CECS346 Lab 7 – Stepper Motor

Partners are allowed!

Connect single stepper motor to TM4C (power, ground, 4 phases A,B,C,D as GPIO outputs). See picture for example.
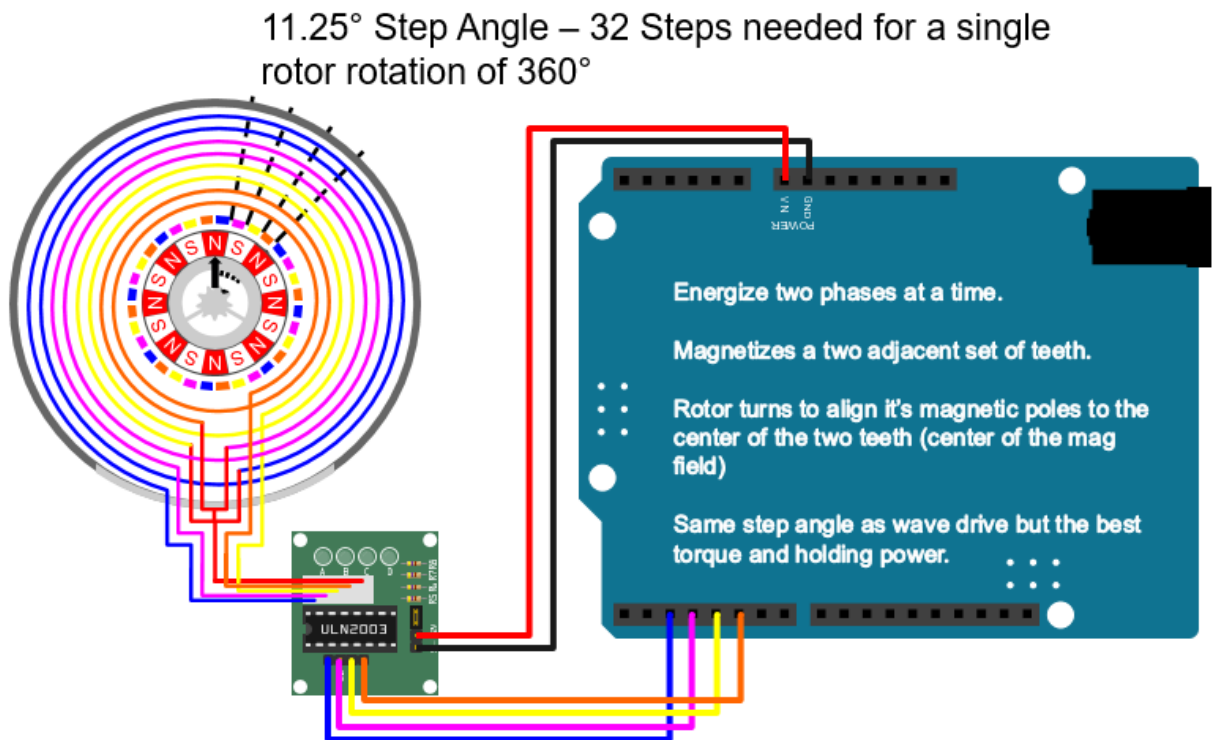
Option 1: Full Credit

1. When PF0 is pressed (**falling** edge interrupt), rotate clockwise 90 degrees (Wave Drive or Full Stepping is allowed).
2. When PF4 is pressed (**falling** edge interrupt), rotate counterclockwise 180 degrees (Wave Drive or Full Stepping is allowed).

Option 2: 50% Credit

1. After power on, have the motor rotate clockwise 90 degrees OR counterclockwise 180 degrees, then stop.

Submission

1. Submit code to Dropbox.

11.25° Step Angle – 32 Steps needed for a single rotor rotation of 360°

Energize two phases at a time.

Magnetizes a two adjacent set of teeth.

Rotor turns to align it's magnetic poles to the center of the two teeth (center of the mag field)

Same step angle as wave drive but the best torque and holding power.

3.