

```

/*
 * Title: Minimum Viable Motor Control
 * Developer: Trevor Murphy
 * Description: A manual controller that reads in motor encoder data
and allows
 *
 *           the user to control the motor through serial inputs.
 * Use Case: In Serial Window:
 *           "a 70" : Goes in the A direction at a 70 PWM speed
 *           "b 135" : Goes in the B direction at a 135 PWM speed
 */

int a, b;           // encoder variables
int pwm_val = 0;    // Motor select and PWM value
char choice = 'n';  // direction choice value

void setup() {

    Serial.begin(9600);

    pinMode(2, INPUT); // encoder A
    pinMode(3, INPUT); // encoder B
    pinMode(4, OUTPUT); // Motor Select
    pinMode(5, OUTPUT); // Motor PWM
    pinMode(6, OUTPUT); // Motor A direction
    pinMode(7, OUTPUT); // Motor B direction

}

void loop() {

    a = digitalRead(2);
    b = digitalRead(3);

    reading();
    printout();

}

```

```
//function for reading the user input data to control the motor from the serial monitor
```

```
void reading() {
```

```
    if (Serial.available()) {
```

```
        choice = Serial.read();
```

```
        if (choice == 'a') { //a direction for motor
```

```
            digitalWrite(6, HIGH);
```

```
            digitalWrite(7, LOW);
```

```
            digitalWrite(4, HIGH);
```

```
            pwm_val = Serial.parseInt();
```

```
            analogWrite(5, pwm_val);
```

```
        }
```

```
        else if (choice == 'b') { //b direction for motor
```

```
            digitalWrite(6, LOW);
```

```
            digitalWrite(7, HIGH);
```

```
            digitalWrite(4, LOW);
```

```
            pwm_val = Serial.parseInt();
```

```
            analogWrite(5, pwm_val);
```

```
        }
```

```
        else { //any other input will shut off the controller
```

```
            digitalWrite(6, LOW);
```

```
            digitalWrite(7, LOW);
```

```
            digitalWrite(4, LOW);
```

```
            pwm_val = 0;
```

```
            analogWrite(5, pwm_val);
```

```
        }
```

```
        while (Serial.available()) Serial.read(); //reads the remaining garbage
```

```
    }
```

```
}
```

```
//Printout function for visualizing output data on the Serial monitor
void printout() {

    Serial.print("a: ");      //encoder data
    Serial.print(a);
    Serial.print("  b: ");
    Serial.print(b);

    Serial.print("  dir: "); //motor data
    Serial.print(choice);
    Serial.print("  pwm: ");
    Serial.println(pwm_val);

}
```