Vector the Navigator

Microprocessor project proposal

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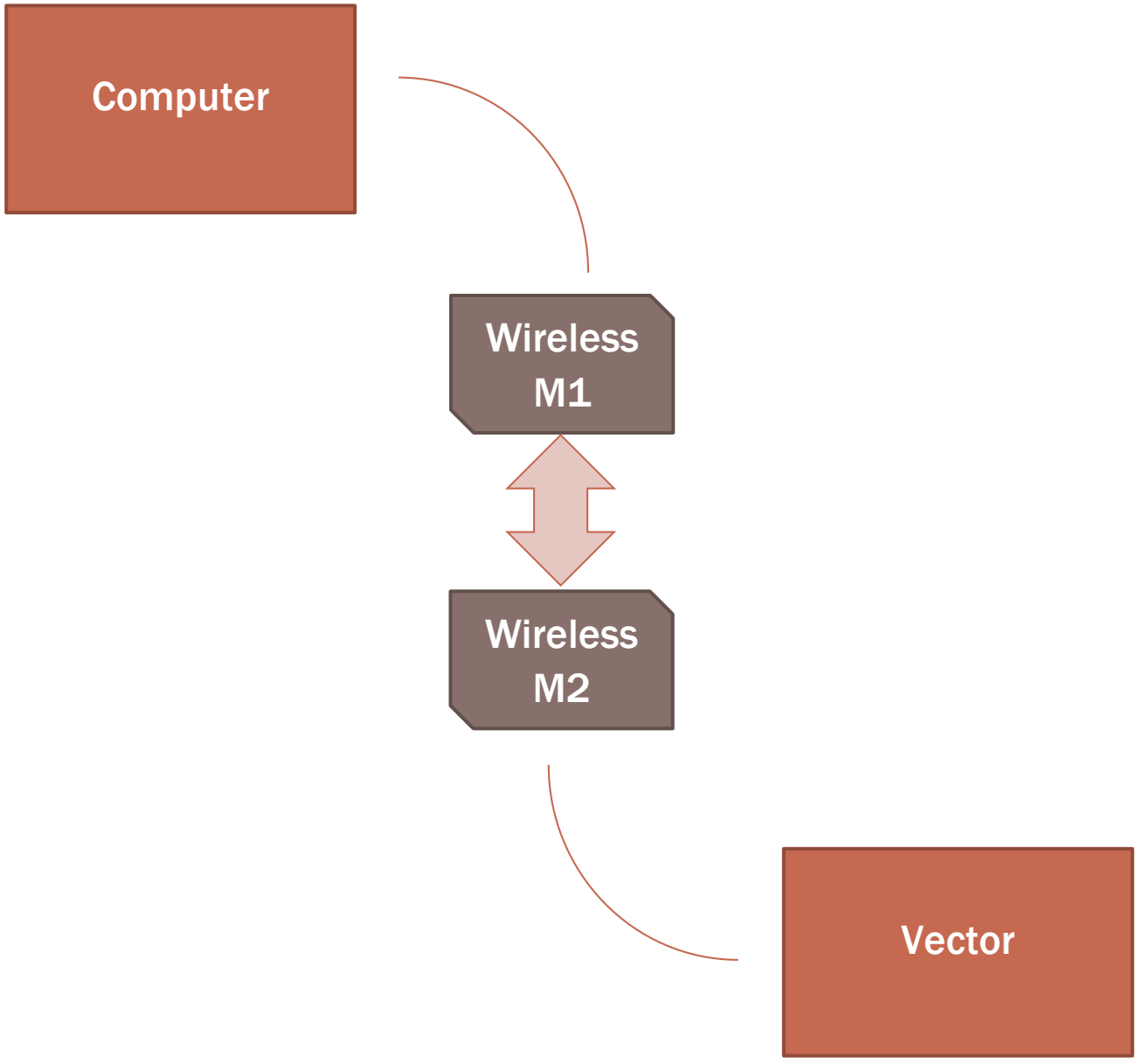
Description

Vector is a 4-wheel robot that has the ability to navigate, detect and draw all obstacles around it.

Vector will be controlled via computer program that has an easy interface and usability.

The communication between the computer and vector will done wirelessly.



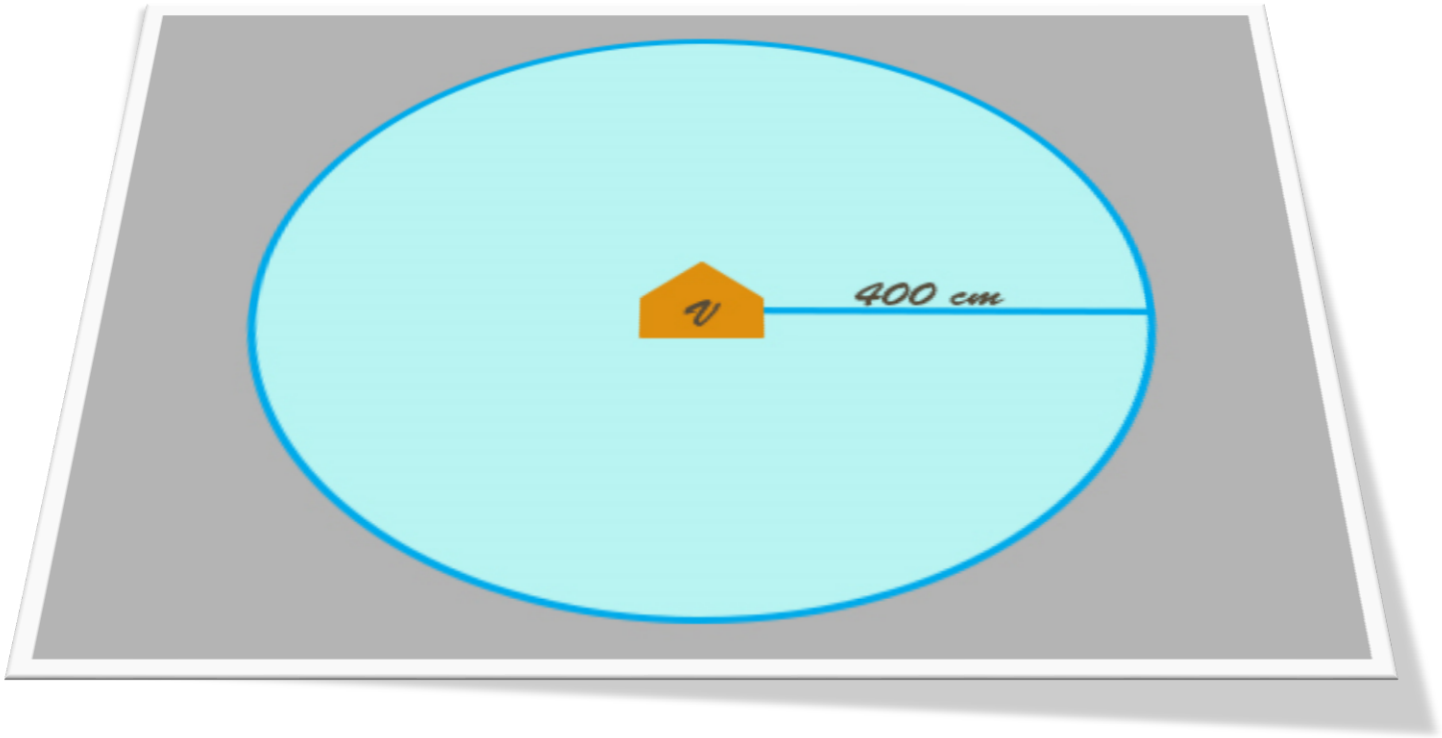
Functionalities

Vector has 2 modes of operation

Mode 1:

The live feedback mode (Radar mode),

This mode let you to control Vector manually with live view to all obstacles around it.



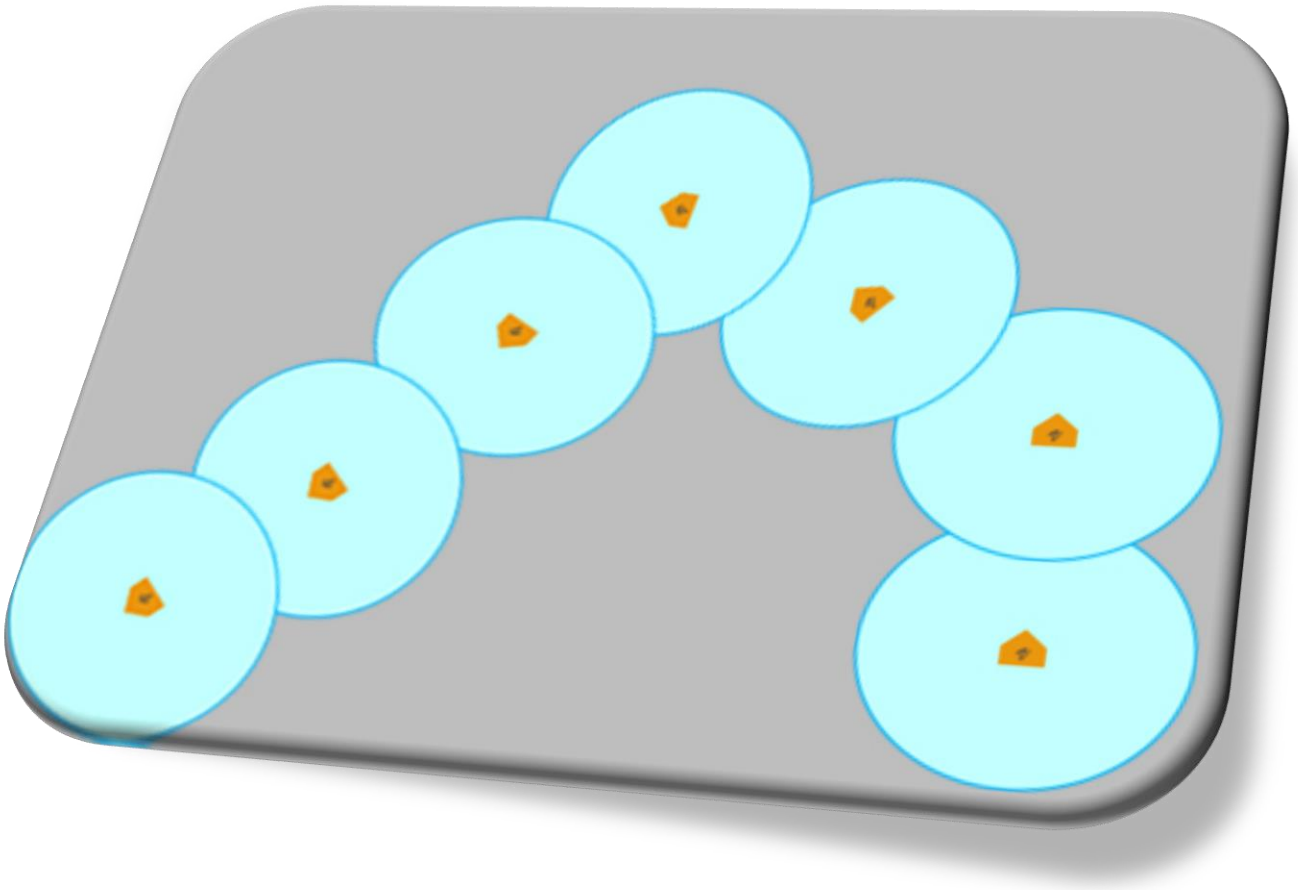
Vector in this mode always refresh the view around it, with a circle with radius 400 cm

Mode 2:

The navigate and draw mode (map mode)

In this mode we will control Vector also manually but vector always save the entire environment around the path we driven along it (radius 400 cm).

If we drive Vector like this



While drive Vector and moving, you will see that, you are generating a map for your path

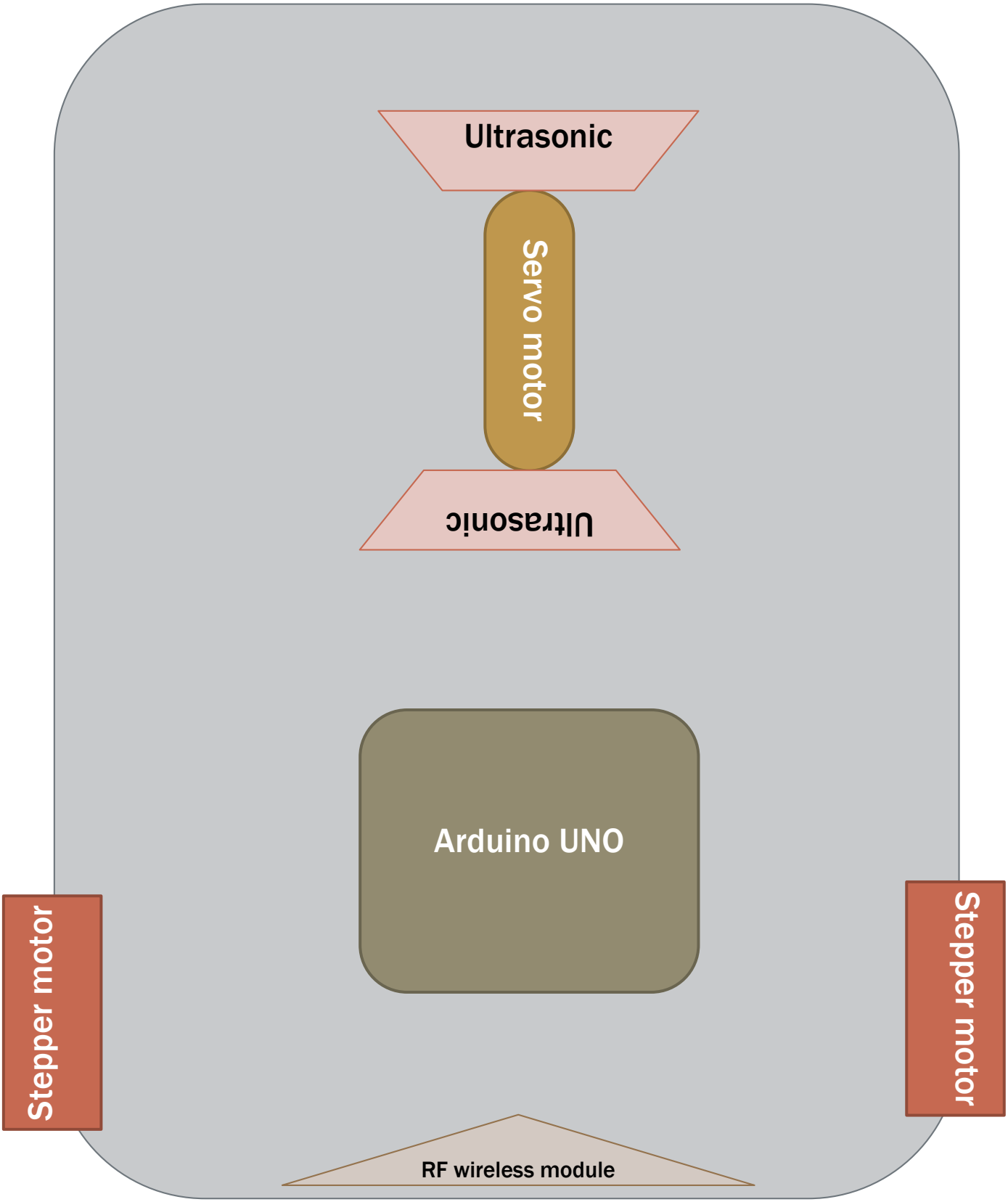
So after finishing your path you will have a map to your path with all obstacles you were faced.

This mode is so useful when trying to navigate unknown place or unreached places like small places, and want to have a map to the path with all obstacles around it.

Device used

Device #	Device Name
1	Arduino UNO microcontroller
2	Stepper motor
3	Servo mottor
4	Ultrasonic
5	RF wireless module

Vector Design



Project Timeline

Date	Milestone
SAT 6/4	• Car design • Control the stepper via controller (the robot can walk)
SAT 13/4	• Wireless controlling (parallel interfacing) • Finish the car design (servo stand) • Integrate all other robot component (servo - ultrasonic)
SAT 20/4	• The PC interfacing program • Initialize the 2 modes of operation for the robot
SAT 27/4	Final testing And Ready to deliver
SAT 4/5	Delivery