drumArtBot - 2017

Introduction:

The Dallas Personal Robotics Group's ArtBot Project team initially made the decision to pursue creating art using two different approaches. The primary approach was a modified 3d printer which is discussed in "The Artbot Story" (http://www.dprg.org/artbot-2017/). This article discusses the other approach. The design of a new machine called the drumArtBot. This effort became functional in the last days of the robotart.org contest for 2017.

The Art:

drumArtBot creates an interesting form of outline art that has a modern feel to it. One example of the machine's output has been included in the contest. It is the painting titled "cat". Subject matter can be extremely flexible with intriguing results from a number of different subjects, landscapes to objects.

The Robot:

The drumArtBot consists of a plywood frame which supports a drum made of PVC pipe and a belt driven brush holder stage, both positioned by stepper motors. The brush holder stage is made from a salvaged CD Player stage. A drawer slide is utilized as the linear slide for the brush holder stage. The controller is a RAMPS 1.4 shield on an Arduino Mega. The firmware used is grbl.

Paint is applied using "water brushes" which consist of a brush with a backside reservoir that holds pigment and water. The pigment is watercolor paints. The drumArtBot in its present state offers three advantages, the canvas can be a full sheet of paper, it simplifies loading the brush, and it is faster. The speed increase is due to the reduced time needed to add water and paint.

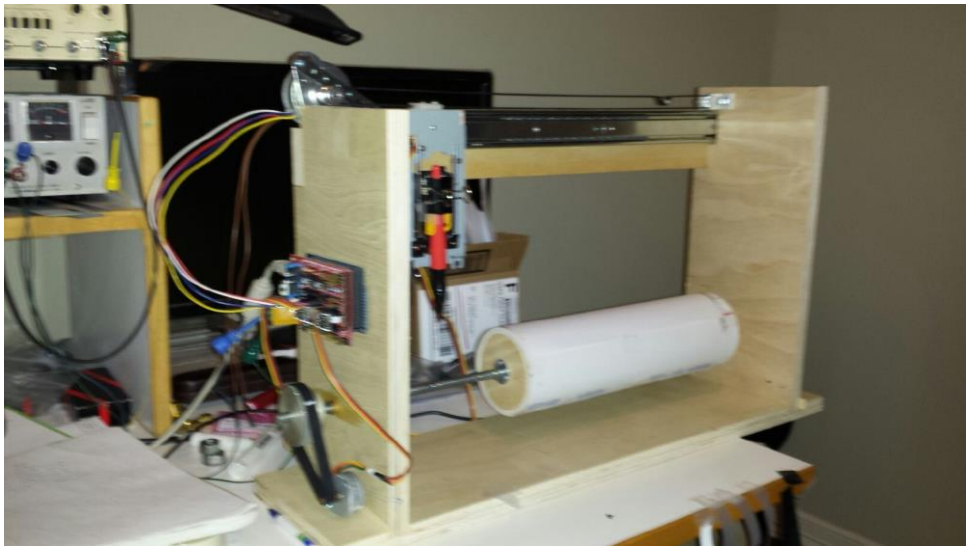

Figure 1: drumArtBot.

The Software:

The art is created by using Adobe's Capture program on an image. F-engrave uses the output of Capture to generate gcode. Universal Gcode Sender sends the gcode to the grbl controller.

There is no need for a github for this tool chain. Adobe Capture, F-engrave and Universal Gcode sender can all readily found with a web search.

Next Steps:

Using images transformed by Adobe Capture and processed using F-engrave, makes the art generated by this machine limited to a specific style. If this approach is pursued further, there would need to be improvements in both the mechanical design and the software frontend. The next major mechanical improvement would be a brush magazine. The pursuit of alternate image transforms with alternate software frontends would allow more flexibility in styles.

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