

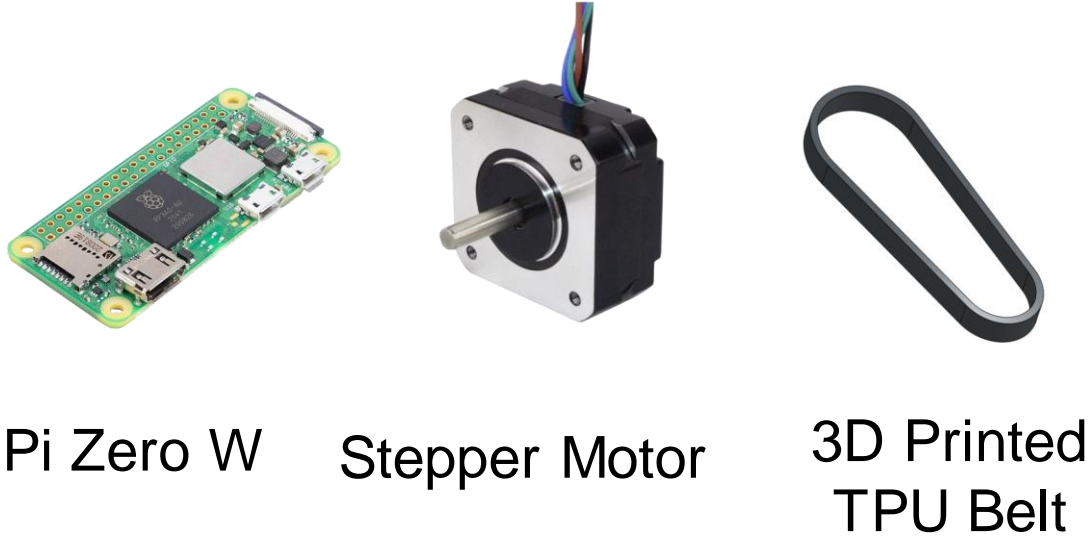
Automated Etch-A-Sketch



Figure 1: Example finished sketch of Starry Night [1]

Electromechanical Design

Notable Components:



Pi Zero W

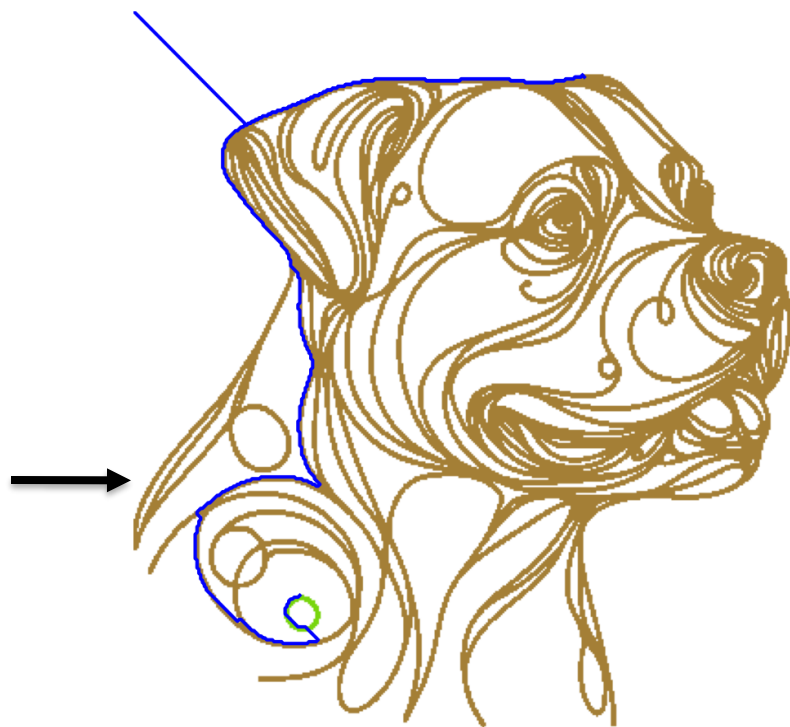
Stepper Motor

3D Printed TPU Belt

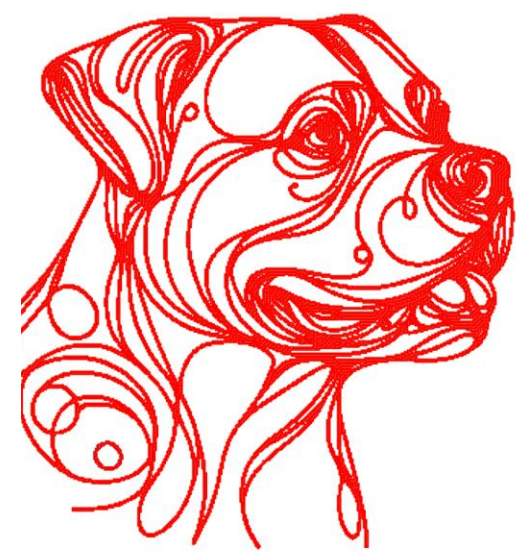
Software Design

Input: "Pitbull dog"

Dijkstra Traversal between Connected Pixels (clusters)



Without backtrack



With backtrack
Final Image



Depth-First Search traces each cluster

Overview

The goal of this project is to **automate the generation of Etch-a-Sketch drawings from a text prompt.**

- Text input provided as input into DALLE 3 model to generate the baseline image
- Pathfinding algorithm generates a coordinate path of one continuous line tracing the image
- Motors turn the knobs to draw the picture

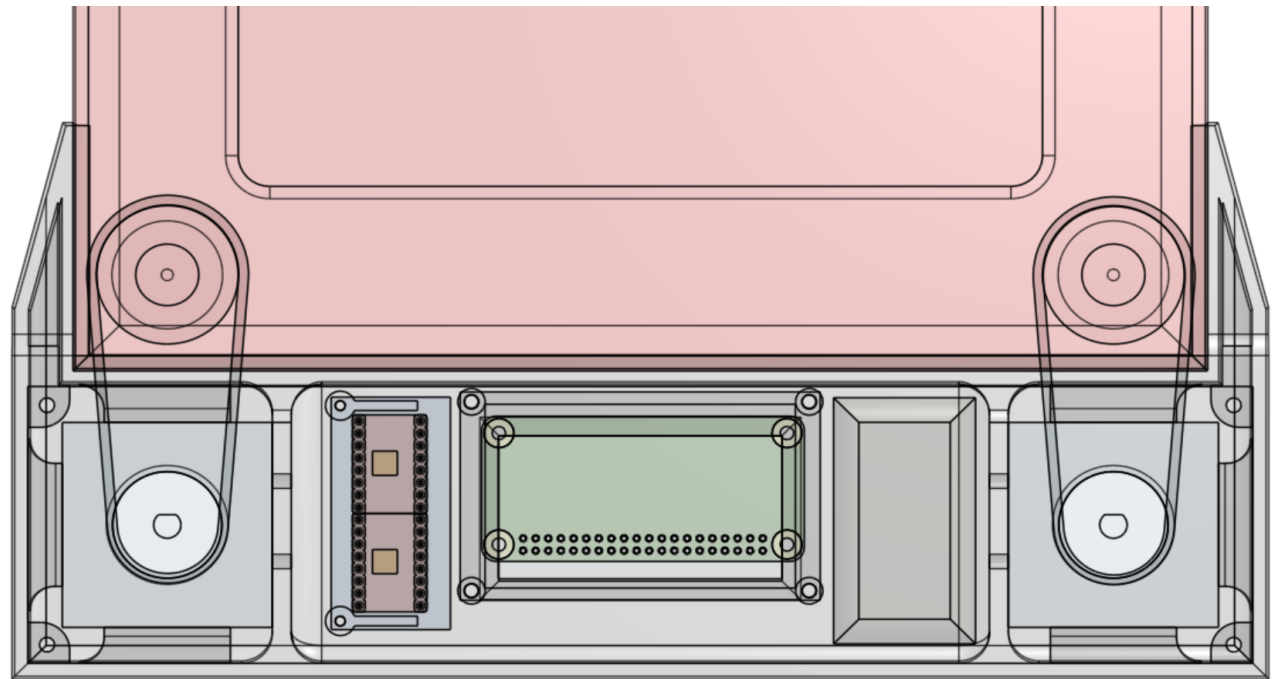


Figure 2: Back view of the Mech-a-Sketch design showing motors, electronics, and the case layout

[1] drawn by Jane Labowitch