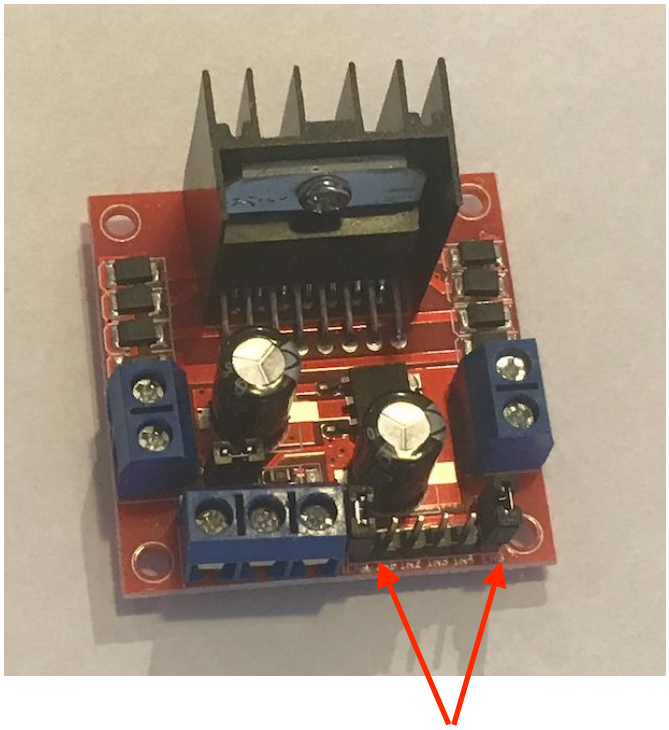
Pranav Bhounsule
Arduino DC motor

1. DC motor

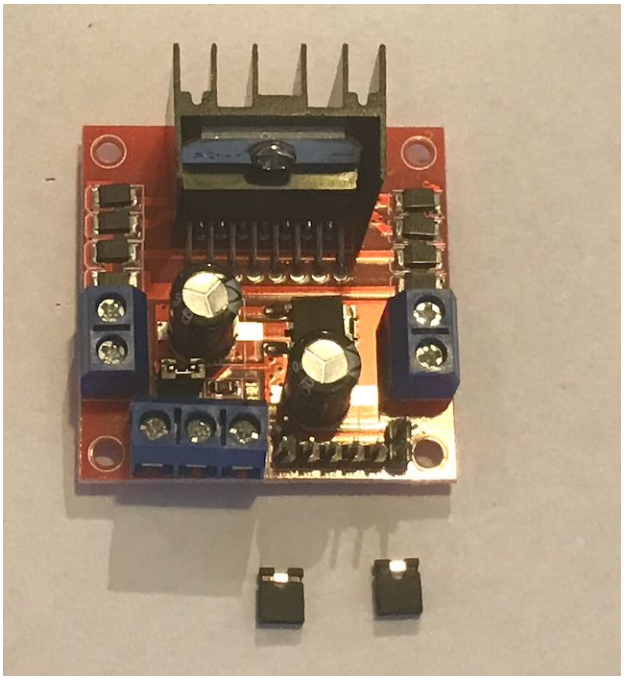
Equipment: Arduino + Arduino sensor shield, 6 AA batteries, (the rest are in the car kit) battery holder, toggle switch, L298h motor driver, 2 dc motors.

A. First we do wiring

Remove the 2 jumpers from the L298h motor driver. Keep them somewhere safe.

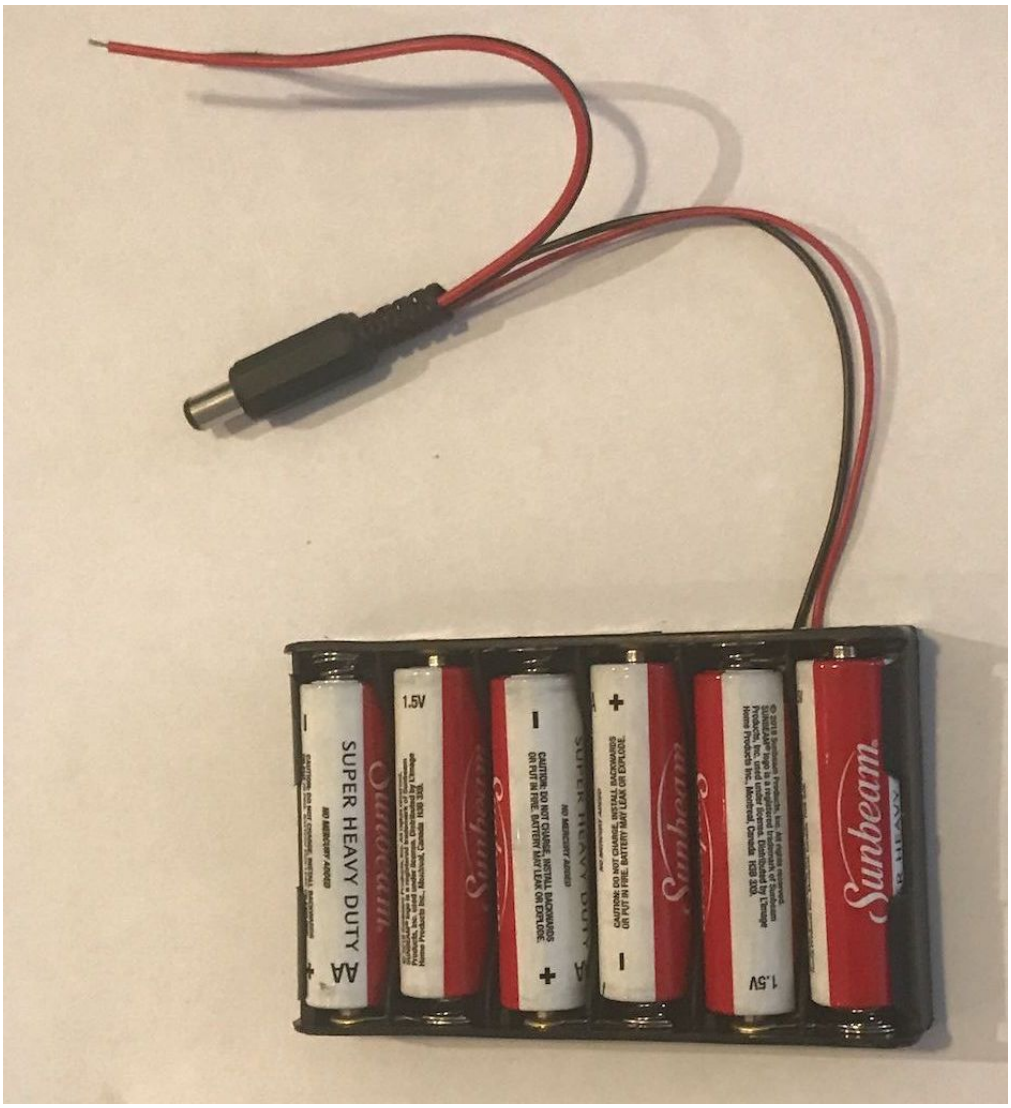


The 2 jumpers

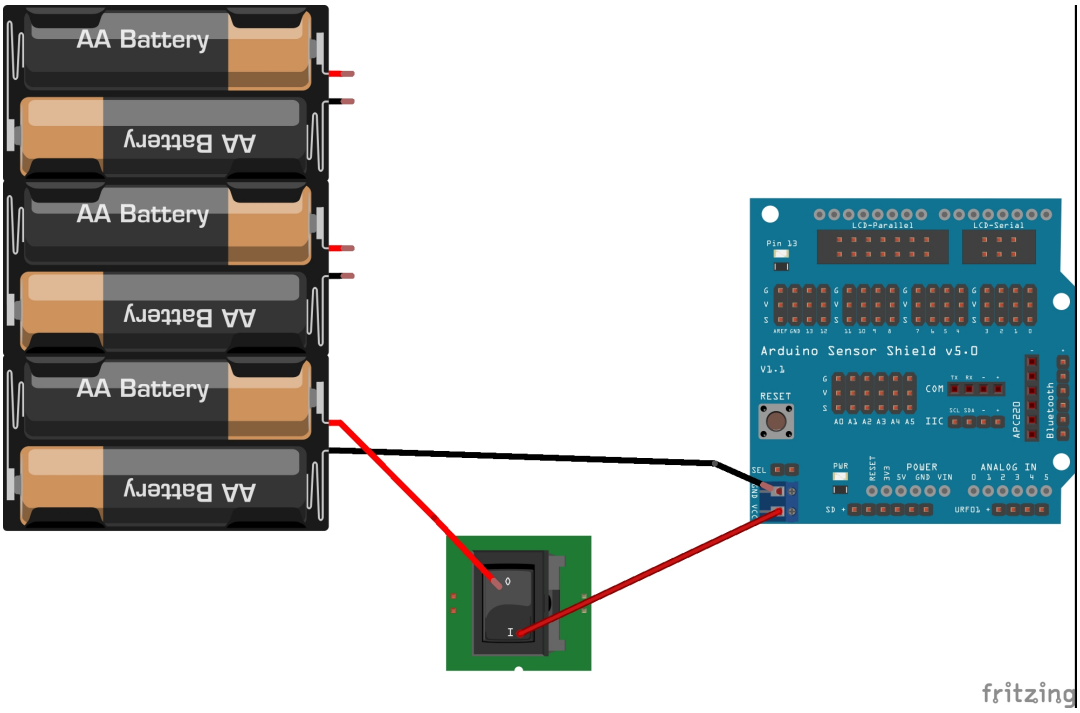


The 2 jumpers removed

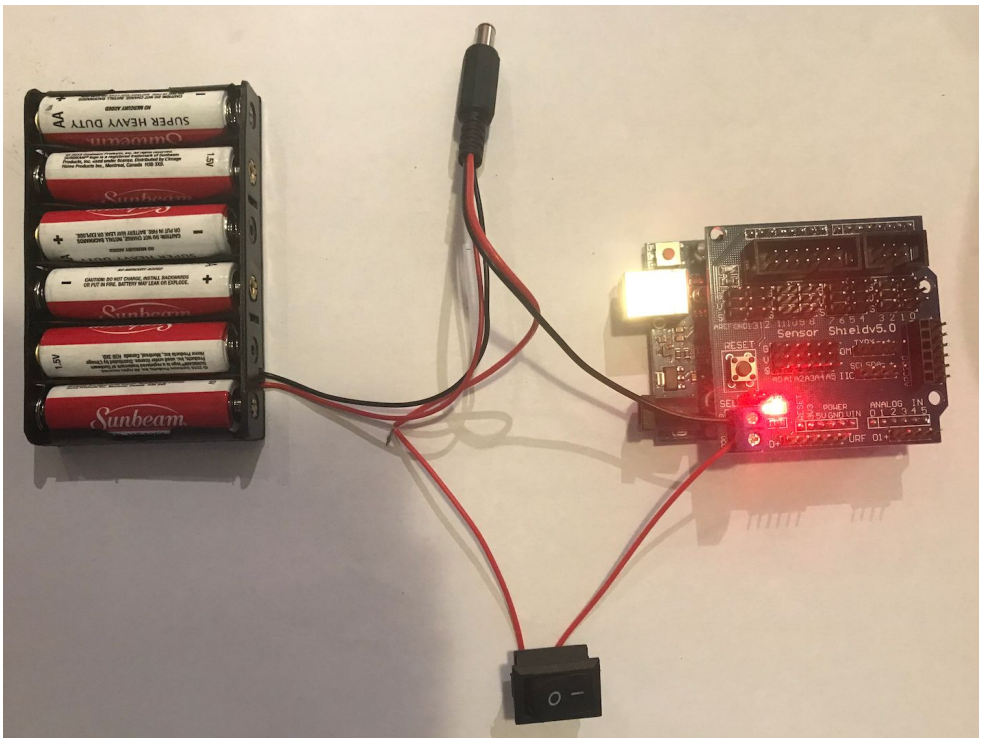
Put the batteries in the battery holder as shown below.



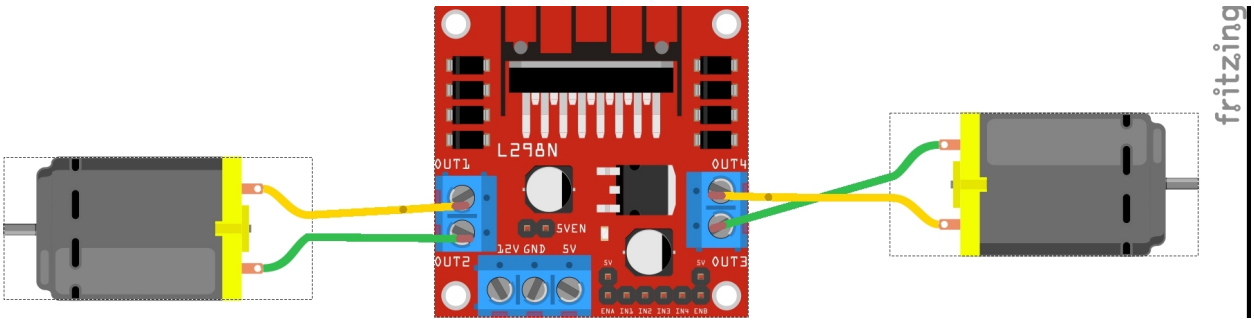
Connect the batteries, switch, and the sensor shield (attached to the arduino) using the circuit diagram shown below.

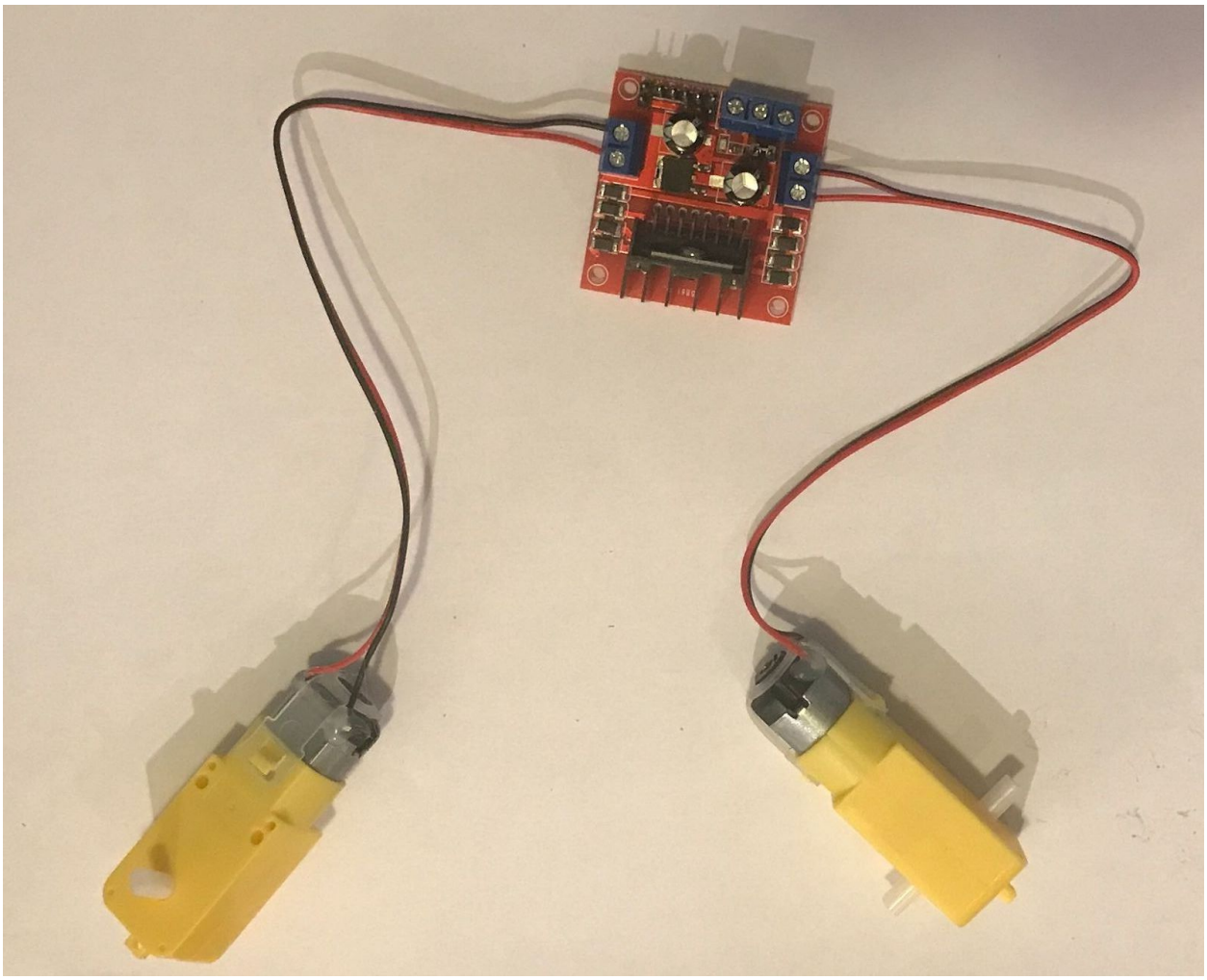


If the circus was connected properly then pressing the switch to I position will cause the LED on the shield to glow like this

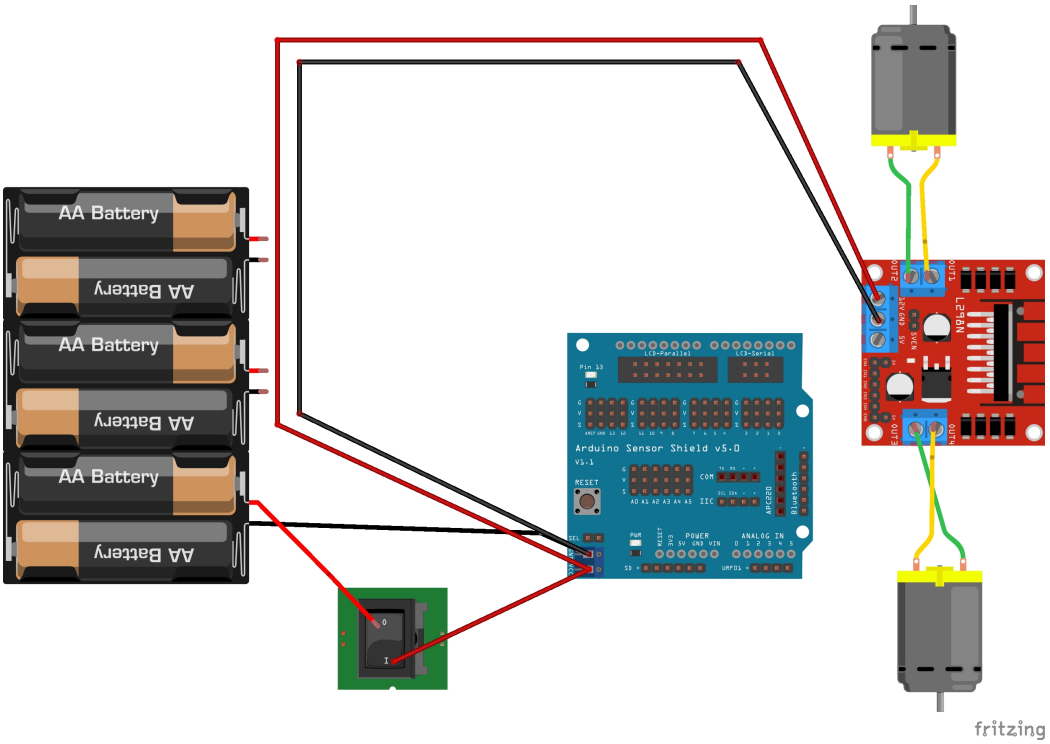


Connect the 2 motors to the L298n motor controller using the circuit diagram below

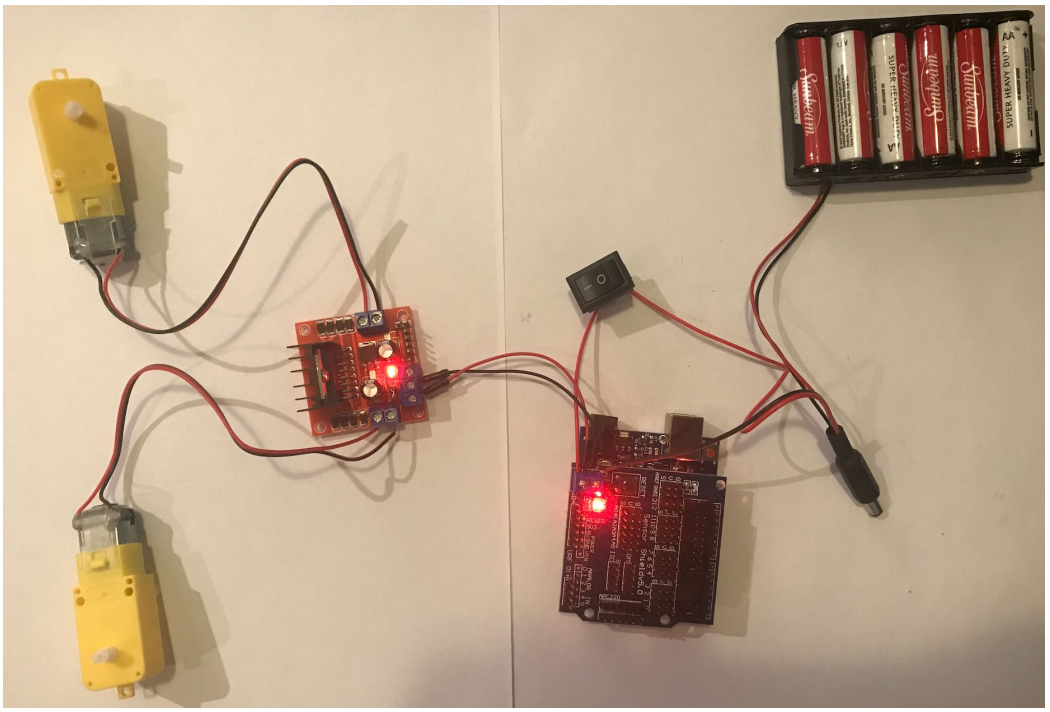




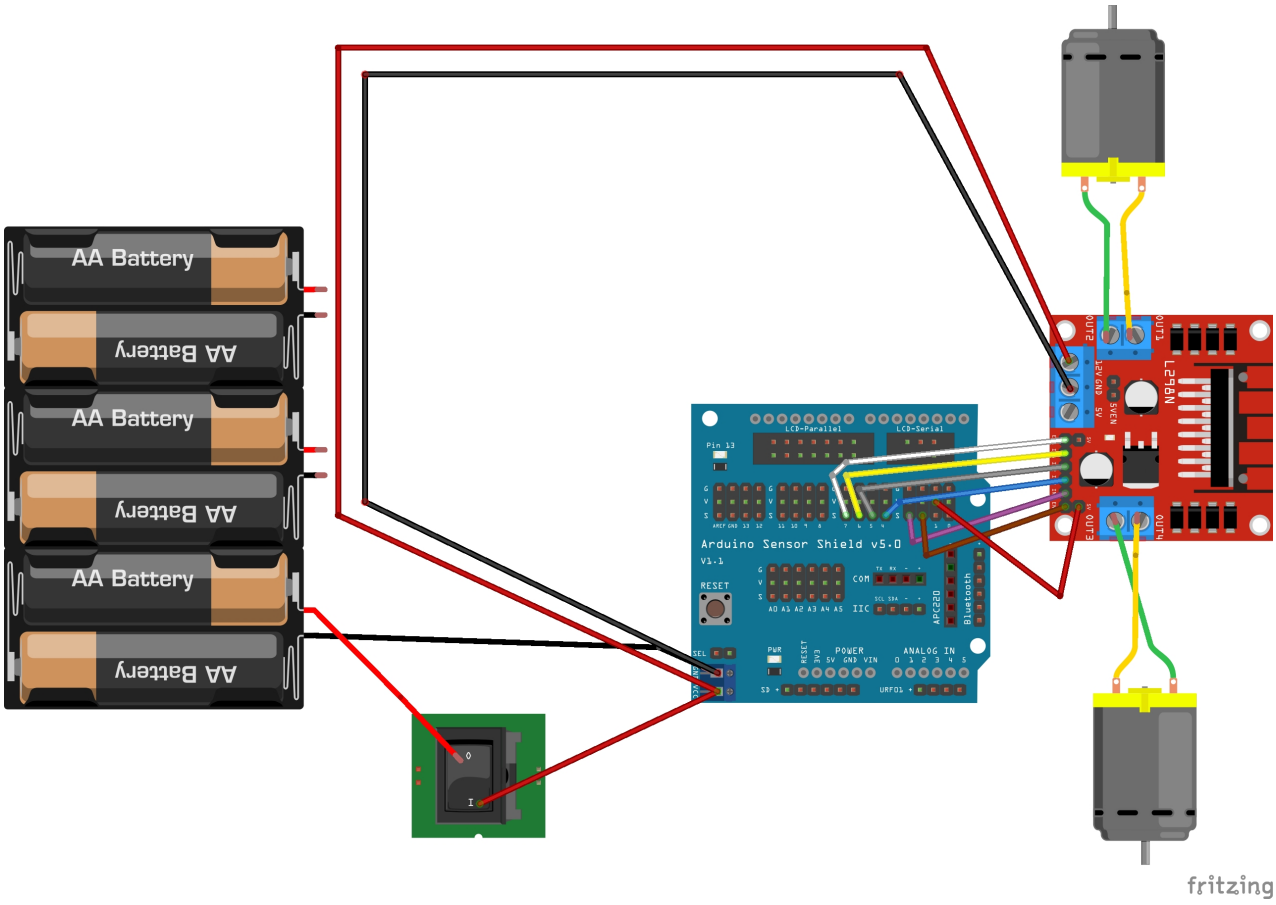
Next connect the battery, switch, and shield to the above setup using the diagram shown below

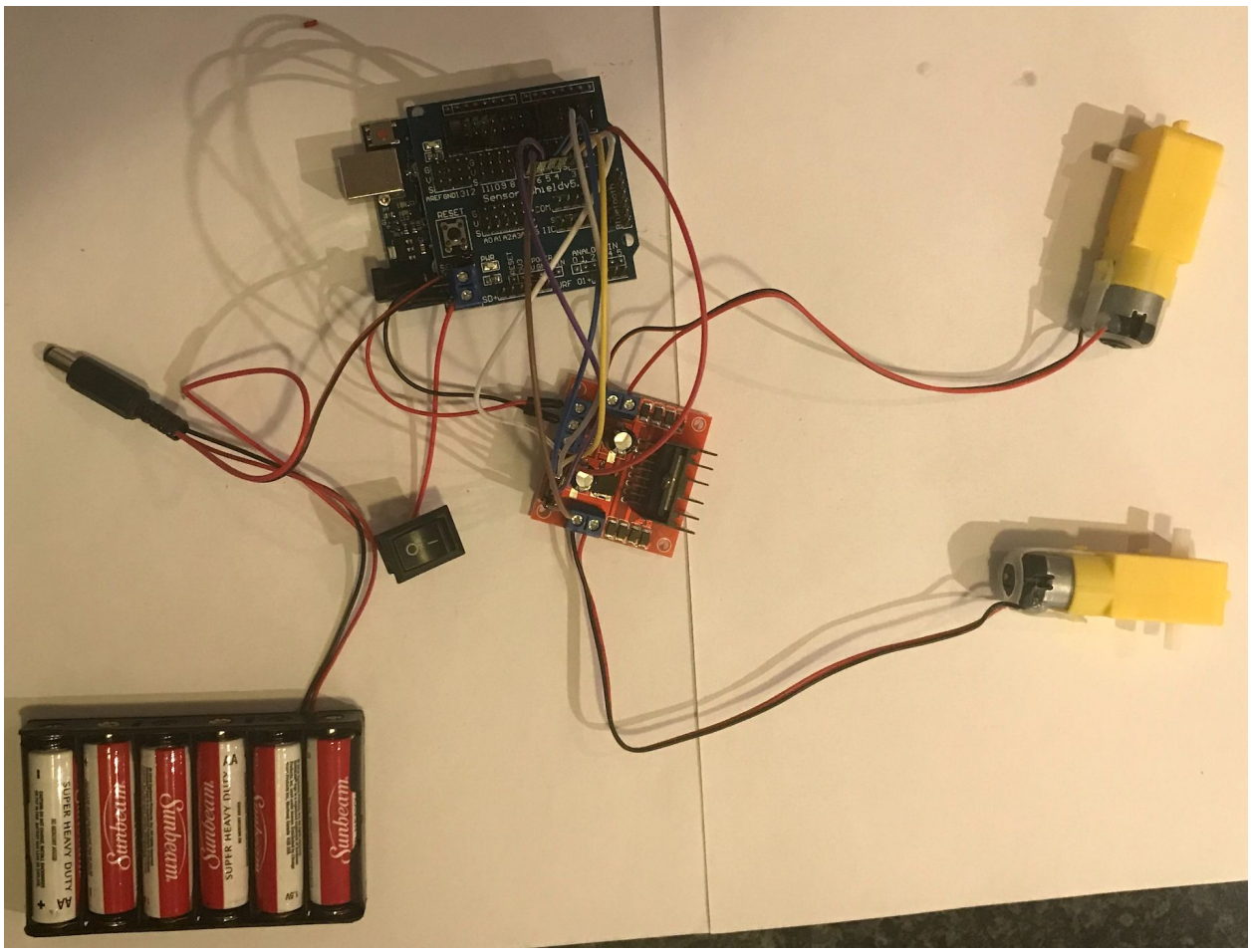


If everything worked right, then pressing the switch to the I position will cause the LEDs on the shield and the motor controller to glow like this



Finally, write the logic to control the motors. This involves connecting the shield to the motor controller using the diagram shown below.




Sunbeam
SUPER HEAVY DUTY
AA

B. Finally, we copy paste the code below to an empty Arduino IDE, save as motor.ino. Then, connect the USB cable from computer to the arduino to load the program

```
// Motor control pins: L298N H bridge
const int enAPin = 2; // Left motor PWM speed control
const int in1Pin = 3; // Left motor Direction 1
const int in2Pin = 4; // Left motor Direction 2
const int in3Pin = 5; // Right motor Direction 1
const int in4Pin = 6; // Right motor Direction 2
const int enBPin = 7; // Right motor PWM speed control

void motorLeft(int dir, int speed)
{
  if (dir==1)
  {
  digitalWrite(in1Pin,HIGH);
  digitalWrite(in2Pin,LOW);
  }
  else
  {
  digitalWrite(in1Pin,LOW);
  digitalWrite(in2Pin,HIGH);
  }
  analogWrite(enAPin,speed); //needs more than 150 to work
}

void motorRight(int dir, int speed)
{
  if (dir==1)
  {
  digitalWrite(in3Pin,HIGH);
  digitalWrite(in4Pin,LOW);
  }
  else
  {
  digitalWrite(in3Pin,LOW);
  digitalWrite(in4Pin,HIGH);
  }
  analogWrite(enBPin,speed); //needs more than 150 to work
}

void setup() {
  //motor stuff
  pinMode(enAPin, OUTPUT);
  pinMode(in1Pin, OUTPUT);
  pinMode(in2Pin, OUTPUT);
```

```
  pinMode(in3Pin, OUTPUT);
  pinMode(in4Pin, OUTPUT);
  pinMode(enBPin, OUTPUT);

}

void loop() {
  motorLeft(-1,150);
  motorRight(1,150);
}
```

To run, just turn on the switch and you will see both motors spinning. If the are not, increase the 150 in the above code. Maximum value is 255.

Here is a video of the motors spinning after running the above code.

https://youtu.be/0N2uF0VTk1M