Justin Cox
Steven Guest

Bob R.O.S.S.
(Robot Overhead Super Sketcher)

Objectives
• Create a large scale image while entertaining people that are watching
• Design the system to be portable
• Provide a low-cost alternative to large-scale printers and large digital displays
• Learn how to design and implement a system that uses a standardized instruction language (G-code)

Parts & Software
- Microcontroller
  TM4C123GH6PM
  TI Tiva C Launchpad
  ARM Cortex M4
- Stepper Motor Driver
  SparkFun EasyDriver
  Bipolar Driving
  Microstepping
- Stepper Motor
  Bipolar
  2 Phase
  200 steps per rotation
  Holding Torque: 2.3kg*cm

Results

Integrated Development Environment
Image to G-code Converter

Potential Applications
• Advertisement
• Cheaper alternative to large scale printers and digital displays
• Entertainment

Future Improvements
• Multi-color support
• Metal Frame
• Color Fill

System Overview

Conclusion
We were able to complete all of our objectives and stay under our predetermined budget.

We learned a lot during the process about engineering design and about CNC machines and G-code.

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