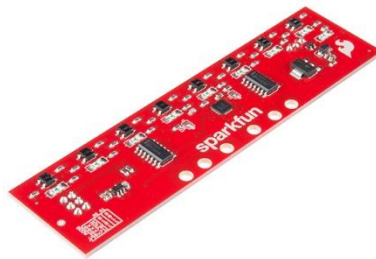# Line tracker sensors

Submitted by: team AsuMobiCarG02
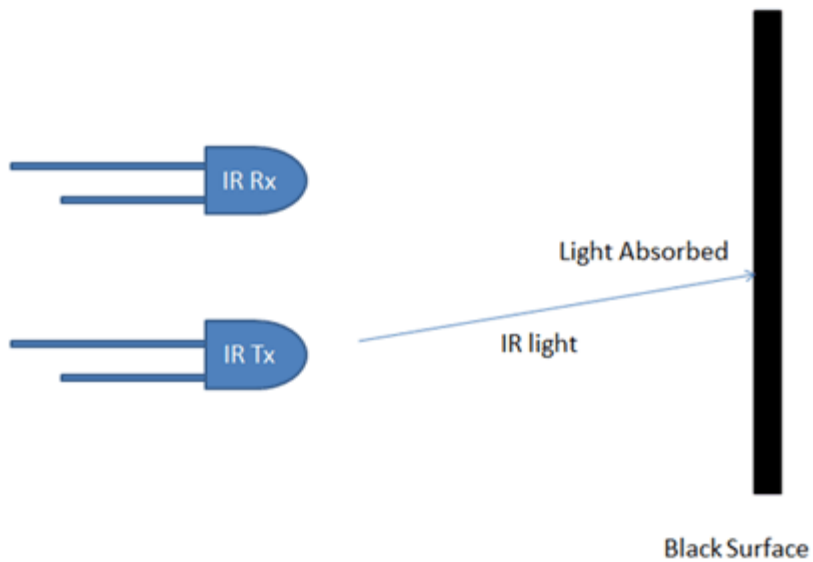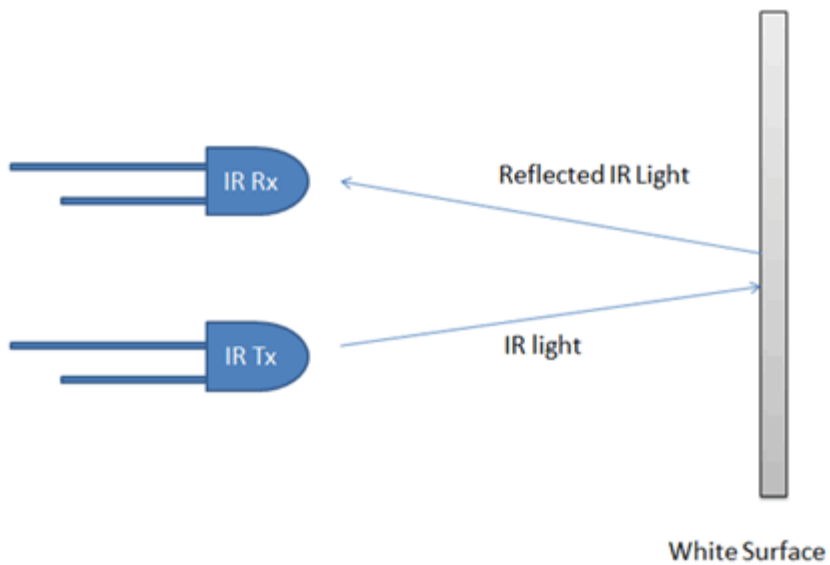
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Cairo, Egypt

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Concepts of Line Follower

Concept of working of line follower is related to light. We use here the behavior of light at black and white surface. When light fall on a white surface it is almost full reflected and in case of black surface light is completely absorbed. This behavior of light is used in **building a line follower robot**.

IR Rx

Reflected IR Light

IR Tx

IR light

White Surface

IR Rx

Light Absorbed

IR Tx

IR light

Black Surface

In this **arduino based line follower robot** we have used IR Transmitters and IR receivers also called photo diodes. They are used for sending and receiving light. IR transmits infrared lights. When infrared rays falls on white surface, it's reflected back and catched by photodiodes which generates some voltage changes. When IR light falls on a black surface, light is absorb by the black surface and no rays are reflected back, thus photo diode does not receive any light or rays.

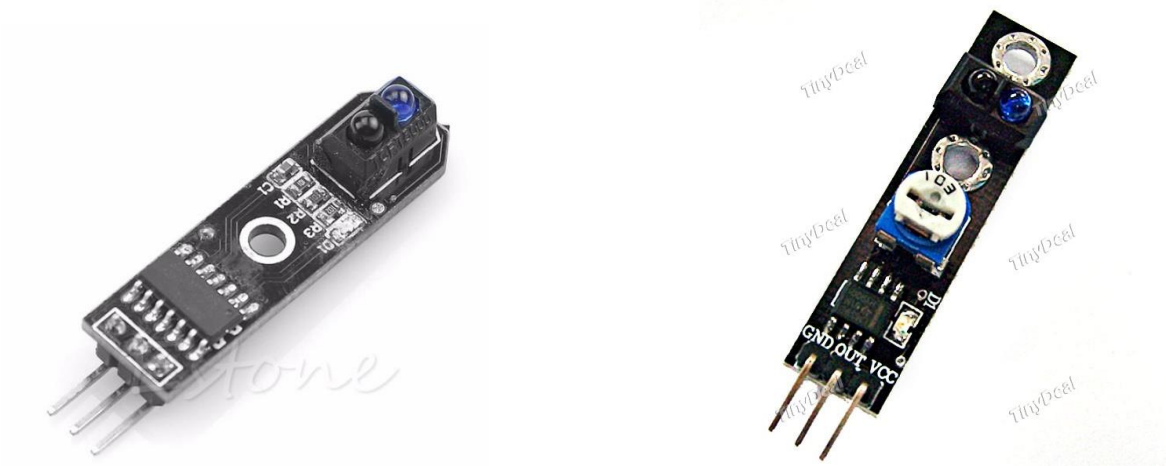There are types of Line tracker sensors:

1 channel

3 channels

5 channels

The main difference is the number of IR sensors (IR transmitter and receiver pairs).

Here are a brief description for the first two kinds:
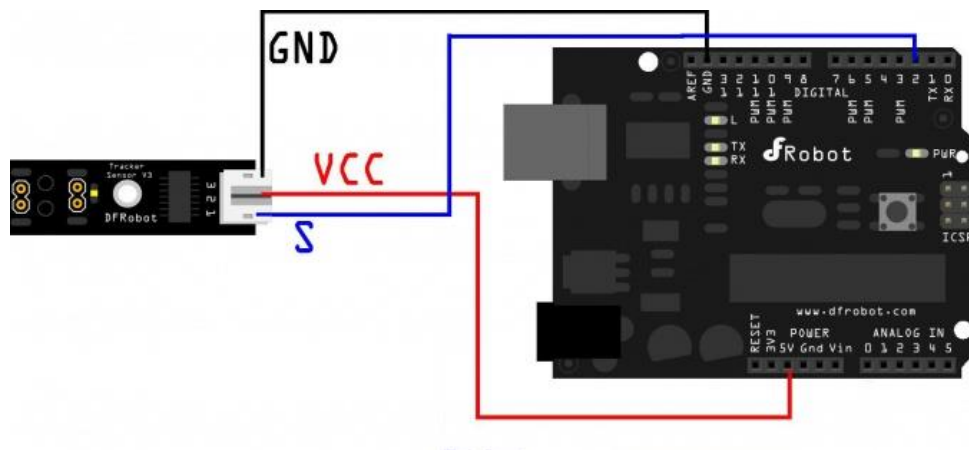
Line tracker module 1 channel

The Line Tracking Sensor for Arduino can detect the white lines in black and black lines in white. The single line-tracking signals can provide a stable output signals TTL, so look for more accurate and more stable line. Optional multi-channel mix is easy to install with the necessary line-tracking robot sensors.
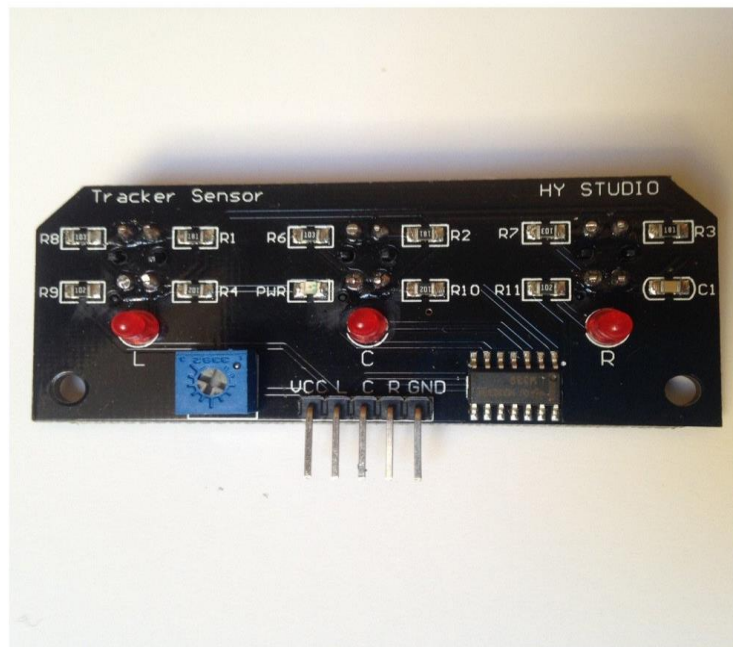
Features

- Power supply: +5V
- Operating current: <10mA
- Operating temperature range: 0°C ~ + 50°C
- Output interface: 3-wire interface (1 - signal, 2 - power, 3 - power supply negative)
- Output Level: TTL level (black line of low effective, high efficient white line)
- Module Size: 10mm×35mm
- Module Weight: About 1g

Here is the connection diagram:

Line tracker module 3 channels

This Line Tracker sensor consists of 3 IR transmitter and IR receiver pairs. This tracker sensor is typically used for robots in line following task. It can be used for either dark or bright line following. The tracker sensor have 3 digital outputs to user indicating the existence of the line. Every sensor is provided with its own LEDs as indication of line detection.

Features
- Operating voltage 5V
- Output low black line, a white line output high
- Potentiometer for adjusting sensitivity (adjusting distance)
- 3 LED indicators
- With fixed bolt hole for easy installation