

```
1 void motor_setup()
2 {
3   if (SHIELD)
4   { //if you're using the motoshield
5     //define Sheild pins as outputs
6     pinMode(motorApwm, OUTPUT);
7     pinMode(motorAdir, OUTPUT);
8     pinMode(motorBpwm, OUTPUT);
9     pinMode(motorBdir, OUTPUT);
10    // initialize all pins to zero
11    digitalWrite(motorApwm, 0);
12    digitalWrite(motorAdir, 0);
13    digitalWrite(motorBpwm, 0);
14    digitalWrite(motorBdir, 0);
15  }
16  else
17  { // if using dual motor driver
18    // define driver pins as outputs
19    pinMode(IN1, OUTPUT);
20    pinMode(IN2, OUTPUT);
21    pinMode(IN3, OUTPUT);
22    pinMode(IN4, OUTPUT);
23    // initialize all pins to zero
24    digitalWrite(IN1, 0);
25    digitalWrite(IN2, 0);
26    digitalWrite(IN3, 0);
27    digitalWrite(IN4, 0);
28  } // end if
29  return;
30 } // end function
31
32 // int motor is the defined A or B
33 // pwm = the power cycle you want to use
34 void run_motor(int motor, int pwm)
35 {
36   int dir = (pwm / abs(pwm)) > 0; // returns if direction is forward (1) or
reverse (0)
37   pwm = abs(pwm);                // only positive values can be sent to the
motor
38
39   if (SHIELD)
40   { // if using motor shield
41     switch (motor)
42     {
43       // find which motor to control
44       case A: // if A, write A pins
45         digitalWrite(motorAdir, dir); // dir is either 1 (forward) or 0
(reverse)
46         analogWrite(motorApwm, pwm); // pwm is an analog value 0-255
47         break; // end case A
48       case B: // if B, write B pins
49         digitalWrite(motorBdir, dir); // dir is either 1 (forward) or 0
(reverse)
50         analogWrite(motorBpwm, pwm); // pwm is an analog value 0-255
51         break; // end case A
52     } // end switch statement
53   } // end if
54   else
55   { // if using dual motor drivers
56     switch (motor)
57     {
58       // find which motor to control
```

```
57 case A: // if A, write A pins
58     if (dir)
59     {
60         analogWrite(IN1, pwm); // IN1 is the forward pwm pin
61         digitalWrite(IN2, LOW); // IN2 is low
62     }
63     else
64     {
65         digitalWrite(IN1, LOW); // IN1 is low
66         analogWrite(IN2, pwm); // IN2 is the reverse pwm pin
67     }
68     break; // end case A
69 case B: // if B, write B pins
70     if (dir)
71     {
72         analogWrite(IN3, pwm); // IN3 is the forward pwm pin
73         digitalWrite(IN4, LOW); // IN4 is low
74     }
75     else
76     {
77         digitalWrite(IN3, LOW); //IN3 is low
78         analogWrite(IN4, pwm); // IN4 is the reverse pwm pin
79     }
80     break; // end case B
81 } // end switch case
82 } //end if
83 return;
84 } // end function
85
```