

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

```
//SMARS Demo 1 with Line sensor
```

```
//This sketch makes the robot move inside a delimited Area (you can make a  
perimeter with insulating tape)
```

```
//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 connector
```

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

```
// 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
```

```
  };
```

```
  // the following operations will make the robot goes backward for 2 seconds  
and turns left for 1.5 seconds
```

```
R_motor.run(RELEASE);  
L_motor.run(RELEASE);
```

```
//go backward  
R_motor.run(BACKWARD);  
L_motor.run(BACKWARD);  
delay(2000);
```

```
// turning left  
R_motor.run(FORWARD);  
L_motor.run(BACKWARD);  
delay(1500);
```

```
Serial.println(lineNumber); //send the value to the serial monitor
```

```
}
```