# Wall Follower Bot

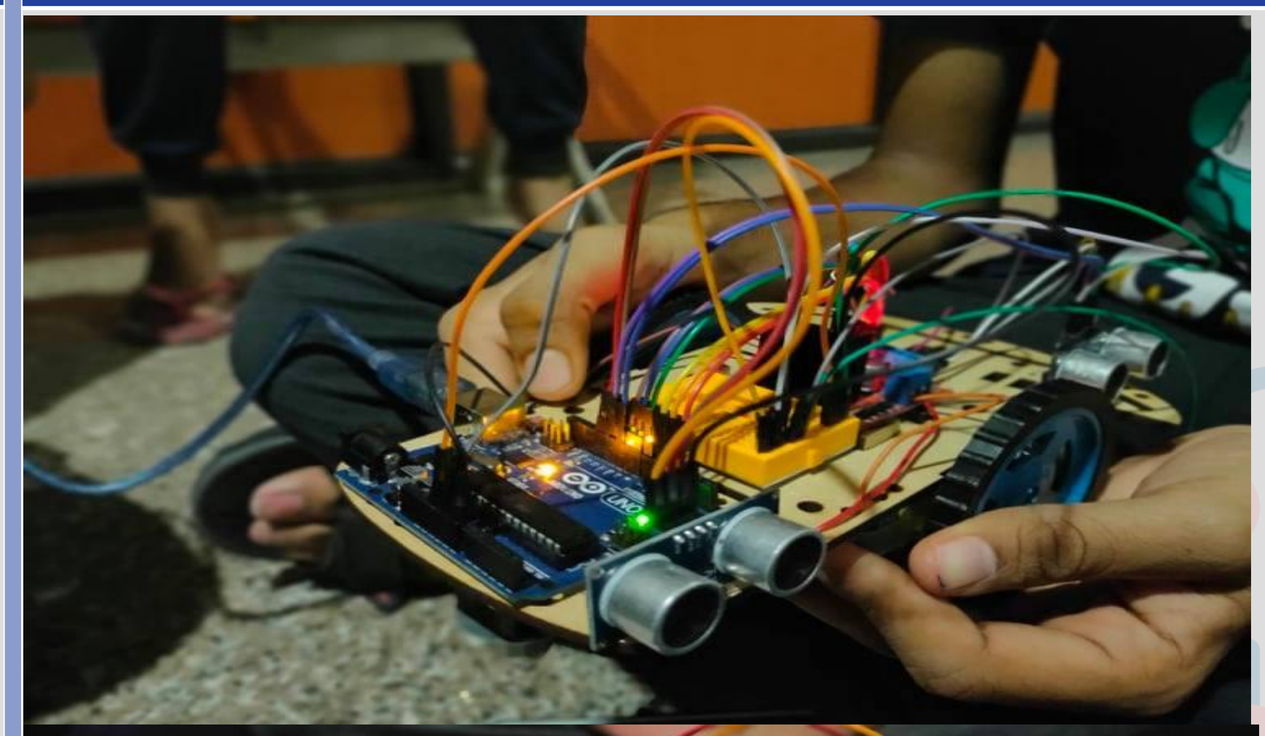
Rajneesh(Mentor),Abhijeet,Bhuvan,Deeptanshu,Himanshu,Kavya,Meghna,Mukul,Munesh,Nikhil,Pavas,Siddhant

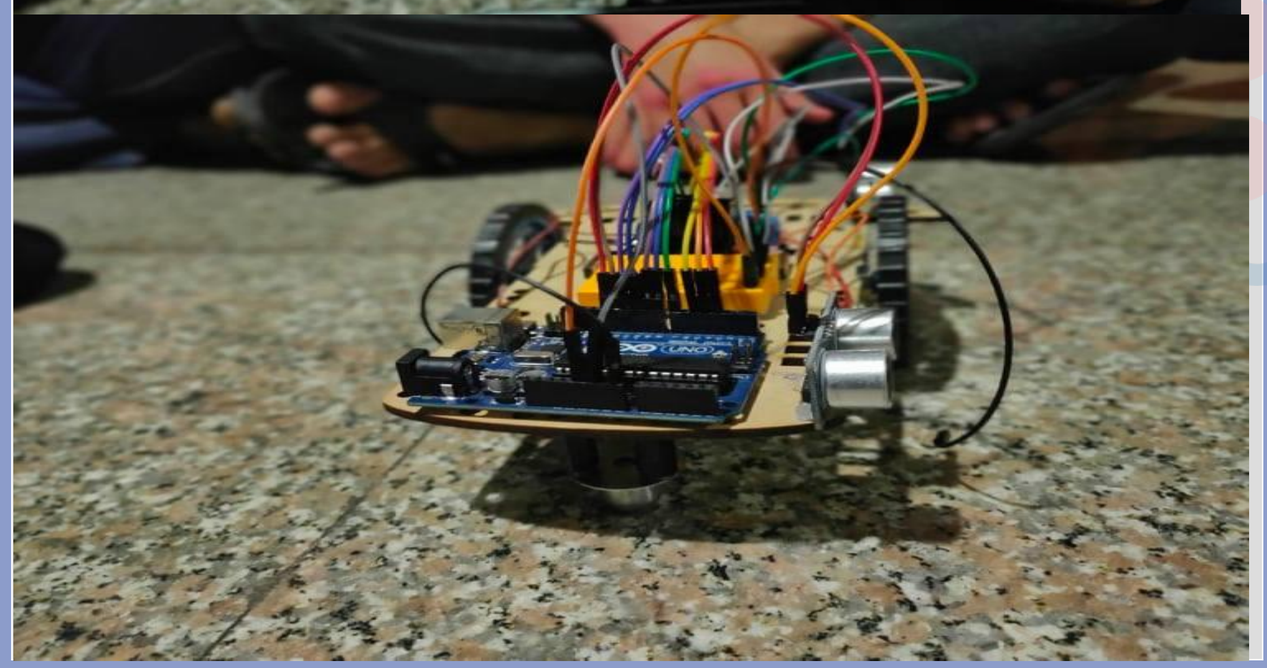
ROBOTICS CLUB

## Abstract/Introduction

Wall follower bot is an arduino based robot which follows a straight path at a fixed distance from the wall.The bot itself is verybasic in nature however, it can be used in automation of selfdriven warehouse machines or such places where the space is very compact and we need to make the machines follow a straight path . In its better versions it can be modified to avoid obstacles which would further increse its efficiency.

## Results





## Methodology

The bot uses ultrasonic sensors (one at each of its rear and front end) to get distance from the wall. A region is defined in which the bot will traverse for a fixed distance from the wall.Whenever the bot crosses that region it will get signals from the sensors about its position and will act accordingly.

To take care of the relative position of the bot with respect to the wall and to ensure that it tranverses the required path PID is implemented.It makes the error reduction smoother thereby ensuring the requiered path is traversed .

For obstacle avoiding bot a sensor is put at the front end of the bot and it gives the distance of the bot from the obstacle using this distance we can turn the bot in such a way as to avoid the obstacle and use the obstacle as its new wall and continue to traverse in the same fashion.

## Conclusion

Problems faced:

1.The sensors wont work properly if the angle between the bot and the wall is more than 45 degrees.

2.The motors were not ideal as a result the speed of motors for same value of theoritical speed were not same.

3.For proper fuctioning of PID we had to test a large number of trial runs in order to find the appropriate value of constants.

## References

https://www.coursera.org/learn/mobile-robot

--Concept of PID was taken from this coursera course

https://www.howtomechatronics.com