Background Information
The goal of this lab is to control a step motor by reading user input through the serial monitor. A step motor’s range of motion is divided up into a fixed number of positions. Moving from one position to the next is called a step. Traditionally, stepper motor is an open-loop device. The user provides an input, the motor moves the corresponding number of steps. There is no feedback mechanism that shows the motor reaches the correct position. To learn more about how a step motor works, checkout this 6 minute video.

Previously we have written to the serial monitor using Serial.write and Serial.print, but today we will use Serial.read to process user input. One thing to note about the Serial.read() function is that it returns the ascii code in decimal of the character read. So if the user enters “700” into the serial monitor and hits enter, Serial.read() will return 55 (ascii value of 7 in decimal). Then next Serial.read() will return 48 (ascii value of 0 in decimal), then 48 again.

Setting Up the Hardware
1. Go to Configure > ‘I/O’ Devices and add 1 Stepper Motor
2. Find “STEPR” (not PSTEPR) back on the main screen
3. set P1 = 3, P2 = 4, steps = 60

The Code
The starter code is available on GitHub. Your job is to implement the readSerial() function before calling the stepper.step() function to move the
motor. When called, it should read all characters the user typed in from the serial monitor and then return the number of steps. If the first char is ' - ' then the function should return a negative number. If the user enters other characters, such as ‘a’ or ‘\’ you should read it but it shouldn’t affect your functions output. In other words, the input “7t5” should return 75. If no characters have been entered then your code should return 0 so the motor doesn’t turn.

Lab Report

You can submit your lab report by email to jack.davis001@umb.edu. Please cc all group members so that my replies reach everyone.