Hookup

TBD

Software

- Arduino IDE
- Libraries (installed through Arduino IDE library manager). These versions worked – later versions may work as well:
  - Adafruit BusIO library, version 1.7.2
  - Adafruit GFX library, version 1.10.6
  - Adafruit SSD1306, version 2.4.3
  - StepperDriver, version 1.3.1 (by Laurentiu Badea)
- Customized AsyncServoLib.zip from me - unzipped in the Arduino IDE libraries directory
- CoilWinder.zip – unzipped in Arduino projects directory

Bill of Materials

- Arduino Uno V2 Genuine or suitable clone
- Arduino Protoshield or suitable clone, preferably with pads for at least 18pin DIP IC socket
  - https://www.amazon.com/gp/product/B00Q9YB7P

- 16x32 OLED display using SSD1306 I2C driver chip
  - https://www.amazon.com/gp/product/B0761LV1SD

- 5V Rotary Encoder Module
  - https://www.amazon.com/gp/product/B06XQTHDRR

- Pololu DRV8834 Low-Voltage stepper motor driver carrier or similar clone (use a low-voltage driver that is suitable for +5V motors):
  - https://www.pololu.com/product/2134
  - https://www.digikey.com/en/products/detail/pololu-corporation/2134/10450428

- .1" Female Headers – two 4 pin, two 8 pin and one 10 pin is enough
  - (Above Protoshield comes with enough)
- .1" Male header pins – one breakaway strip of 20 or five 4-pin strips is enough
- Hookup wire

- Small stepper motor that will run on 5V at low amperage (100-200ma). Low torque is better than high torque. Stepper will be run in bipolar (4-wire) mode.
  - https://www.digikey.com/en/products/detail/sparkfun-electronics/ROB-10551/5766908

- Small servo – as accurate as possible