PROJECT REPORT

Deepjyoti Nath
September 15, 2017
Micro-controllers Programming

OBSTACLE AVOIDING ROBOT

DESCRIPTION

The main purpose of this robot is to avoid obstacles in its path while moving forward.
The robot gathers information of its surroundings using the ultrasonic sensor mounted on it.

COMPONENTS USED

- Robot Chassis.
- Arduino Uno.
- Motor Shield.
- Motors.
- Servo Motor (9g micro servo).
- Ultrasonic Sensor.
- Tyres.
- 6xAA batteries.
- Female to Male jumper wires.

PROBLEM ENCOUNTERED

The connections between the Ultrasonic sensor and motor board is male to male. I didn't have any female-female jumper wires. So, I had to cut the male end of the jumper wires and connect two jumper wires to have both the ends female-female.

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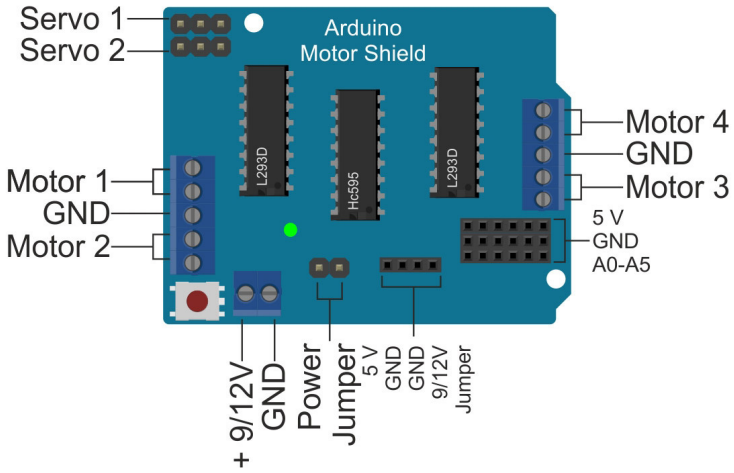
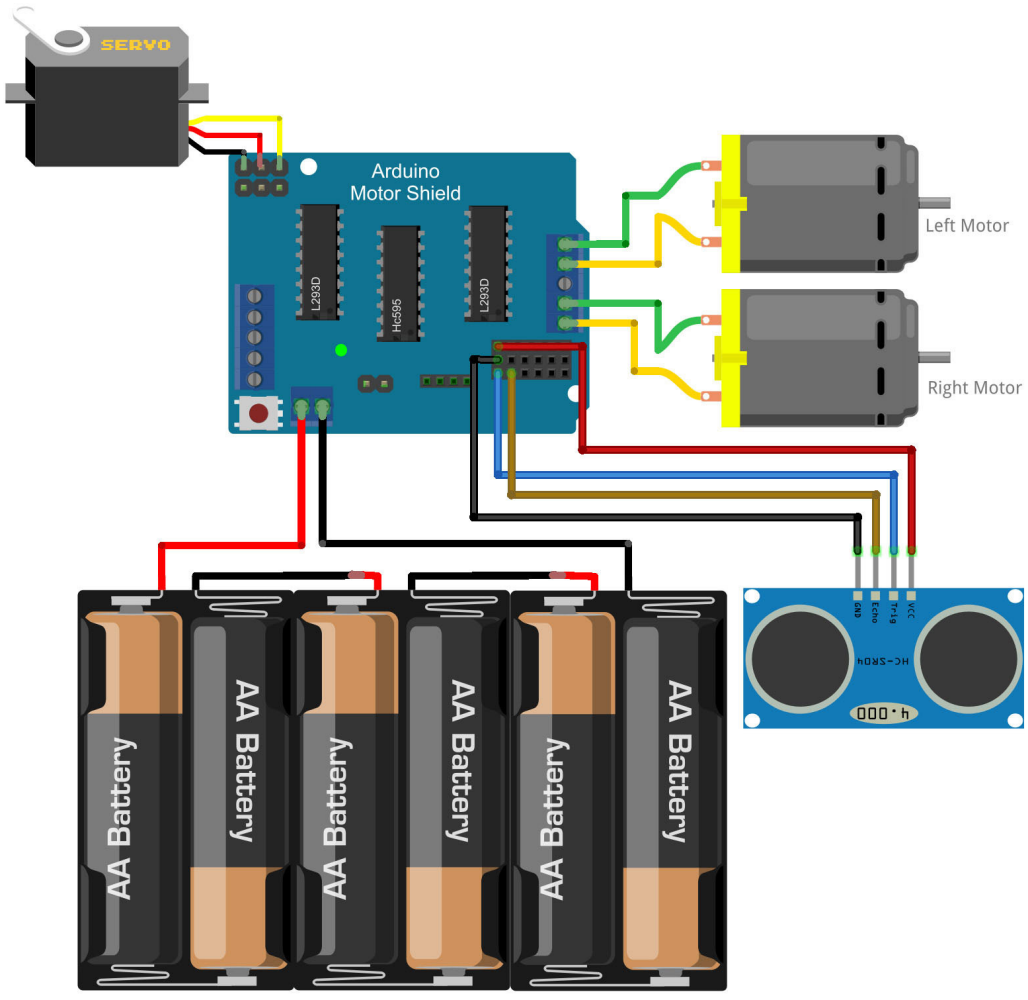
MOTOR SHIELD



CONNECTIONS



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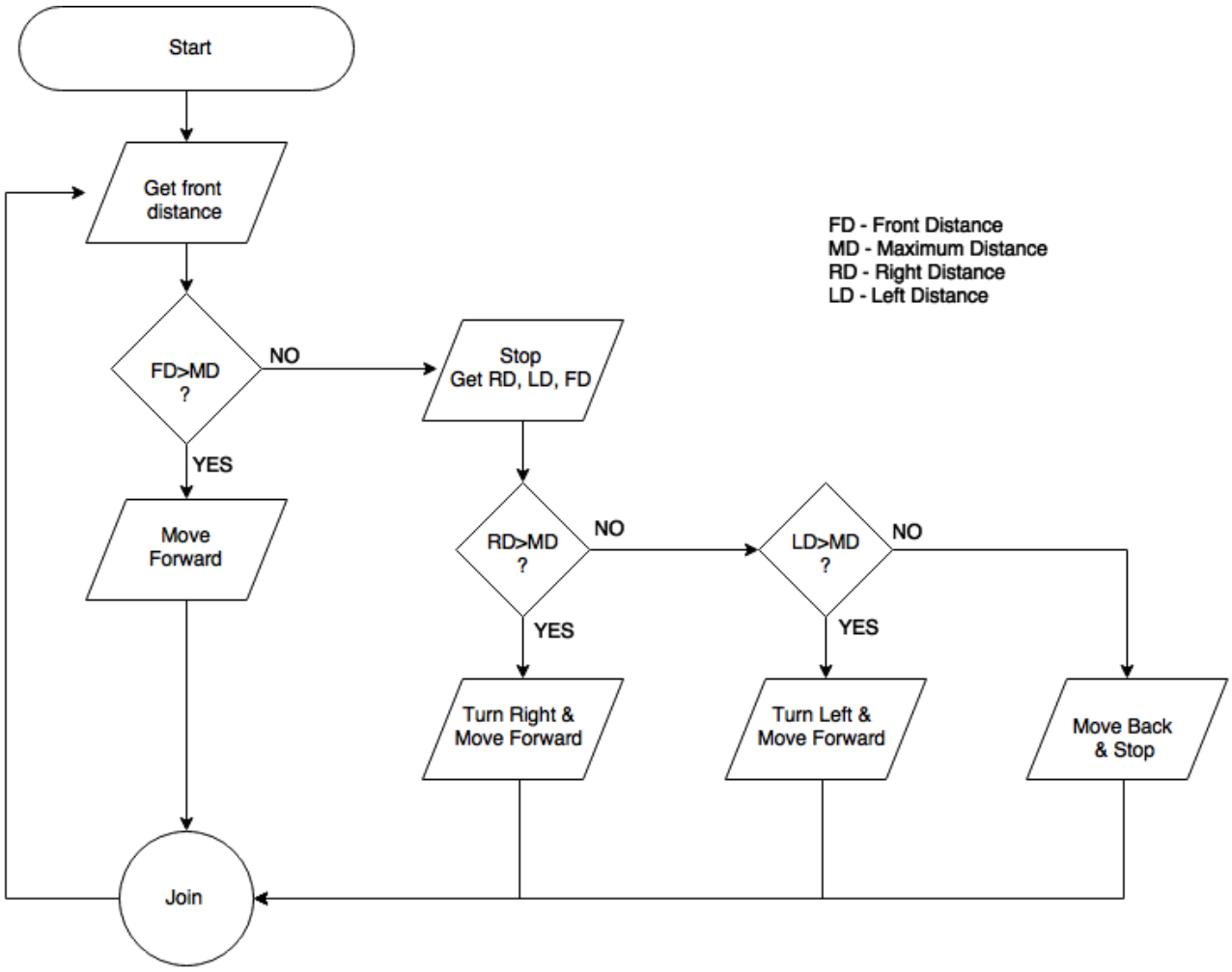
FLOW CHART



PROBLEM ENCOUNTERED

Once I uploaded the above code, the servo was working fine, but the robot kept on circling on its own axis and sometimes moved back.
The problem was in the connection of one of the motor. The left wheel was moving forward, but the right wheel was moving backward, which made it circle in its own axis.
The solution was just swapping the connection of the right wheel.

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CODE

The most important part of the code.

```
void loop()
{
 front_d = ultrasonic.Ranging(CM); // measuring distance in the front
 if (front_d < max_d)              // please check the flow chart in the project report
                                   //to understand this part better
 {
  halt();
  get_d();
  if(right_d > max_d)
  {
   turn_right();
   delay(400);
   forward();
  }
  else if ( left_d > max_d)
  {
   turn_left();
   delay(400);
   forward();
  }
  else {
   backward();
   delay (500);
   halt();
   }
 }
 else{
  forward();
 }
}
```