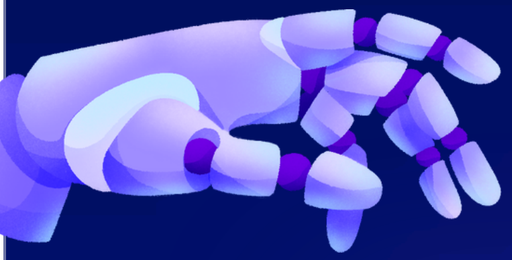

CSE461

PROJECT: AUTONOMOUS WATER GARBAGE COLLECTOR

Group Members:

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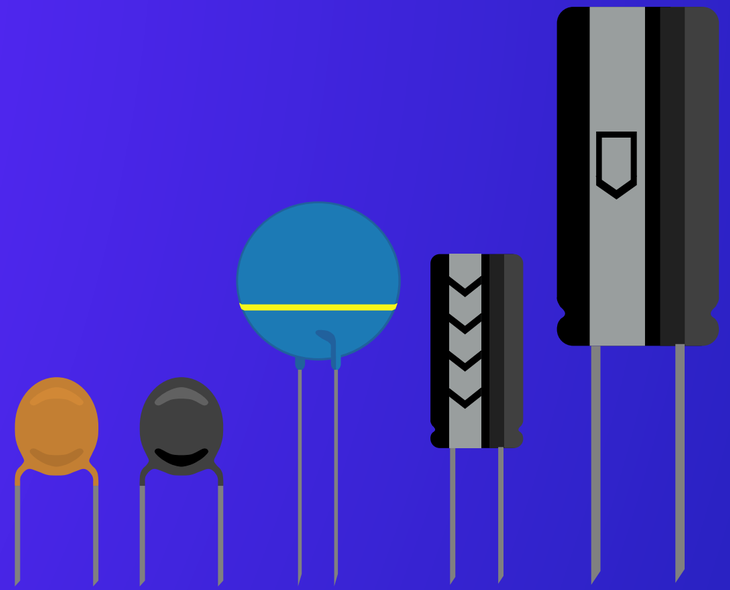
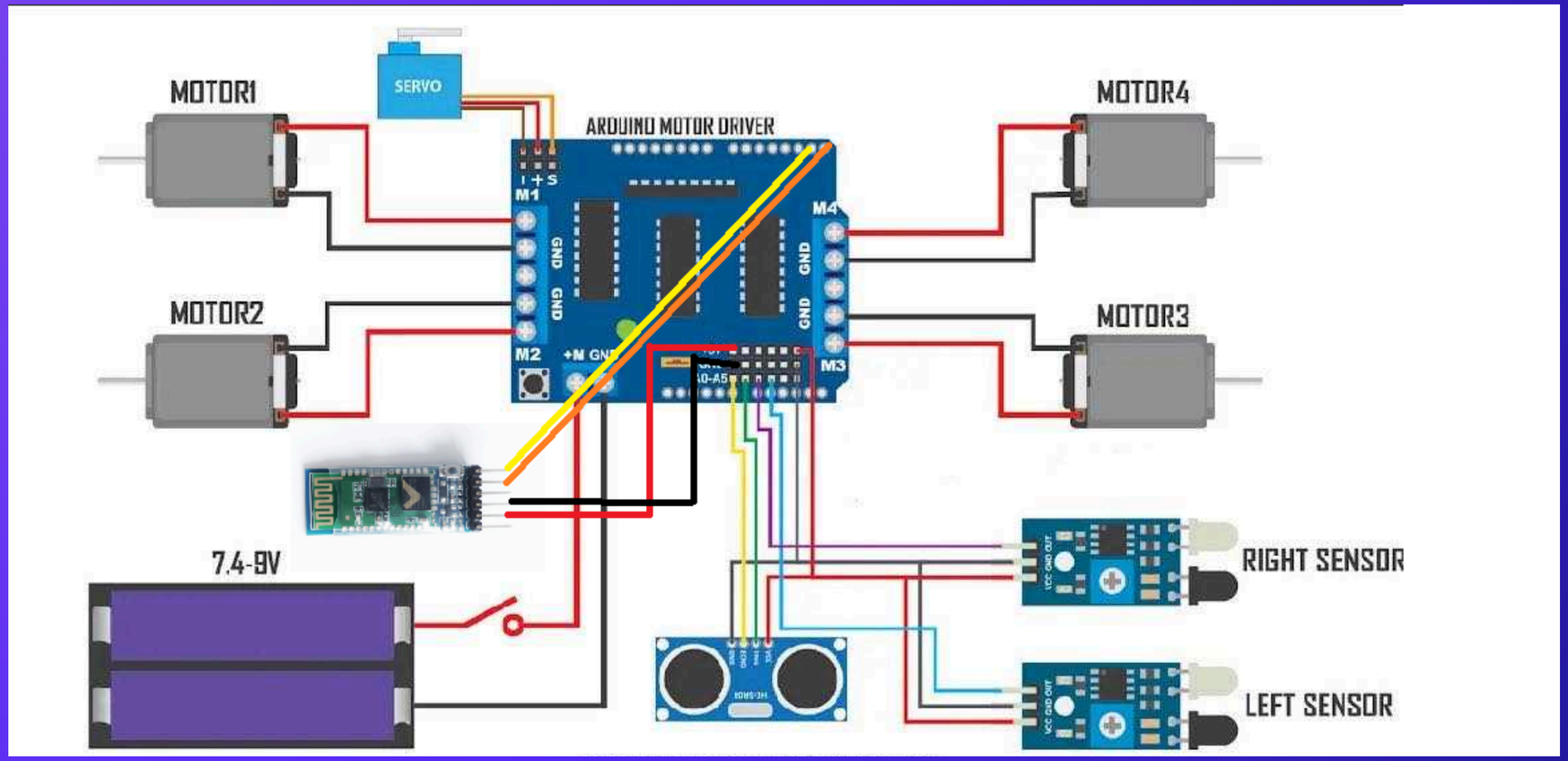
COMPOTENTS USED:

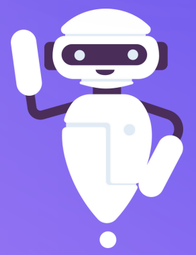
- Arduino Uno
- 4x DC Motors
- L298 Dual DC Motor Controller
- Servo Motor
- Sonar Sensor
- 2x IR Sensor
- 12v Battery
- Motor Wheels
- Jumper Wires





Schema Diagram

FUNCTIONALITY BREAKDOWN



01

Use the IR sensors to detect the objects in front, left & right. Determine if there is empty space to move towards. Skip process 02 if so.

02

Changing towards the objects using Servo, calculate the distance of the objects through the sonar sensor and determine which side to go among the 3 choices.

03

Manipulate the Motors to turn, move and stop at the desired direction autonomously.

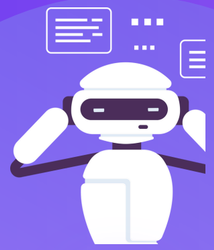
FUNCTIONALITY BREAKDOWN

04

Arduino UNO is the brain of our project, responsible for controlling and coordinating the operation of all other components. It runs the code that we write to define the behavior of our project.

05

The motor wheels are connected to the DC motors, which in turn are connected to the L298 dual motor controller. The motor controller is controlled by the Arduino Uno. This setup is used to navigate in the water.



06

The battery provides power to the arduino and all other components in our projects. Also jumper wires provide the necessary electrical connections to ensure proper functioning of our project

Real Life Implementations/ Further Improvments:

- Autonomous water garbage collector designed to clean up rivers and prevent plastic waste from reaching the ocean. It uses a combination of barriers and conveyor belts to collect debris efficiently.
- Implement advanced navigation systems, such as GPS and lidar, to improve the robot's ability to navigate autonomously in various water environments.
- Continuously refine and optimize the robot's sensors and algorithms for detecting and classifying different types of debris, including small and submerged objects.
- Increasing the budget for autonomous water garbage collectors can lead to significant improvements in technology, operational capacity, and environmental impact, ultimately contributing to cleaner and healthier water bodies for present and future generations.

CHALLENGES FACED

- This is Waterbot, and since our project operates on the water's surface, we encountered challenges in getting the bot to float properly.

- We bought project components, but some didn't work initially. As a result, we had to return to the shop, which wasted so much time.

- Due to our university going online, we faced communication problems in our group, but we managed to overcome them somehow."
- Due to sunlight the IR sensor was sensing obstacles before it was deployed for work.

THANK YOU!