

# **Practical 12: Emotional Motor**

**How to Build a Digital-Physical System**

AME 394

Wednesday 23th November 2011

Before we begin...

# Next Class

**Critique**

# This Class

*Assignment:*

**Document the outcomes**

**Include:**

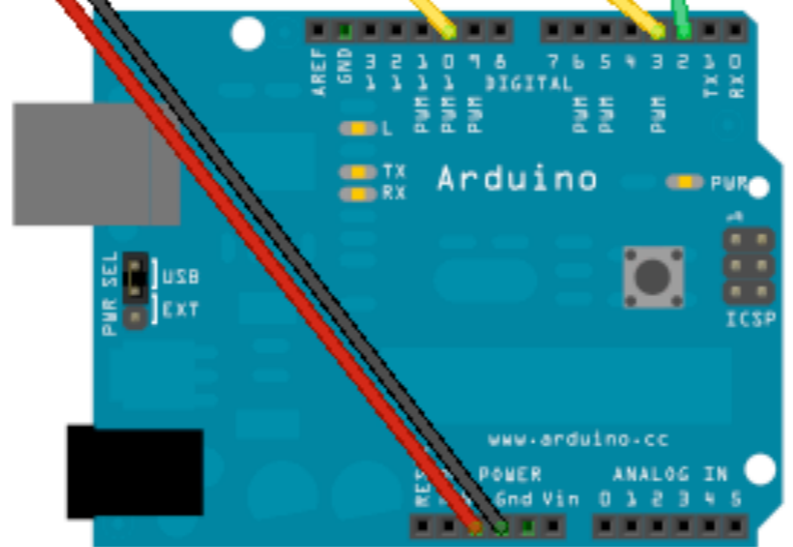
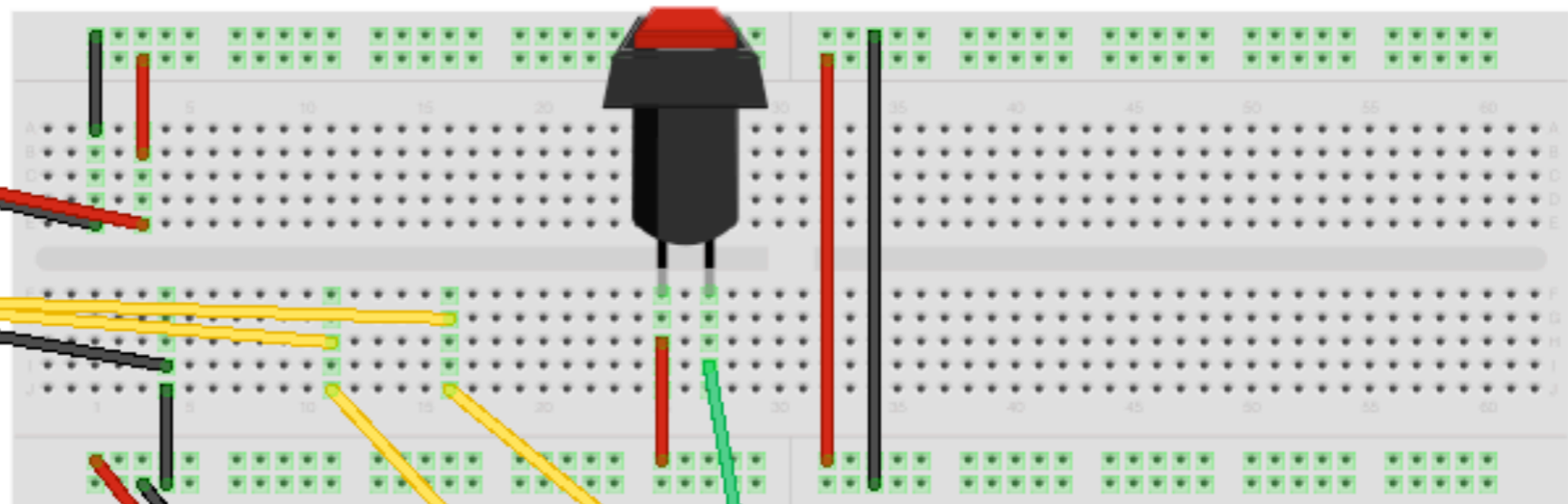
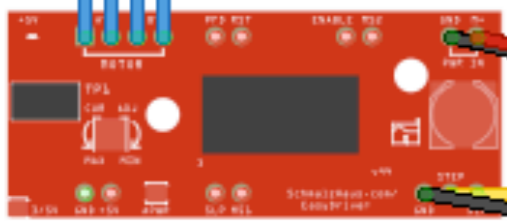
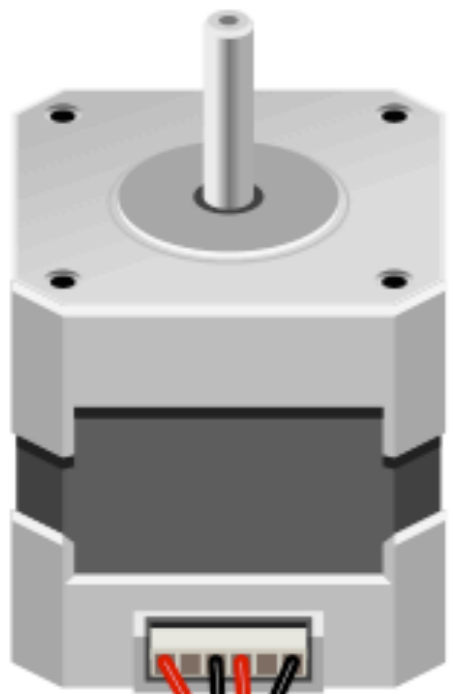
- Completed code,
- Learnings
- things you tinkered with, etc.

Let's get started

# Care Needed

- The driver is delicate
- **Don't connect the power (USB) until everything is wired properly**
- **If you make changes unplug first**
- **Don't disconnect the stepper**

Diagram is on the Wiki





# Controlling the Steps

```
void step(boolean dir, int steps)
{
    // Set the direction to forwards or backwards
    // by changing the state of the direction PIN
    if( dir == true )
        digitalWrite(DIR_PIN, HIGH);
    else
        digitalWrite(DIR_PIN, LOW);

    delay(50);

    steps = steps * MICROSTEPS;

    for(int i=0;i<steps;i++){
        // set the Step Pin to be HIGH and wait a fraction of a second
        digitalWrite(STEP_PIN, HIGH);
        delayMicroseconds(1500);
        // turn the PIN back off and wait a fraction of a second
        digitalWrite(STEP_PIN, LOW);
        delayMicroseconds(1500);
    }
    // Loop until all (micro)steps have been made
}
```

Now lets make a chart

# How do we get information?

- We could use an Ethernet shield?

# How do we get information?

- Serial is two way
  - Not just println()
  - but also read()

# Serial.read()

- Download Perl Program from Wiki
- Open Arduino + connect
- Upload program to board.
- Open Serial Monitor (Tools Menu)
  - Select **1150200** baud
- Open Command Line
  - Navigate to Directory
  - Type “**perl SearchTwitter.pl**”

Happy Holidays