape in real time



Functional Requirements

- Applications work as an app, or hosted on the web.
- Applications can:
 - Communicate with a given table.
 - Create tracks from scratch.
 - Turn an image -> track.
- Access to table applications online:
 - Web hosted interface.
 - Table connected to internet.
 - Access to user-uploaded tracks.
- Physical upgrades must be easy to install on existing consumer products.





Non-Functional Requirements

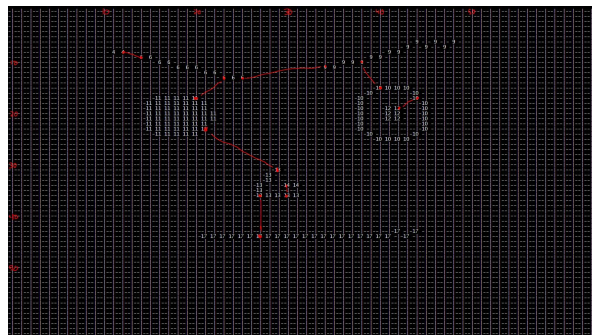
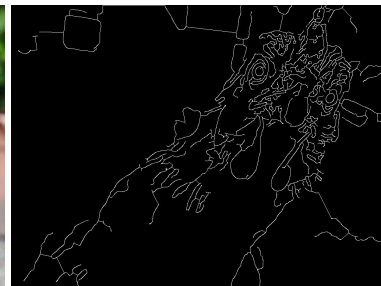
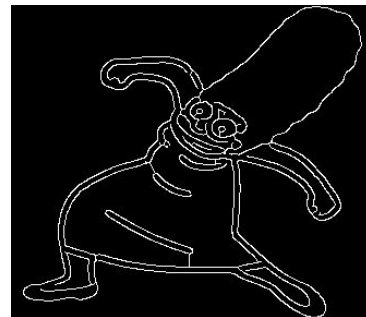
- **Ease of Use**
 - UI needs to be intuitive
 - The site needs to launch within a reasonable timeframe
- **Security**
 - All information related to the user needs to be private and secure
 - All services provided must be secured and prepared against external attacks
- **Maintainability**
 - All code needs to be properly commented for future contributors
 - Functions created for this project need to be properly documented and the parameters be clear to others



What's done

Over the summer we have worked on a image conversion software via python

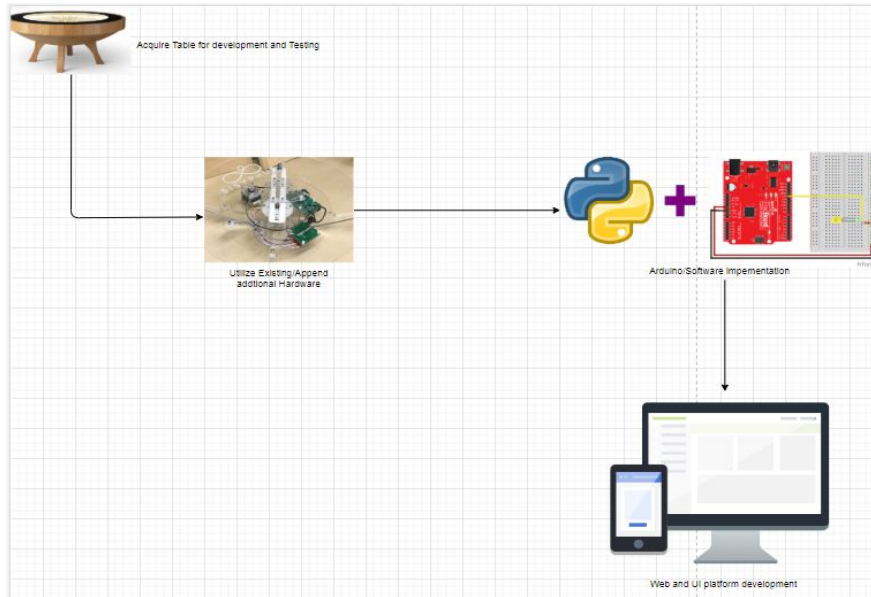
- This takes picture input and finds outlining features
- Then these outlines are connected into one continuous line to enable table drawing



Currently Working On

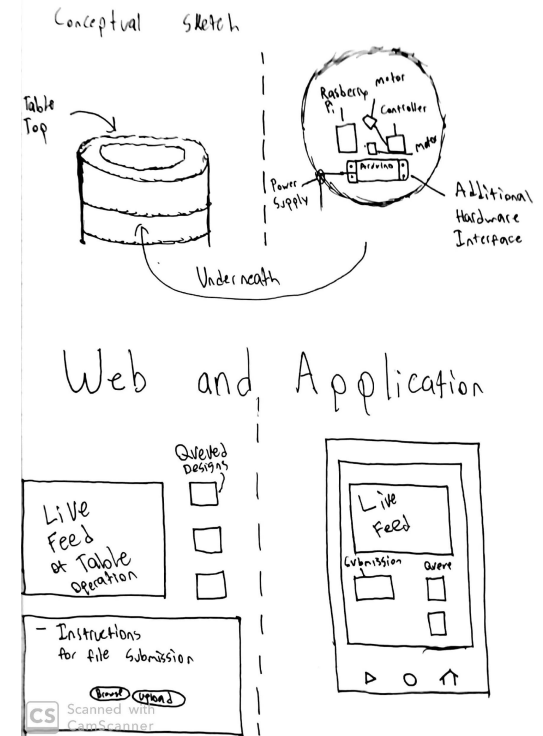
- GitHub Interactions
 - Fleshed out Issues board
 - Worked to create a repository for members to work from home
- Translating Custom Images to Sisyphus Table
 - Bridging code that has been developed from our team to code that is applicable and can run on the Sisyphus Table
 - Working with vendor to obtain specialized tools/elements to easily adapt new code to the table.
- Website/Application Development
 - Working with Android Studio alongside free website elements to create an intuitive way to interact with the Sisyphus table.

System Design



System splayed out with actual hardware and software

Conceptual Sketch of systems



Dates

Task	Day of Completion
File Conversions	9/28/20
Setup raspberry pi with sys software	9/30/20
Establish Website	10/20/20
Camera to image track	10/31/20