

User's Manual

SmartElex RLS08

Analog & Digital Line Sensor Array

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1. INTRODUCTION AND OVERVIEW

SmartElex RLS08 is Line follower sensor module used to detect the Line. SmartElex RLS08 consists of 8 array TCRT5000 IR transmitter and IR receiver pairs.

Line follower Robot is a machine which follows a line, either a black line or white line. Basically there are two types of line follower robots: one is black line follower which follows black line and second is white line follower which follows white line. Line follower actually senses the line and run over it.

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.

SmartElex RLS08 have 5 analog and digital outputs to user indicating the presence of the line. The user can use both analog and/or digital signal. Each Sensor has its own LED as indication of line detection. Each sensor on SmartElex RLS08 is independent of each other.

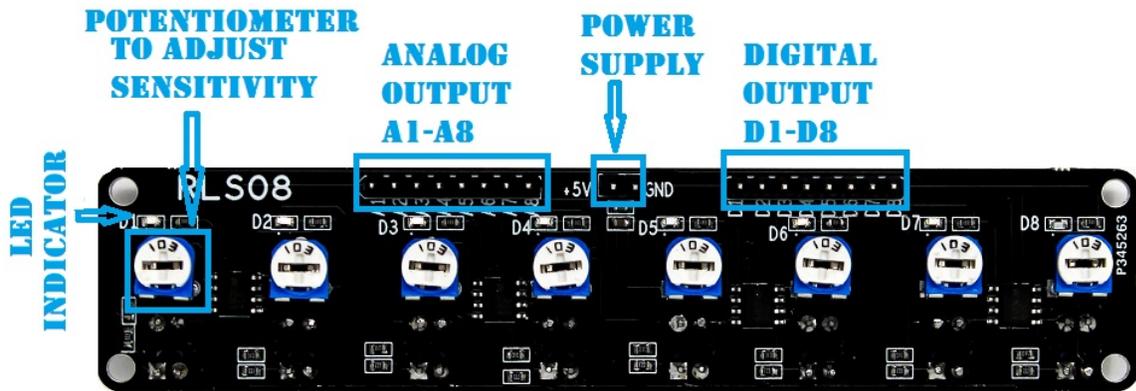
2. Packing List

- 1) SmartElex RLS08 module.

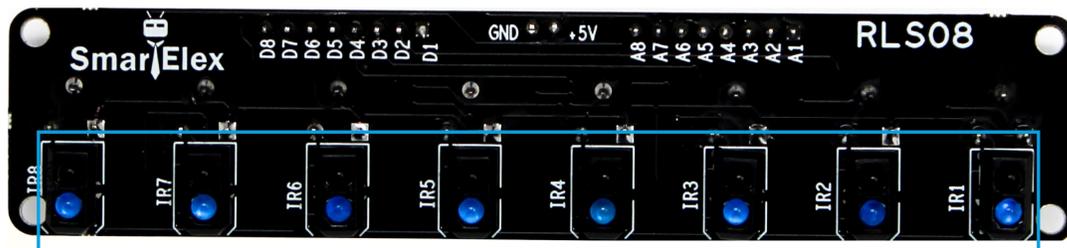
3. Specification and Features.

1. Operating voltage: 4.5V to 5.0 V
2. Supply current: 150 mA
3. Output format: 8 Analog and Digital Voltage.
4. Optimal sensing distance: 3 mm.
5. Maximum recommended sensing distance :6 mm
6. Potentiometer to adjust the sensitivity of the individual sensors.
7. The module is a convenient carrier for eight IR emitter and receiver pairs evenly paced.
8. Distance Between two IR Sensor: 15mm.
9. Board Dimension :- 120x26mm
10. The array has mounting holes of 3mm diameter for easy mounting

4. PRODUCT LAYOUT



TOP SIDE

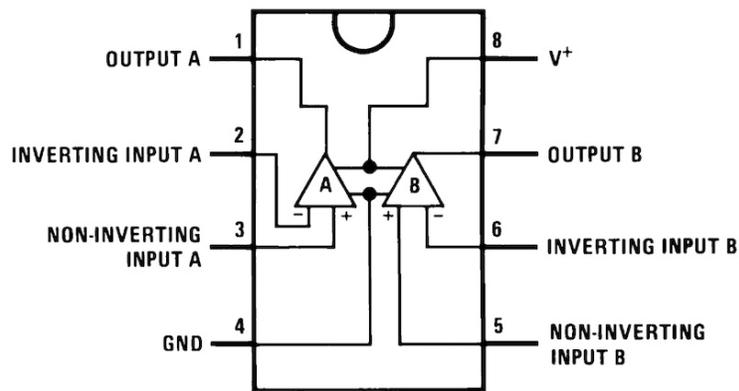


**TCRT 5000
IR SENSOR**

BOTTOM SIDE

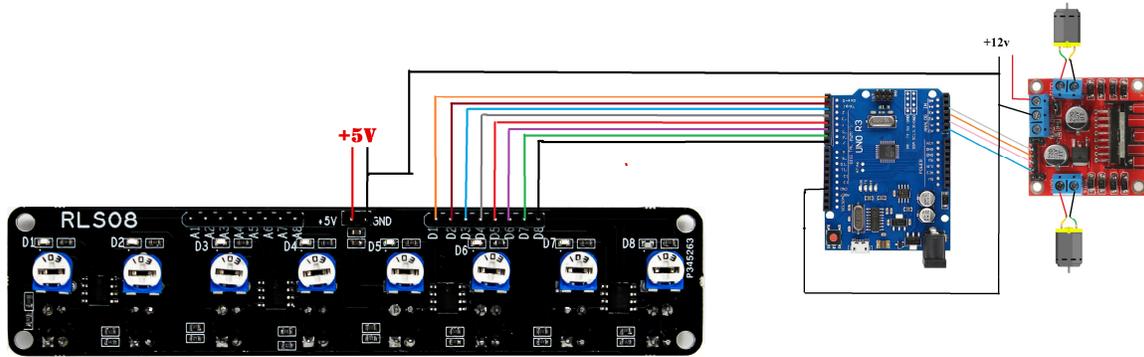
5. PRODUCT DESCRIPTION :-

Potentiometer is used for setting reference voltage at comparator's one terminal and IR sensors are used to sense the line and provide a change in voltage at comparator's second terminal. Then comparator compares both voltages and generates a digital signal at output. Here in this line follower circuit we have used two comparator for two sensors. LM 358 is used as comparator. LM358 has inbuilt two low noise Op-amps.



LM358 PIN DIAGRAM

6. Sample SmartElex RLS08 Interfacing with Arduino UNO :-



7. Warranty

1. Standard warranty of product is 6 months.
2. Warranty only applies to manufacturing defect.
3. No warranty will apply if the Product has been subject to misuse, static discharge, neglect, accident, modification, or has been soldered or altered in any way.