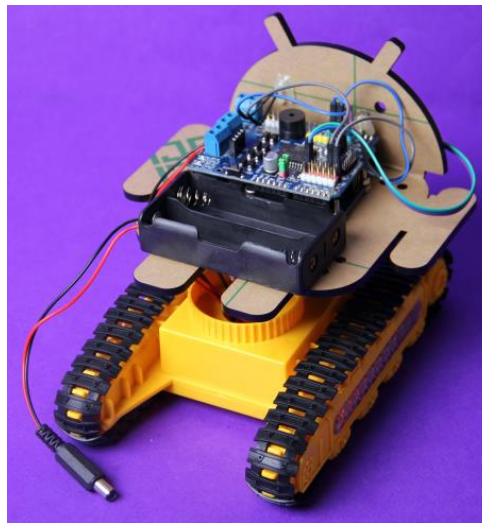


ARDUINO SMART CAR (B)

User Manual



Arduino Code:

This robot contain a driver motor shield. Pins 12 and 13 indicate the direction of the motors and pins 11 and 10 are the enable pins of the motors.

Pin 12 indicate the direction of motor A and pin 10 enables it while pin 13 indicate the direction of motor B and pin 11 enables it. With these indications I can control the motors left, right and forward.

NOTE: A small modification is done on the driver shield. Pin number 9 of the l298 chip is connected to pin number 7 (digital I/O on arduino) by small wire so in this way we can control the motors in the backward direction.

Walking Control:

```
int pin12=12;//direction a
int pin13=13;//direction b
int pin10=10;//pwm a; enable a
int pin11=11;//pwm b; enable b
int pin7=7;
```

```
void forward()
```

```
{
```

```
    digitalWrite(pin12,HIGH);
```

```
    digitalWrite(pin13,HIGH);
```

```
    digitalWrite(pin10,HIGH);
```

```
    digitalWrite(pin11,HIGH);
```

```

// analogWrite(10,200);
//analogWrite(11,200);
}

void backword()
{
// digitalWrite(pin12,HIGH);
// digitalWrite(pin13,HIGH);
digitalWrite(pin7,HIGH);
digitalWrite(pin10,HIGH);
digitalWrite(pin11,HIGH);
//analogWrite(10,200);
//analogWrite(11,200);

}

void Turn_Left()
{
digitalWrite(pin12,LOW);
digitalWrite(pin13,HIGH);
digitalWrite(pin10,HIGH);
digitalWrite(pin11,HIGH);

//analogWrite(10,200);
//analogWrite(11,200);

}

void Turn_Right()
{
digitalWrite(pin13,LOW);
digitalWrite(pin12,HIGH);
digitalWrite(pin11,HIGH);

```

```

digitalWrite(pin10,HIGH);
// analogWrite(10,200);
//analogWrite(11,200);

}

void stop()
{
digitalWrite(pin10,LOW);
digitalWrite(pin11,LOW);
digitalWrite(pin13,LOW);
digitalWrite(pin12,LOW);
digitalWrite(pin7,LOW);
//analogWrite(10,0);
//analogWrite(11,0);
}

void setup() {

pinMode(pin12,OUTPUT);
pinMode(pin13,OUTPUT);
pinMode(pin10,OUTPUT);
pinMode(pin11,OUTPUT);
pinMode(pin7,OUTPUT);

// put your setup code here, to run once:

}

void loop() {

Turn_Left();
delay(3000);

```

```
stop();  
delay(3000);  
forward();  
delay(3000);  
stop();  
delay(3000);  
backward();  
delay(3000);  
stop();  
delay(3000);  
forward();  
delay(3000);  
stop();  
delay(3000);  
Turn_Left();  
delay(3000);  
stop();  
delay(3000);  
Turn_Right();  
delay(3000);  
stop();  
delay(3000);
```

```
// put your main code here, to run repeatedly:
```

```
}
```

Bluetooth Control:

```
int pin12=12;//direction a  
int pin13=13;//direction b  
int pin10=10;//pwm a; enable a  
int pin11=11;//pwm b; enable b
```

```
int pin7=7;
int pin5=5;
int pin6=6;
int pin4=4;
int pin2=2;
```

```
void forward()
```

```
{

    digitalWrite(pin12,HIGH);
    digitalWrite(pin13,HIGH);
    digitalWrite(pin10,HIGH);
    digitalWrite(pin11,HIGH);
    // analogWrite(10,200);
    //analogWrite(11,200);
}
```

```
void backword()
```

```
{
// digitalWrite(pin12,HIGH);
// digitalWrite(pin13,HIGH);
    digitalWrite(pin7,HIGH);
    digitalWrite(pin10,HIGH);
    digitalWrite(pin11,HIGH);
    //analogWrite(10,200);
    //analogWrite(11,200);

}
```

```
void Turn_Left()
```

```
{
    digitalWrite(pin12,LOW);
```

```
digitalWrite(pin13,HIGH);
digitalWrite(pin10,HIGH);
digitalWrite(pin11,HIGH);

//analogWrite(10,200);
//analogWrite(11,200);

}

void Turn_Right()
{
digitalWrite(pin13,LOW);
digitalWrite(pin12,HIGH);
digitalWrite(pin11,HIGH);
digitalWrite(pin10,HIGH);
// analogWrite(10,200);
//analogWrite(11,200);

}

void stop()
{
digitalWrite(pin10,LOW);
digitalWrite(pin11,LOW);
digitalWrite(pin13,LOW);
digitalWrite(pin12,LOW);
digitalWrite(pin7,LOW);
//analogWrite(10,0);
//analogWrite(11,0);
}

void setup() {
```

```

pinMode(pin12,OUTPUT);
pinMode(pin13,OUTPUT);
pinMode(pin10,OUTPUT);
pinMode(pin11,OUTPUT);
pinMode(pin7,OUTPUT);
pinMode(pin5,OUTPUT);
pinMode(pin6,OUTPUT);
Serial.begin(9600);

// put your setup code here, to run once:

}

void loop() {
if(Serial.available())
{
    char val=Serial.read();

if(val=='l')
{
    //Serial.print("sss");

digitalWrite(pin5,HIGH);
delay(1000);
digitalWrite(pin6,LOW);
    stop();
Turn_Left();
//digitalWrite(pin5,HIGH);
//delay(1000);
//digitalWrite(pin6,LOW);

//delay(3000);

```

```
//stop();  
//delay(3000);  
}
```

```
else if(val=='f')  
{
```

```
digitalWrite(pin4,HIGH);  
delay(1000);  
digitalWrite(pin5,HIGH);  
digitalWrite(pin6,HIGH);  
digitalWrite(pin2,HIGH);
```

```
stop();  
forward();  
//delay(3000);  
//stop();  
//delay(3000);  
}
```

```
else if(val=='b')  
{
```

```
digitalWrite(pin4,HIGH);  
digitalWrite(pin2,HIGH);  
delay(1000);  
digitalWrite(pin5,HIGH);  
digitalWrite(pin6,HIGH);  
stop();  
backward();
```



```

//stop();

//delay(3000);

}

else if(val=='r')
{

digitalWrite(pin6,HIGH);
delay(1000);
digitalWrite(pin5,LOW);
    stop();
Turn_Right();
//delay(3000);
//stop();
//delay(3000);
}

else if(val=='s')
{
digitalWrite(pin5,LOW);
digitalWrite(pin6,LOW);
digitalWrite(pin4,LOW);
digitalWrite(pin2,LOW);
stop();
delay(500);
}

else
{
delay(500);
}
}

// put your main code here, to run repeatedly:

}

```