COVID PATIENT MONITORING SYSTEM

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Abstract - *The global health of living being is changed upside down because of the pandemic disease and the global economy has faced the greatest depression as in World War II. The COVID-19 pandemic has become the greatest humanitarian challenge to decrease overcome this situation we are stick to a word called 'social distancing'. To make this social distancing effective we have developed a robot which performs different functions like delivering food and drinks. The Line Follower Robot, as the name suggests, is an automated guided vehicle, which follows a visual line embedded on the floor. This paper proposes a new model for line follower robots built using microcontrollers. This new model proposes the adoption of IR sensors to enable the robot to be able to detect its path in the shortest time possible and is faster than the time it takes from all the other existing line follower robots to detect their path. The new feature, monitoring facility provided in this new model is absent in all the other existing models.*

Key Words:

Line follower robot, Microcontroller, Guided vehicle, Faster, IR sensors

1. INTRODUCTION

In the past two decades, there was a massive development in technology which have changed people's life and the mode of business. These changes are due to elite and educated with great knowledge of making work easier than before. This tremendous development of technology has gifted robots to human. In the upcoming generation, these robots will pay a great role in the day-to-day life of a normal being. A robot is a machine developed to do multiple works automatically. The earliest robots were created by George C. Devol in the early of 1950s, from Louisville, Kentucky. He invented a reprogrammable manipulator called 'Unimate' from "Universal Automation." He also got patented for this invention. He attempted to sell his product in the industry but did not succeed in the next decade. A proverb says "Failure is the stepping stone to success", in the recent days, numerous robots are developed with enormous uses, such as defense, transports, packing, manufacturing, assembling etc. and technologies behind those are mesmerizing. One such robot that was brought to the field is line follower robot. Even though it is a familiar one we have brought this robot with quite interesting developments which will help

people working in various fields and some pandemic situations. Line following robot is a mobile sized robot that will follow a path. The path can be visible as a black line on a white surface or it can be invisible like a magnetic field. The two sensors in front of the robot sense the black line and it moves according to it. This robot also has an object detecting sensor if it senses an object in its way it stops moving. We have developed a monitoring system for this robot so that you can track if it stops or misleads the route. This mechanism will greatly help large industries, hospitals to deliver the items, materials or medicines without any sort of damages.

2. METHODOLOGY

The microcontroller we used is Arduino. Arduino is open-source, it is computer hardware and software. In-front of this robot we have placed two IR sensors to locate the path. The infrared sensor is an electronic sensor that measures infrared (IR) light radiating from objects. A camera is set for monitoring the motion of the robot and an object detecting sensor to detect the object. The motor driver is a module for motors that allows us to control the working speed and direction of two motors simultaneously. This robot works on certain principles. One such principle is the reflectance principle. The black surface has lesser reflectance value when compared to the white surface around it and this helps the robot to locate the position of the line. When left sensor points to the white surface then right motor stops while the left motor continues to move so that the right turn takes place and robot returns on the white line. The first sensor which is to the right will become low as that sensor will be facing the black line and the remaining sensors response will be high that is the right wheel is held constant and the left wheel is made to move freely until the response from the middle sensor becomes low. When the right sensor comes in the white region then left motor stops while the right motor continues to move so that the left turn takes place and robot returns on the white line. When both the sensors point to a black line it stops working. The IR sensor has an individual IR LED and IR photodiodes. The infrared light emitted by the LED hits the surface and is reflected in the IR photodiode and hence the voltage developed will be proportional to the reflectance of the surface. If the robot finds an object in front of it, it stops leaving a siren. Since there is a camera in the robot, we can see what object is

there and we can direct the robot safely from here using RoboRemo application. Hence this robot is used for transportation purpose.
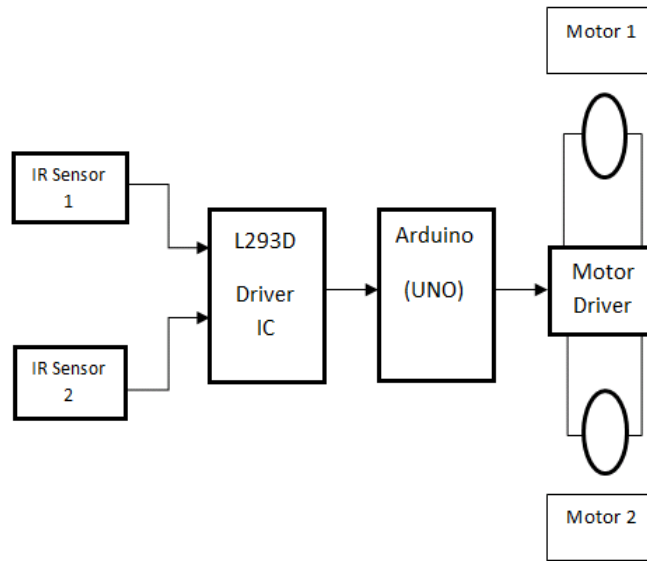
3. BLOCK DIAGRAM

Fig -1 Block Diagram

4. BLOCK DIAGRAM DESCRIPTION

Two infrared sensors (IR sensors) connected to the microcontroller will sense the black line on the white surface first. Once it started sensing, camera and the object detecting sensor will turn on and they start monitoring is there any object in its path. Then the signal from the sensor is sent to the microcontroller and it starts moving in the principle of reflectance. If it finds any object in its path or any issues in its path, we can operate the robot from our place.

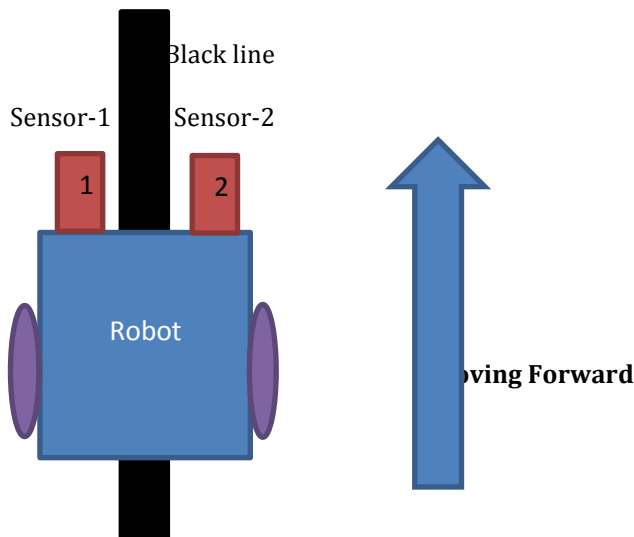## 5. WORKING PRINCIPLE OF LINE FOLLOWER ROBOT
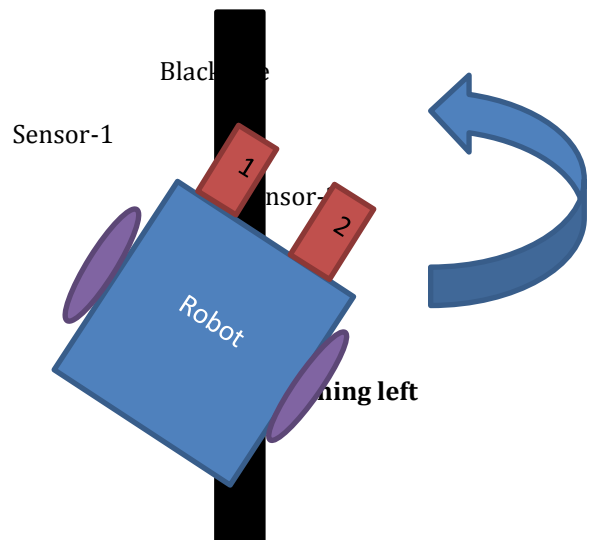

Fig 2.1 BOTH SENSORS ON WHITE SURFACE

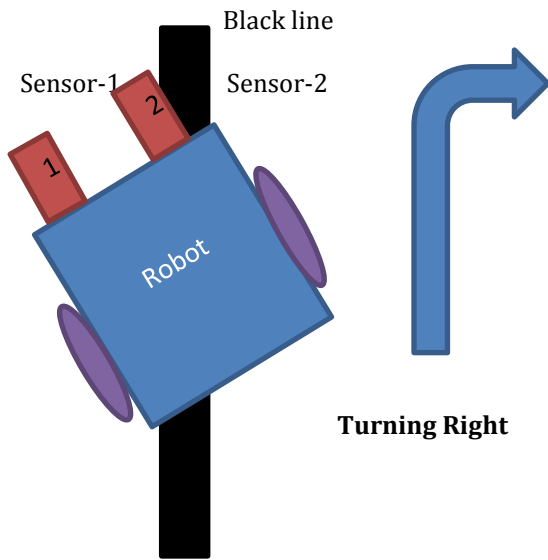**Fig 2.2 SENSOR 1 ON BLACK AND SENSOR-2 ON WHITE SURFACE**

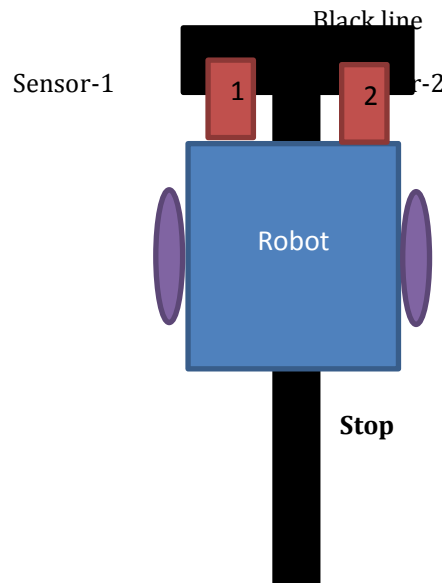**Fig 2.3 SENSOR-1 ON WHITE AND SENSOR-2 ON BLACK**

Fig 2.4 BOTH SENSORS ON BLACK SURFACE

6. CONCLUSION:

Normally line follower robots find its use in automation process in industries, military applications and consumer applications. They are very useful as they can work without any supervision. With additional features like obstacle avoidance and other security measures, line follower robots can be used in driverless cars. This robot will surely find great help in this Corona situation as people are following social distancing. In hospitals certain medication foods can be delivered to the patients from their cabin and hence doctors can protect them a bit from the present situation. All type of shops can also use this robot to deliver customer things to their car or vehicle with social distance.

REFERENCES

 [1] Line Following Robot Jan 2005

Prasad, "Line Following Robot, "Dept. Elex. & Comm. Eng., Visvesvaraya Tec Technological University, Bangalore, India, 2005

 [2] Digital RPM meter using Arduino Jan2012

S. Debopath, Md, Jinnah

S. Debopath and Md. Jinnah, "Digital RPM meter using Arduino, "Dept. Elect. Eng., Ahsanullah Univ. of Sci. & Tech., Dhaka, Bangladesh, 2012.

 [3] Turning radius of the Car Jul 2013

 Word press

Word press "Turning radius of the Car," July 2013 [Online]. Available: https://goodmaths.wordpress.com/2013/07/19/turning-radius-of-a-car/. [Accessed 28 June, 2016]

[4] Android Developers Guide.

 Android Architecture. [online] 2013. RL http://.android.com/about/versions/index.html.

[5] Arduino, ios , android and technology tit bits, http://sree.cc/google/android/using-bluetooth-in-android.

[6] One channel line tracking sensor, http://www.sooxmatechnologies.com

[7] Line follower report / controlled robot, http://www.robokits.co.in and http://www.robokitsworld.com Paper

[8] International Journal of Scientific Engineering and Research (IJSER) www.ijser.in Volume 2 Issue 7, July 2014.