# AIM:

Making of Line Following Robot using IR Sensors

## COMPONENTS REQUIRED:

1.Ardiuno

2. Motor driver

3. IR sensor (2 to 5 sensors)

4. Two-wheel Chassis

5. Two DC Motors

6. Jumper wires

7. 12v battery

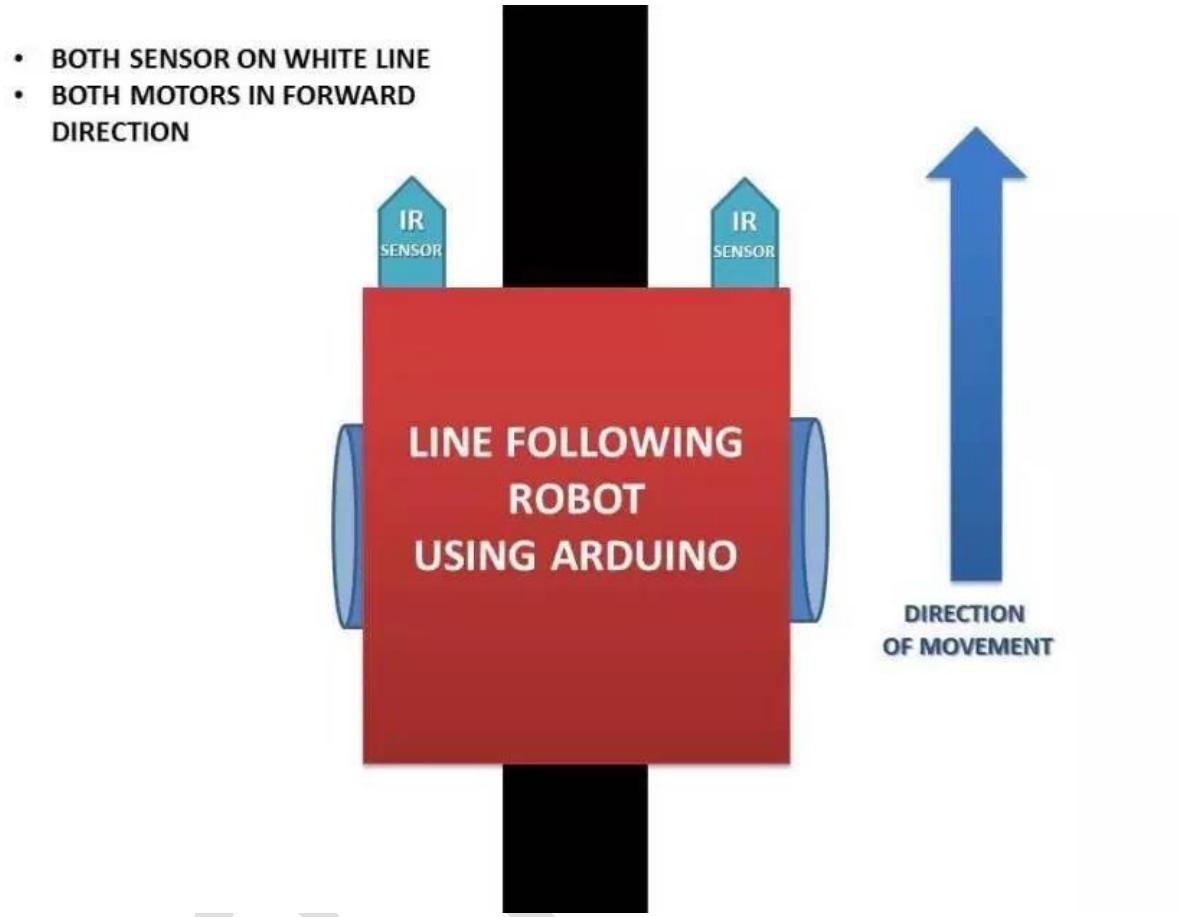
8. castor wheel

## PRINCIPLE:

Working of Line Following Robot using IR sensor is Very simple and logical too. It is simple in that way it will follow the Black or White line. but to do that we have to make some logical operation into Arduino.

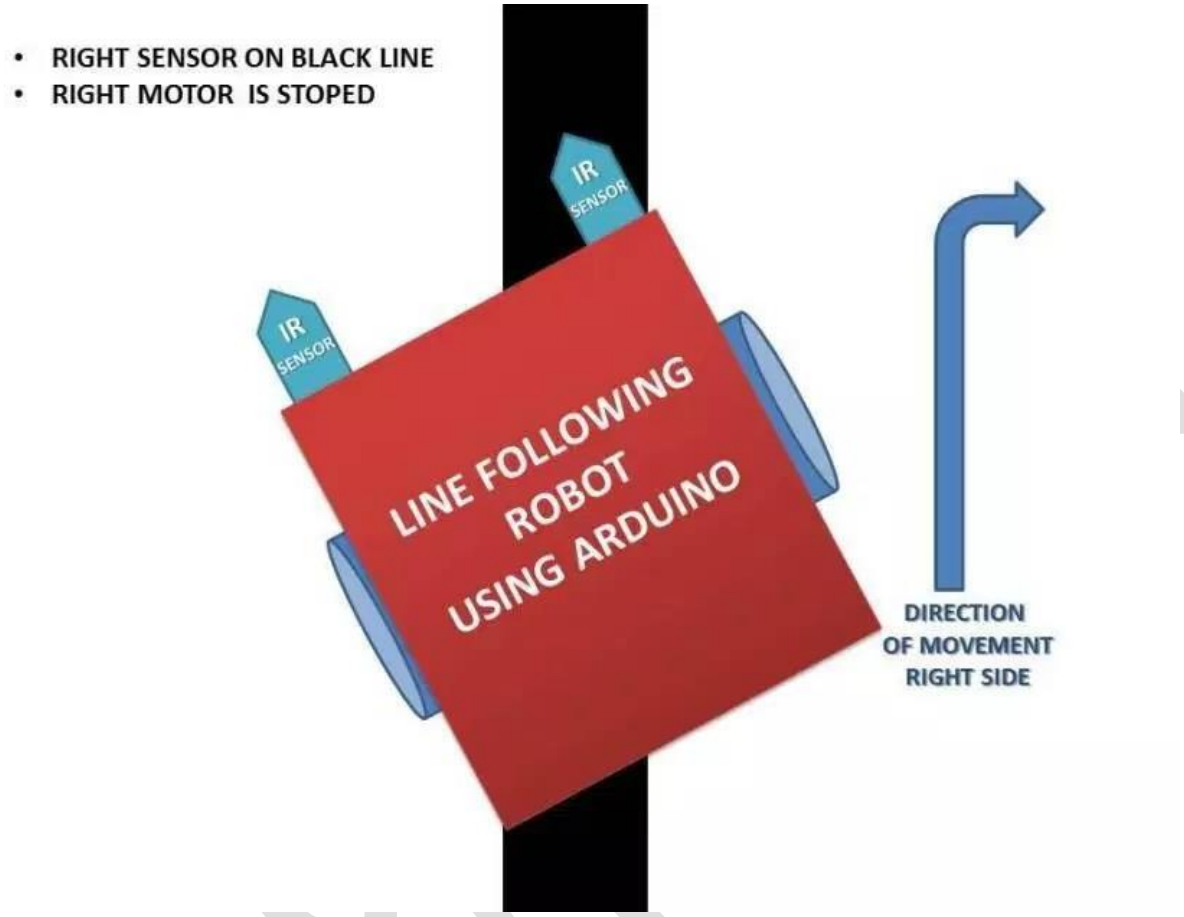
In-Line Following Robot we are using Two Dc Motors two IR modules which are consist of IR Transmitter and IR Receiver whenever the IR Transmitter emits the light than it strikes on the surface and then it reflects back toward the IR Receiver (Except Black line), then IR Receiver gives output proportional to the reflectance of the surface and Then Arduino gives instruction to the DC motor according to that Motors will go in forward direction or left or right.

## How will Line Following Robot Change Direction Autonomously?
## If no IR sensors are on the black line:



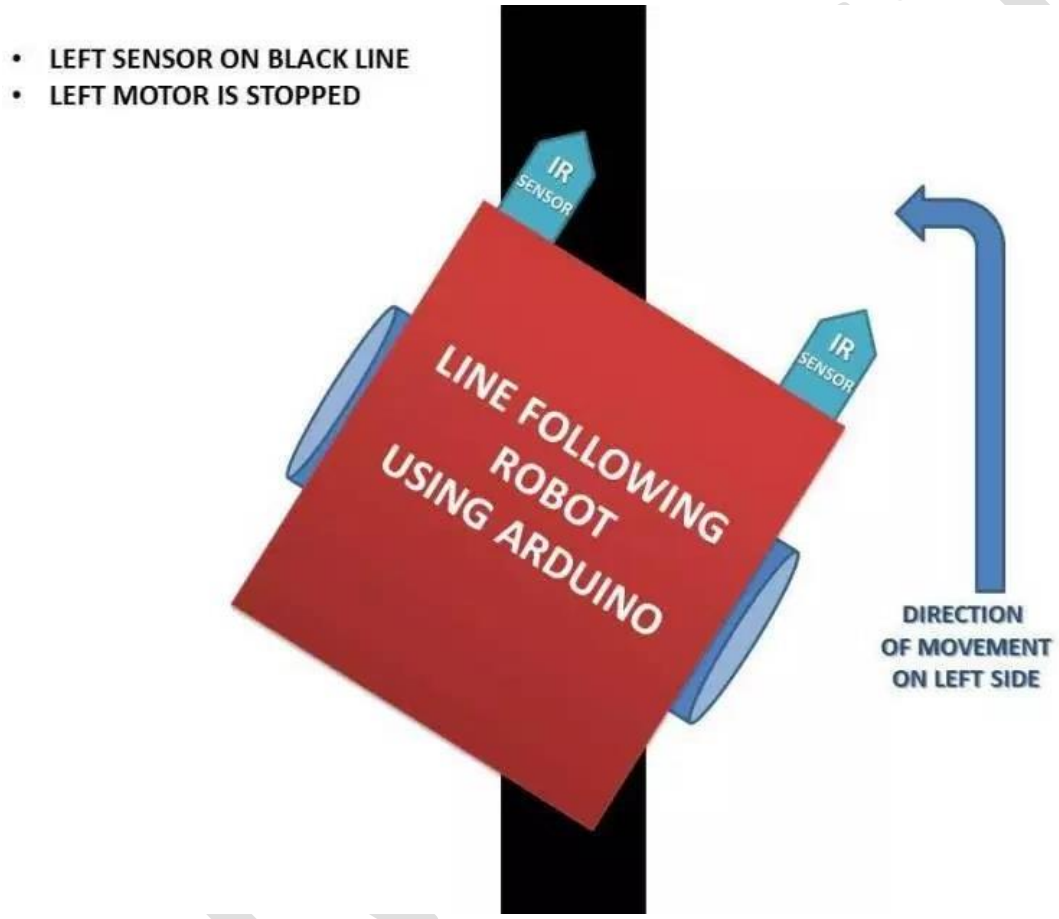

When Line goes straight, we must make IR pairs in such manner that it will be on the white surface and our motors will move in the Forward Direction.

## If Right IR Sensor Goes on Black Line:



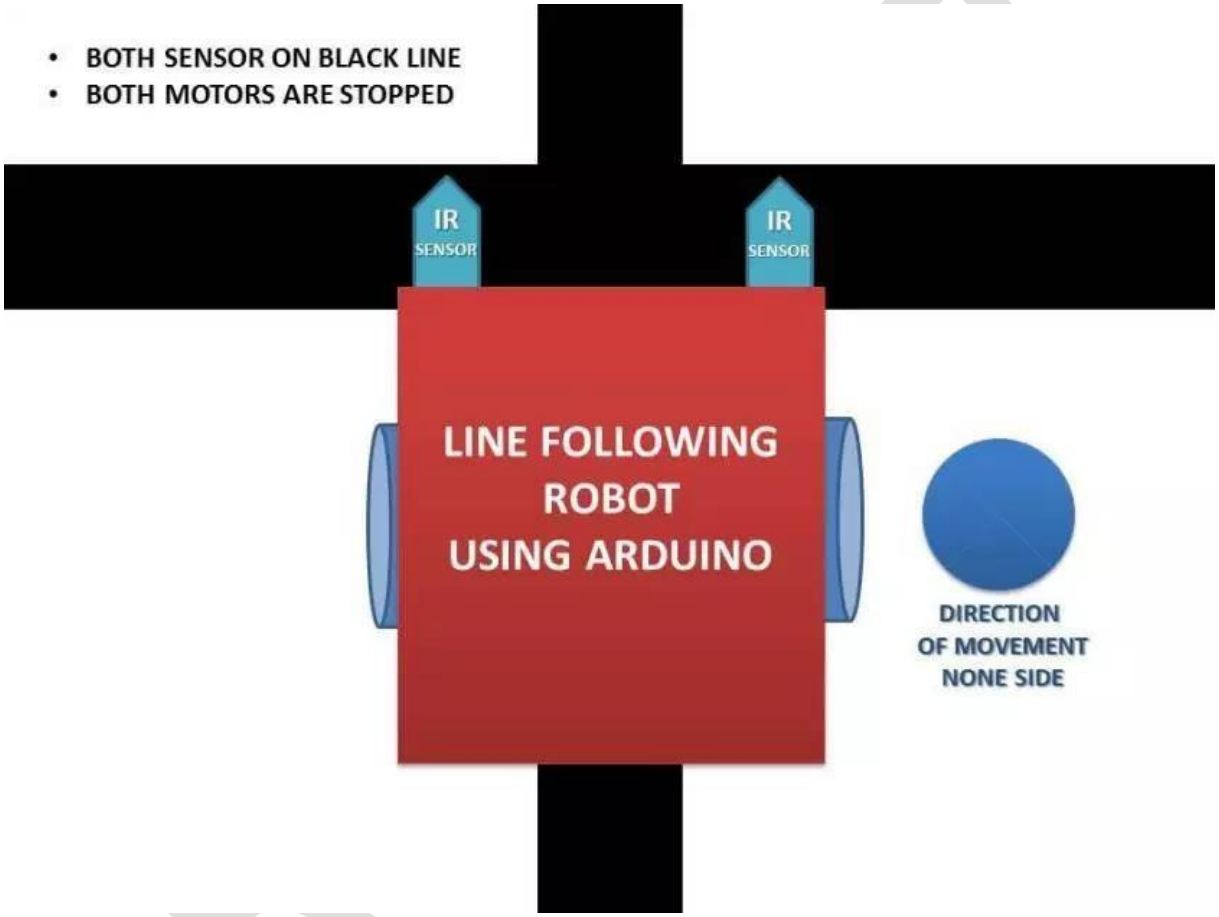

When Right IR Sensor Goes On Black Line then It will not receive any signal and the other IR Pair which is on the white surface will receive the signal and make the motor of right side to be stopped and the motor from the left side will be in the forward direction and that will produce turn on the right side.

## If Left IR Sensor Goes on the black line:




When LEFT IR Sensor Goes on Black Line then It will not receive any signal and the other IR Pair which is on the white surface will receive the signal (same as Previously) and it will make the motor of the left side to be stopped and the motor from the right side will be in the forward direction and that will produce turn on the left side.

## If Both the IR sensors are on the black line

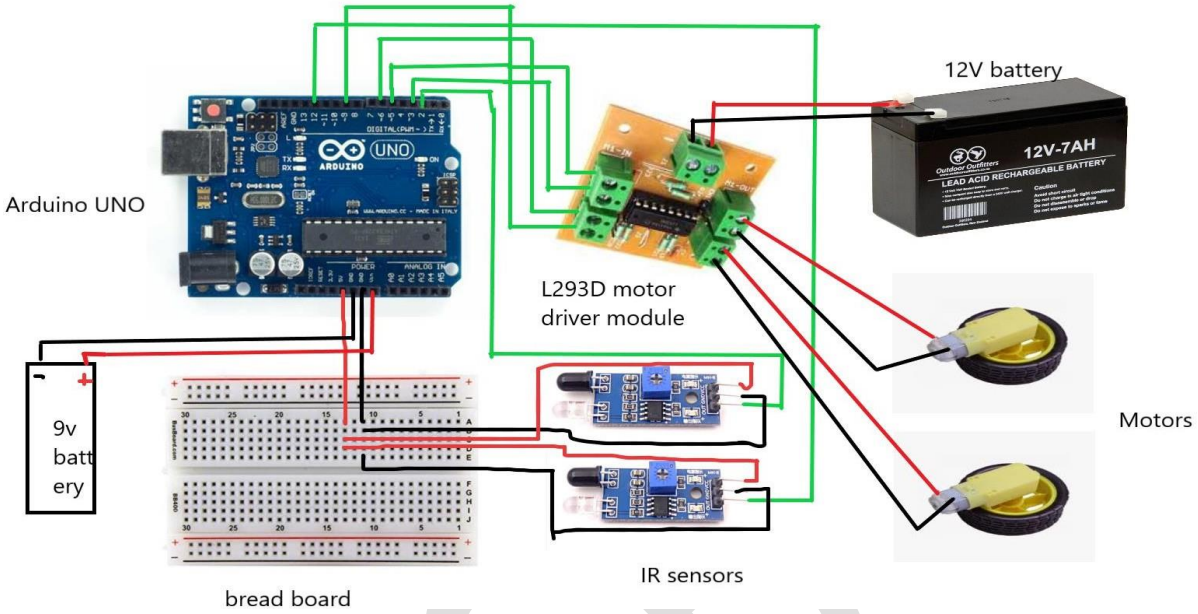



If both sensors are on the black line, then they won't receive any signal so both the motors should stop.

## Assembling the Components of the Line Following Robot:

Take the chassis and put the two DC gear motors on the left and right edges and Fit them on both the sides. mount the Arduino UNO and Breadboard on the surface of the Chassis using Cable Tie and also connect IC L293D (Motor driver) on the breadboard and then connect the 12v Battery on the surface of Chassis and now connect the pair of IR Module and make sure that the pair has minimum distance towards the surface so they can work well.

# Connections of Line Following Robot:




Note:
These is the tutorial to make a simple line follower robot with these basics you can make an advanced line follower robot.