

Line Follower

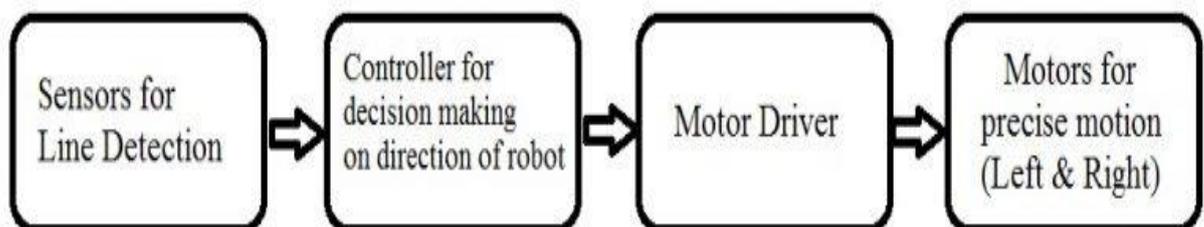
Introduction

A Line Follower Robot, as the name suggests, is an automated guided vehicle, which follow a visual line embedded on the floor or ceiling. Usually, the visual line is the path in which the line follower robot goes and it will be a black line on a white surface but the other way (white line on a black surface) is also possible. Certain advanced Line Follower Robots use invisible magnetic field as their paths.

Large line follower robots are usually used in industries for assisting the automated production process. They are also used in military applications, human assistance purpose, delivery services etc.

Line follower Robot is one of the first robots that beginners and students would get their first robotic experience with. In this project, we have designed a simple Line Follower Robot using Microcontroller and some other components.

Block Diagram



Block Diagram for Line Follower Robot

Component

- Microcontroller
- L293D Motor Driver IC
- Geared Motors x 2
- Robot Chassis
- IR Sensor Module x 2
- Black Tape (Electrical Insulation Tape)
- Connecting Wires
- Power supply
- Battery Connector
- Battery Holder

Block Diagram Description

Sensors (IR Sensor): We have used IR Sensor Module as the line detecting sensor for the project. It consists of an IR LED and a Photo diode and some other components like comparator, LED etc.

Micrcontroller is the main controller in the project. The data from the sensors (IR Sensors) will be given to Microcontroller and it gives corresponding signals to the Motor Driver IC.

Motor Driver (L293D): L293D Motor Driver IC is used in this project to drive the motors of the robot. It receives signals from Microcontroller based on the information from the IR Sensors.

Motors (Geared Motors): We have used two geared motors at the rear of the line follower robot. These motors provide more torque than normal motors and can be used for carrying some load as well.

Application

- Line follower Robots are commonly used for automation process in industries, military applications and consumer applications.
- They are very useful as they can work without any supervision i.e. they work as automatic guided vehicles.
- With additional features like obstacle avoidance and other security measures, line follower robots can be used in driver less cars.