

EE486C Update Presentation #1

Heart Bytes

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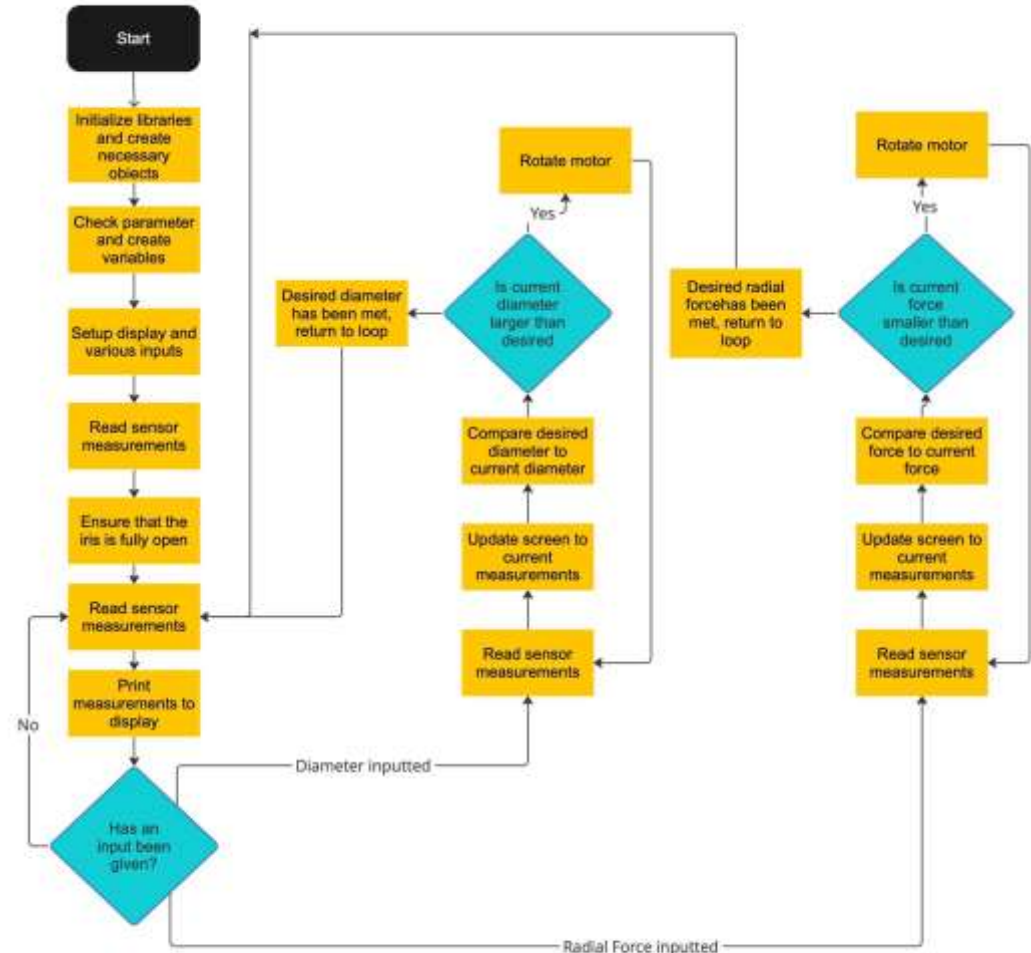
GTA: Alex Dahlman
Client: W.L. Gore & Associates

Updated Code

- The code has been updated to include:
 - Feedback loops to ensure the correct value of radial force or diameter has been met
 - Increased modularity to aid in implementation of the final design
 - A list of parameters that can be changed to alter functionality of the code
 - A Nextion code library that will be used to interact with the touchscreen display and necessary variables associated with the touchscreen
- The overall flow of the code has been altered as well to just generally make the code run more efficiently
- Took the time to properly comment the code for easier modifications in the future and to allow others to look through the code

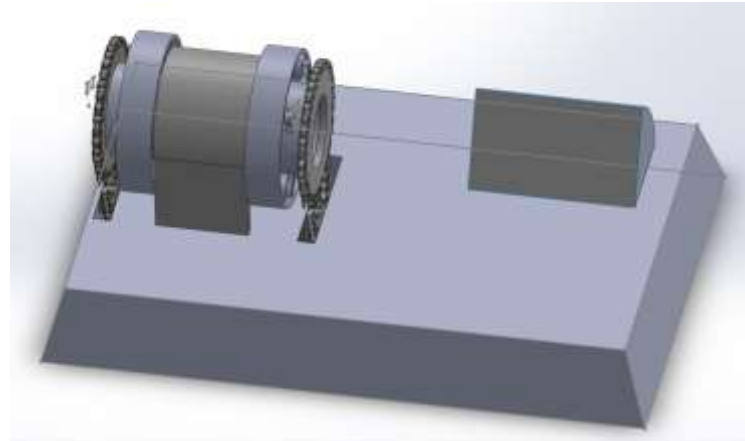
Updated Flow Chart

- Corrections for the flow chart
 - There is an emergency stop button that can be pressed at any time which will interrupt the process
 - Once the diameter/radial force has been met, the motor will cause the iris to open up automatically



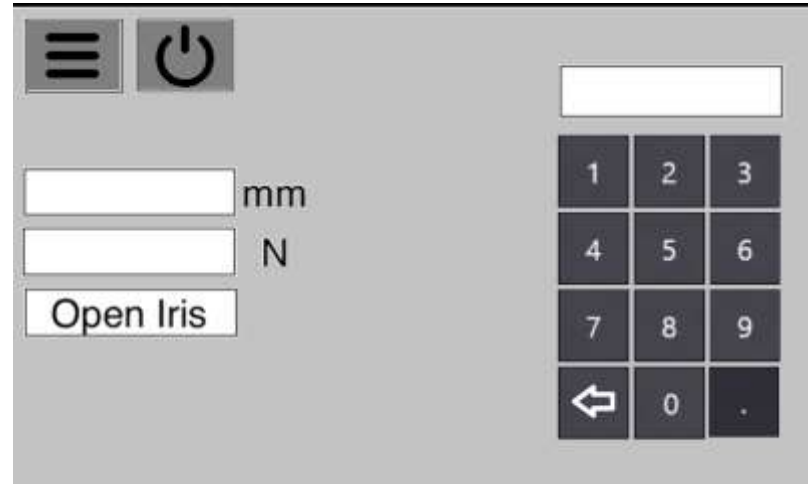
Touchscreen Display Update

- Our team has decided to pick a Nextion Intelligent 7" display for the GUI of the project
- The screen has a 4 pin UART connection that will be plugged into the arduino
- The screen should be functional by next Friday



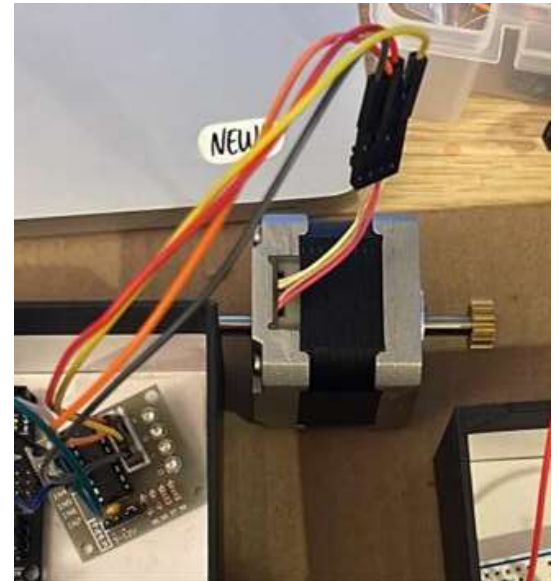
Graphical User Interface

- The user interface isn't coded into the project yet, the below image is a JPEG that will be imported onto the screen
- Menu button will bring out a menu with test mode options
- The power button will put the Arduino into a low power mode and turn the display off
- Pressing the white button near the units will select which unit you wish to enter
- One can enter the numerical measurements they on the numpad
- The open iris button open up the iris at any time



Former Motor Design

- Originally Includes one stepper motor which will rotate anticlockwise and clockwise depending on the switch that is pressed.
- Control of reel tension and aperture radius



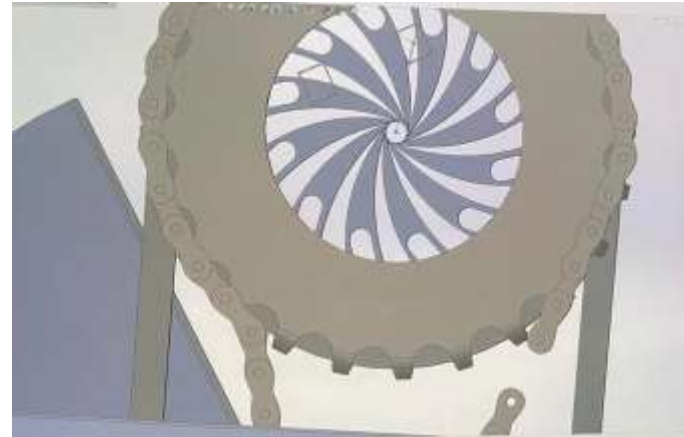
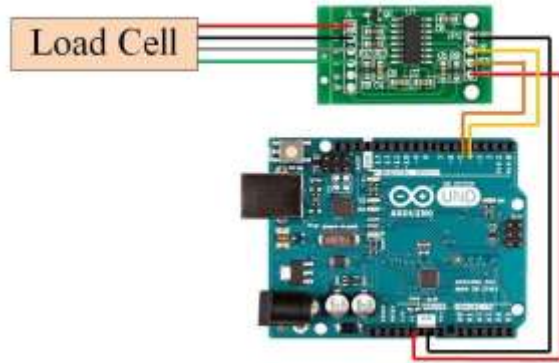
New version of stepper motor

- . NEMA 23 stepper motor that will be used along with a MA860H motor driver



Former Sensor design

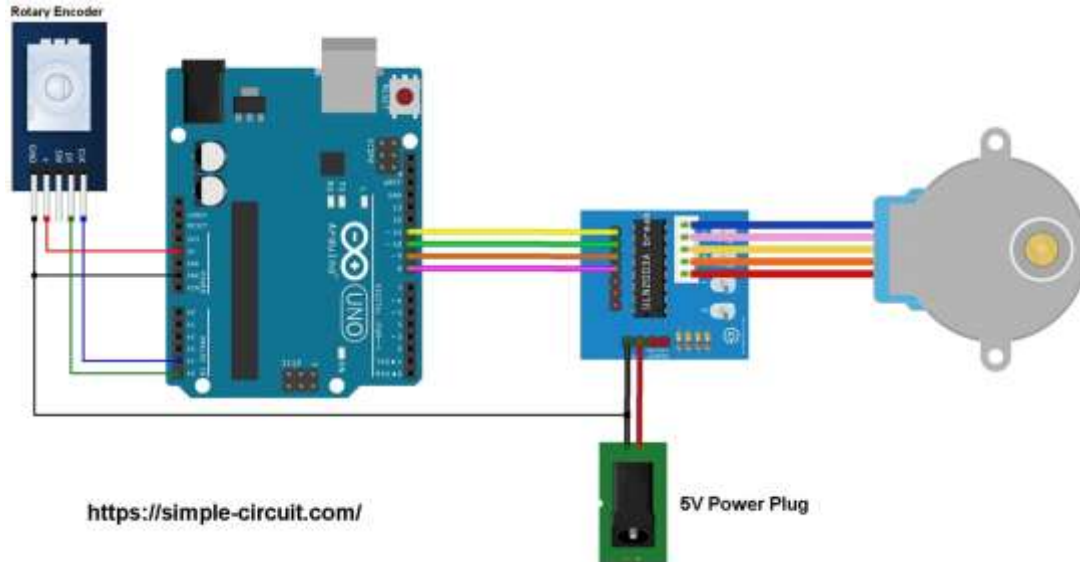
- Original Plan
- Distance sensor
- Load Sensor



Changes to diameter sensor

Using Rotary Encoder

5-80mm / 1-100mm



Changes to the Radial sensor

. Force Sensing Resistor / Torque Transducer

0-5N / 0-10N

