TECH 3233
Lab #4b
Ver 1.51

Lab #4a we used LED's for the output, now we are going to replace the LED's with a Stepper Motor and Driver.

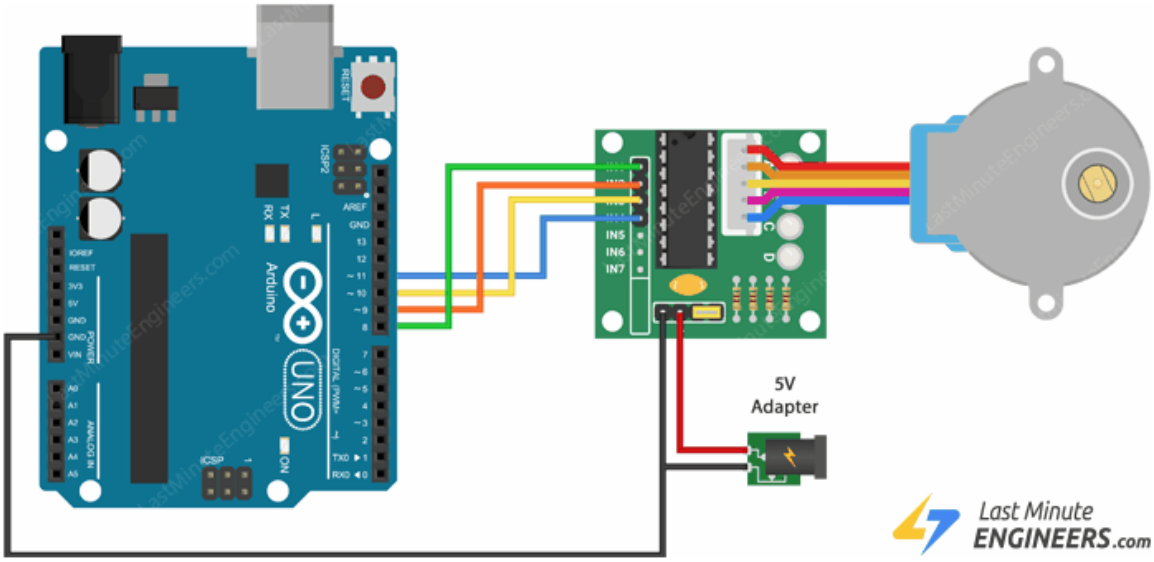

Figure 1- Wiring[1]

- Connect IN1, IN2, IN3 and IN4 to PB0, PB1, PB2 and PB3 respectively.
- Connect the 9v battery connector (Red to + and Black to -)
- Connect the MALE black wire from the 9v battery to the Arduino GND pin (Shown above as the 5v Adapter)
- Lastly connect the stepper motor to the white connector on the board.

You will need to decrease your timers from 300ms to around 10ms to get a reasonable motor movement.

[1] https://lastminuteengineers.com/28byj48-stepper-motor-arduino-tutorial/

Now for the next part of the lab we will be working off our Lab #4a, we are now going to add 3 input switches and add the following functionality:

Pin	Function	Description
PD5	$Run/\overline{Stop}$	When on (unbarred) the stepper motor will run. When off (Barred) the motor will stop.
PD4	$Fwd/\overline{Rev}$	When on, the motor will run in the clockwise direction (looking at the shaft). When off, the motor will run counter clockwise.
PD3	$Full/\overline{Half}$	When on the motor will run in full step mode, when off the motor will run in half step mode.

Please use the internal pull up's for this experiment.

Half step pattern is:

PB3	PB2	PB1	PB0
○	○	○	●
○	○	●	●
○	○	●	○
○	●	●	○
○	●	○	○
●	●	○	○
●	○	○	○
●	○	○	●

Also, you are required to use the PIN NAME with _BV method for this (and all upcoming assignments) where appropriate.

Please demo the working program and submit your fully commented code via the assignment submission system.