

GOAL



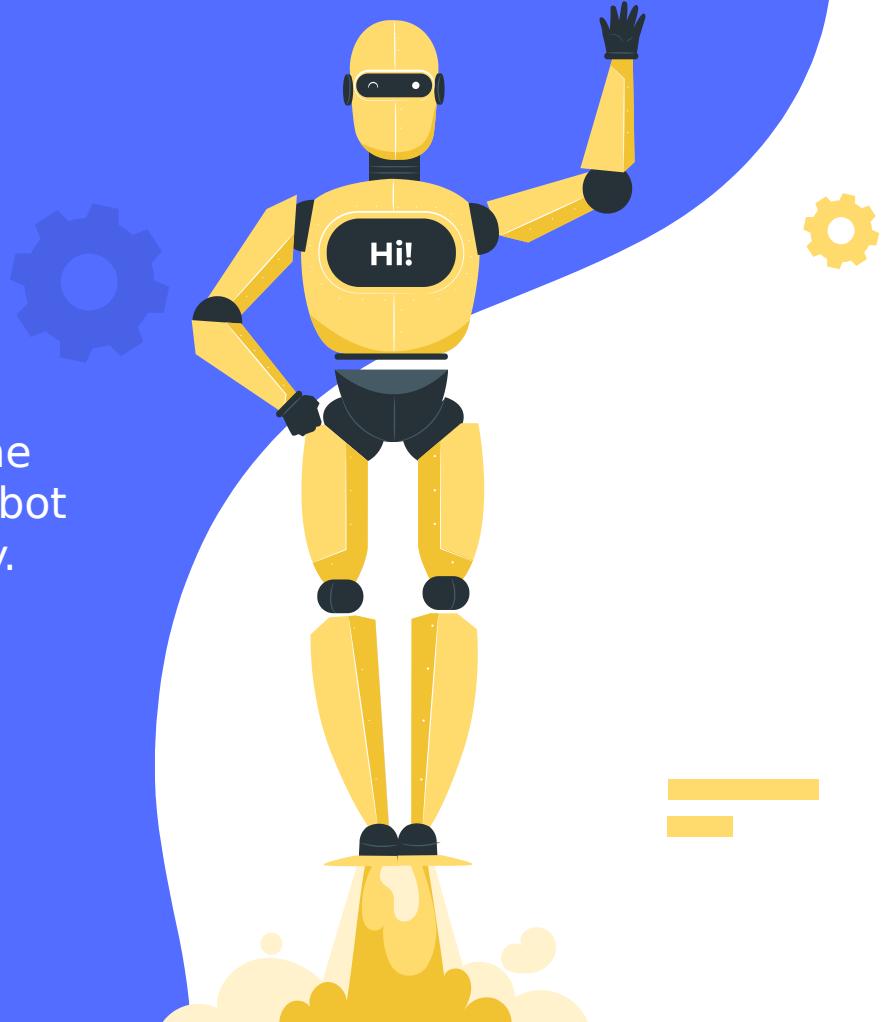
The goal of project to build a line following and obstacle avoiding robot car that can work autonomously.

Project By:

Manan Tayal

E Aakash

Animesh Agarwal

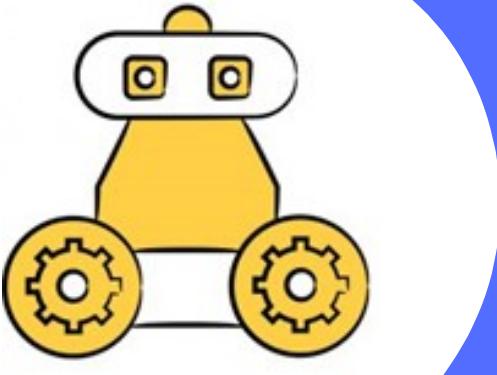


MOTIVATION



The line following and obstacle avoiding robot car is commonly used for:

- ✓ **Industrial Applications:** These robots can be used as automated equipment carriers in industries replacing traditional conveyer belts.
- ✓ **Automobile applications:** These robots can also be used as automatic cars running on roads with embedded magnets.
- ✓ **Domestic applications:** These can also be used at homes for domestic purposes like floor cleaning etc.
- ✓ **Guidance applications:** These can be used in public places like shopping malls, museums etc. to provide path guidance.



PROBLEM



- 1) How the robot will follow the line?
- 2) How to let a robot car avoid an obstacle during the line following?

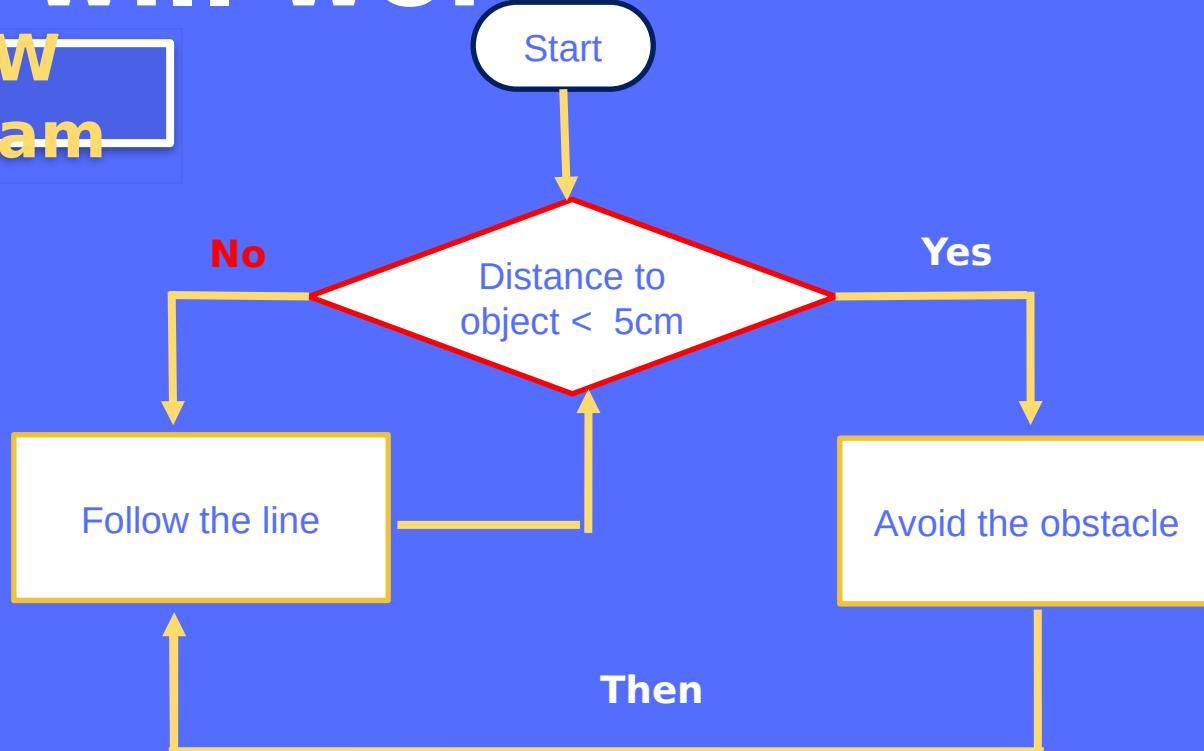
1) Using infrared sensors!

2) Using an ultrasonic sensor to detect the obstacle and then circumnavigate it.

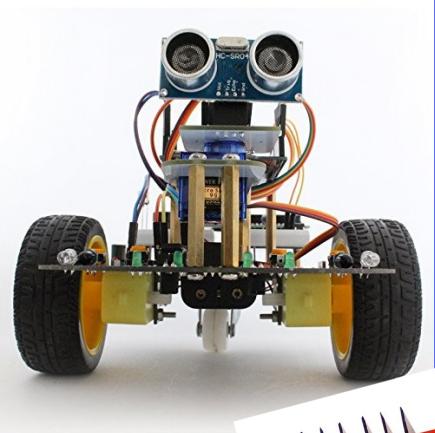


How it will work?

FLOW diagram



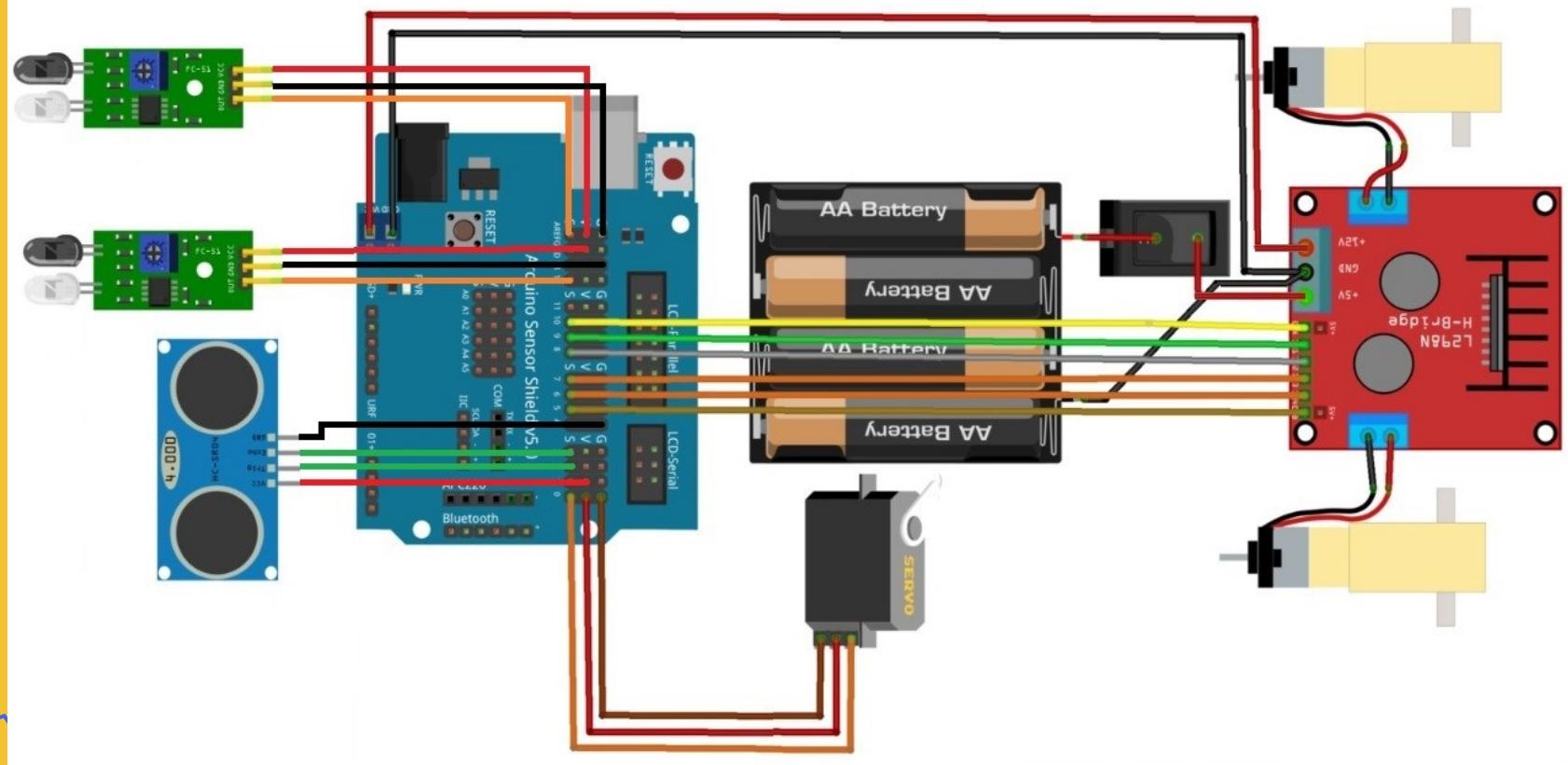
What we used?



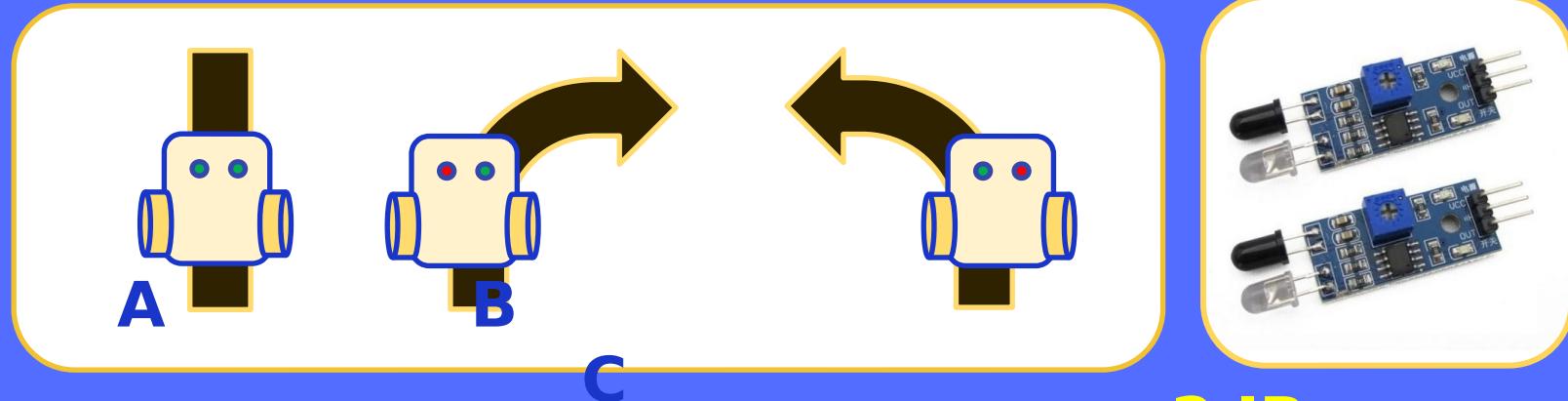
**Arduino Uno
Ultrasonic Sensor
Infrared sensors
Servo motor
Motor bridge
DC Motors
Battery
Wheels**



CIRCUIT DIAGRAM



How it's following the line

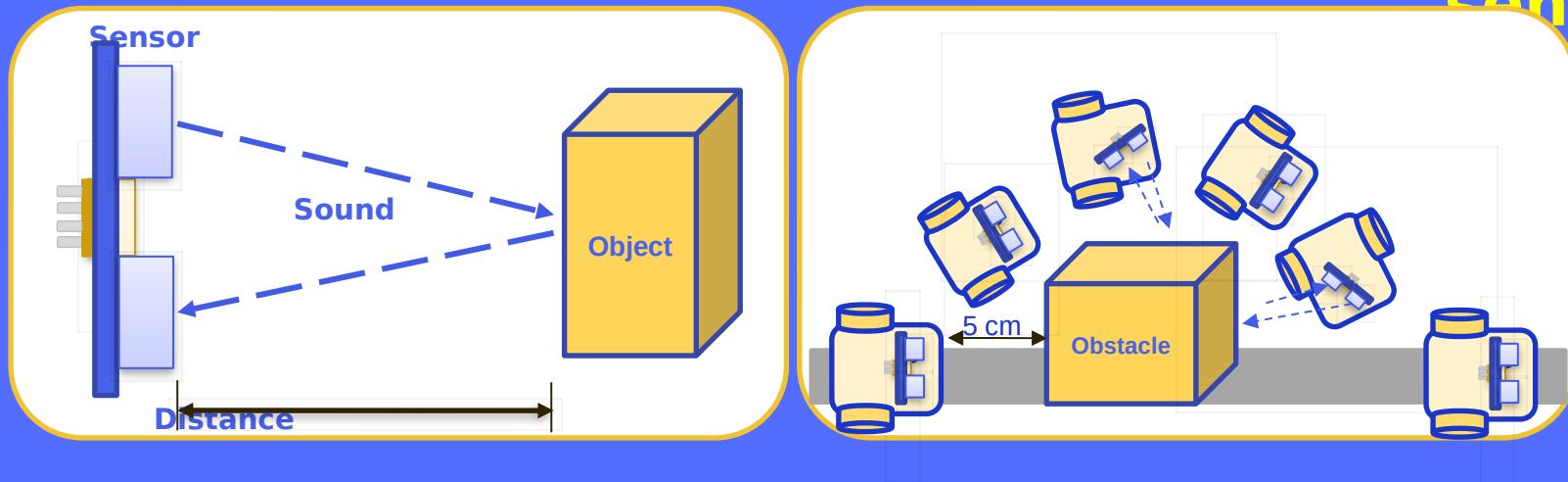


- ✓ A. Both IR LEDs are on the line. Robot car should move forward.
- ✓ B. The Right IR LED is on the line while the left deviates to the left. Robot car should turn to the right.
- ✓ C. The Left IR LED is on the line while the right deviates to the right. Robot car should turn to the left.

How it's avoiding obstacles

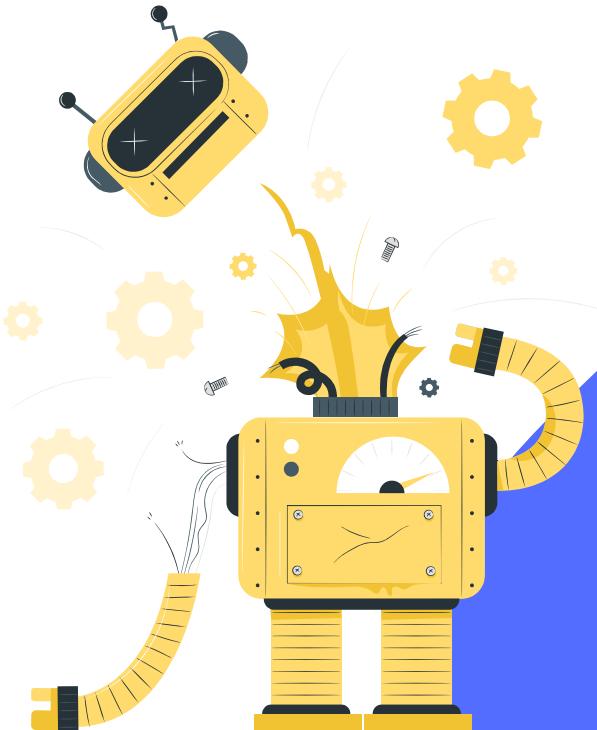


Ultrasonic
sensor



The basic principle behind the working of ultrasonic sensor is to note down the time taken by sensor to transmit ultrasonic beams and receiving the ultrasonic beams after hitting the surface. Then further the distance is calculated.

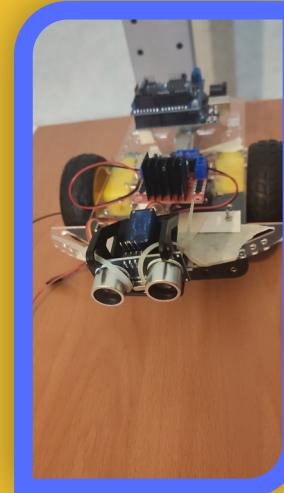
ISSUES



- 1) WE DID NOT HAVE SOME TOOLS AND SENSORS**
- 2) 0 PREVIOUS KNOWLEDGE ABOUT ARDUINO**
- 3) NOT WORKING SENSORS.**



A PICTURE IS
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WORDS



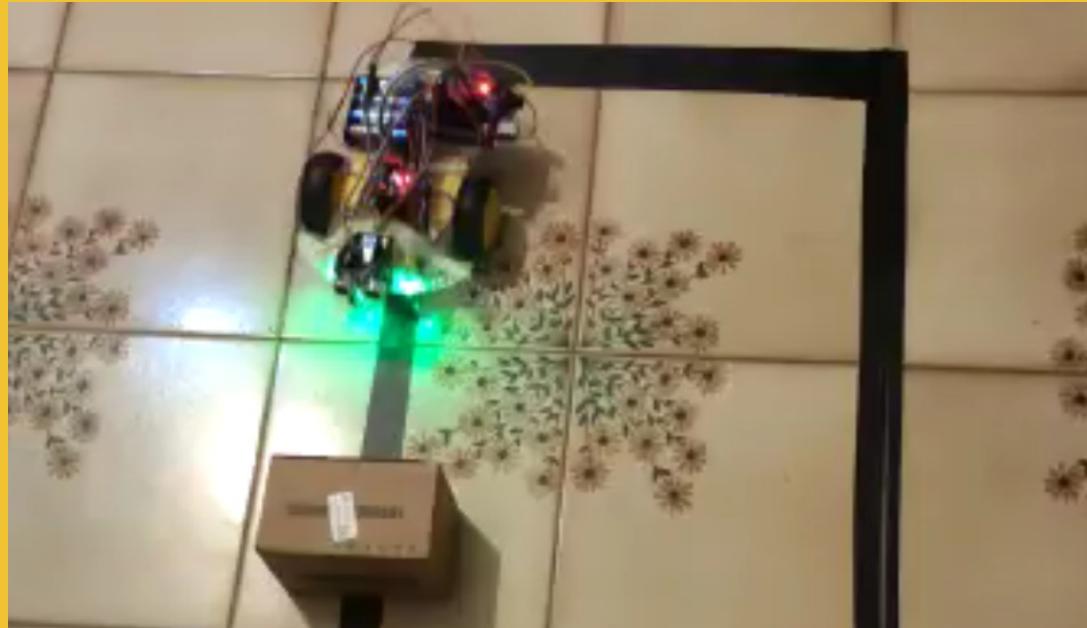
A PICTURE



LINE FOLLOWING



SMALL OBSTACLE



BIGGER OBSTACLE



THANK YOU FOR YOUR ATTENTION!

