Line Follower Robot Using Arduino Uno

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Abstract – A DIY line-follower robot is an automated robot which senses the black and white lines using infrared (IR) sensors it sends the signals to the Arduino UNO. The design process would allow the robot to detect white and black surfaces, travel along a3 m straight line.

Index Terms- introduction, literature survey, design, conclusion, references.

I. INTRODUCTION

The line-follower robot is an autonomous vehicle that detects the black line to move over the white surface or bright surface. the line-follower robot which consists of a microcontroller board connecting a motor driver, two sensors. Thus, we have developed a simple line-follower robot with constant acceleration motion for students. The line follower robot is a mobile machine that can detect and follow the line drawn on the floor. Generally, the path is predefined and can be either visible like a black line on a white surface with a high contrasted color or it can be invisible like a magnetic filed. A line follower consists of an infrared light sensor and an infrared LED. It works by illuminating a surface with infrared light; the sensor then picks up the reflected infrared radiation and, based on its intensity, determines the reflectivity of the surface in question. The objective of the line following robot is to follow a line on its given path which is obtained for which it uses IR sensors which detects the line and H bridge which controls the working of the wheel's . Arduino UNO controls the other operations.

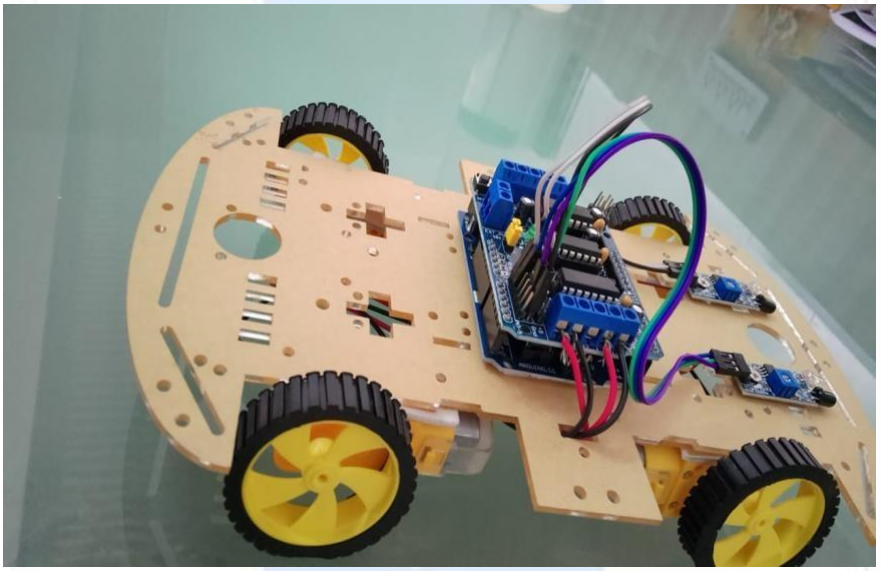


Figure Shows Line Follower Robot

II. LITERATURE SURVEY

We have studied more papers and collect information from google, and getting some information from teacher and seniors we have seen some videos from YouTube, and get information with the help of that videos.
We have get one book for a reference which help us very well in these project, so the book name is ROBOTICS AND INDUSTRIAL AUTOMATION these book is written by E r .R.K. RAJPUT . These book was very helpful for us in these project .
In these book there are some points which relate to are project , so we get easy to implement.
Reading books is a kind of enjoyment. At the end of these book there was one line that is CARE INSRUCTION KEEP AWAY FROM FIRE, that is true
Also we divide team work to find out the components which has we used in these project , so we get easy to design the project.

DESIGN

The planned of the "Line Following Robot" is shown in the figure. The main component is the Arduino Uno. Schematic is drawn by using Proteus.

The main features include into the hardware are given below:

- Arduino Uno.
- The IR-LED with IR illuminance, modified to be reflective sensor.

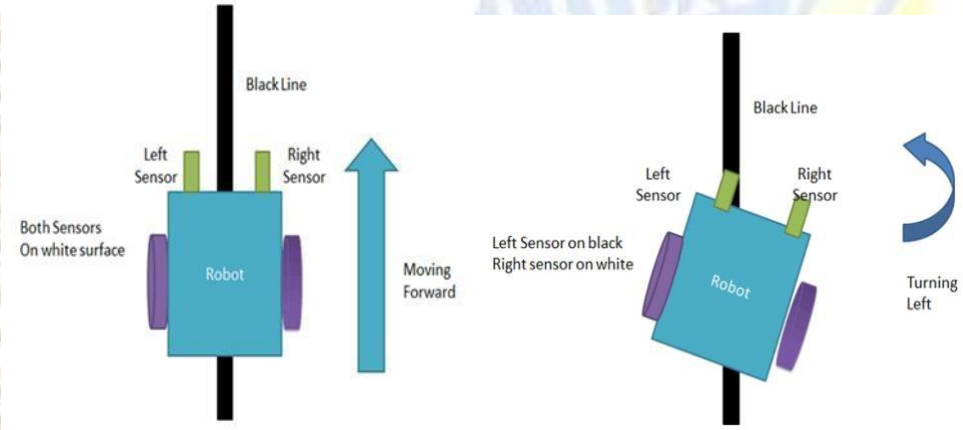
The LM324 quad comparator IC.

- A potentiometer to calibrate the reference voltage.
- The H-bridge motor control IC (L293D)
- Motors, with coupled reduction gears. • joint to join the more boards to form one variety device.
- A pair of IR-LED and Photodiode is used us proximity sensor for the designing technometer

Each of the hardware is expressive and was designed/apply individually for their functional and later include as one whole application. This helped in the debugging processes.

The line follower robot is a mobile machine that can find and observe the line drawn on the surface. usually, the direction is predefined and can be either clear like a black line on a white out side with a high unlike color or it can be invisiblelike a magnetic filed.

Line Follower Robot is a led robot that observe a line drawn on the ground to beside get out a dark line on a white track or a white line on a dark. The LFR is quite an into involving project to work on! In this guidance, we will learn how to boost a black line follower robot using Arduino Uno and some easily available components. Sounds gripping? Let's get started. You can see the assembly video of the Arduino Line Following robot-



III. CONCLUSIONS

Wormhole attack in wireless sensor network can disturb the routing process and ultimately degrade network performance. In this paper, we have presented existing wormhole attack types and their detection mechanism. Wormhole detection in a dynamic WSN setting is an open research area. A good research direction for wormhole detection is integration of trust based systems and time or distance bounding wormhole detection techniques

IV. REFERENCES

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https://www.ijraset.com/