

```
#include <AFMotor.h>
```

```
//SMARS Demo 2 with Line sensor
```

```
//This sketch makes the robot follow a line (you can make it with insulating tape).
```

```
//There is a small bug, find it and fix it!
```

```
//you'll need an Adafruit Motor shield V1 https://goo.gl/7MvZeo and a IR sensor https://goo.gl/vPWfzx
```

```
AF_DCMotor R_motor(2);           // defines Right motor pin
```

```
AF_DCMotor L_motor(1);           // defines Left motor pin
```

```
// declare variables
```

```
int lineNumber;                  //defines the variable where it will store the  
line sensor value
```

```
void setup() {  
  Serial.begin(9600);           // sets up Serial library at 9600 bps
```

```
//changes the following values to make the robot drive as straight as  
possible
```

```
  L_motor.setSpeed(200);         // sets L motor speed
```

```
  R_motor.setSpeed(140);         // sets R motor speed
```

```
  R_motor.run(RELEASE);          //turns L motor on
```

```
  L_motor.run(RELEASE);          //turns R motor on
```

```
}
```

```
void loop() {  
  lineNumber= analogRead(A4); //reads the sensor value from pin A4 and stores  
it in the variable lineNumber  
  while(lineNumber>800) // repeats the following part of code until the light  
sensor will find a darker zone  
  {
```

```
    L_motor.run(FORWARD);         //moves motor L Forward
```

```
    R_motor.run(FORWARD);         //moves motor L Forward
```

```
    lineNumber= analogRead(A4); //reads the sensor value from pin A4  
and stores it in the variable lineNumber
```

```
};
```

```

    if(lineNumber<800) // repeats the following part of code until the light
sensor will find a darker zone
    {

        L_motor.run(FORWARD);      //moves motor L Forward
        R_motor.run(BACKWARD);      //moves motor L Forward
        //reads the sensor value from pin A4 and stores it in the
variable lineNumber

    }
    // the following operations will make the robot goes backward for 2 seconds
and turns left for 1.5 seconds
    else{
        L_motor.run(BACKWARD);      //moves motor L Backward
        R_motor.run(FORWARD);      //moves motor L Forward
    };
    Serial.println(lineNumber); //send the value to the serial monitor

}

```