HUMAN FOLLOWING ROBOT

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Module_2 project
Ltts

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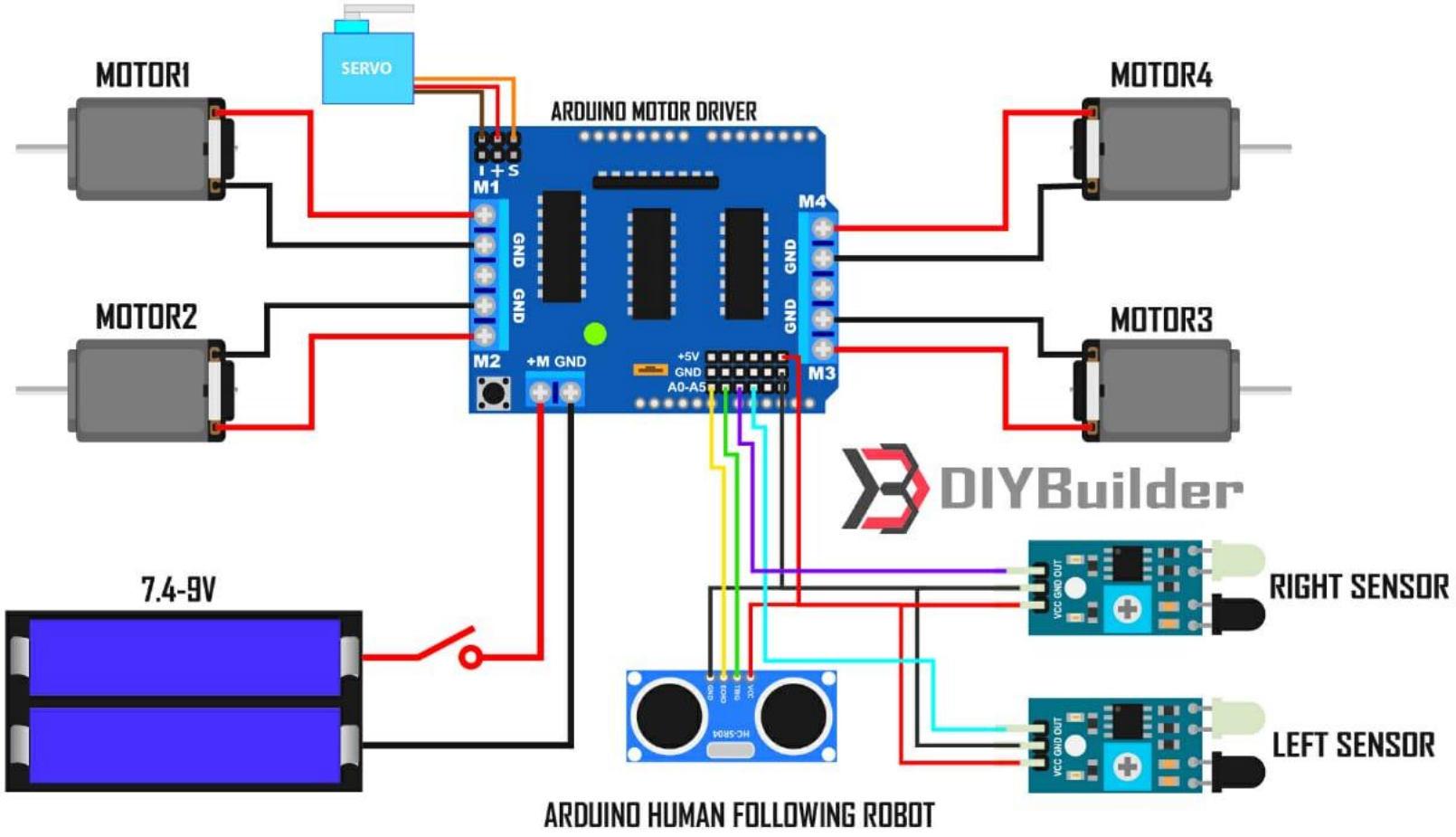


Circuit diagram

Software and hardware components needed

We use Arduino IDE as a software to give instructions to Arduino Uno

The hardware components used are

1) Arduino Uno
2) Motor drive shield
3) Wheels(4x)
4) TT gear motor(4x)
5) Servo motor
6) Ultrasonic sensor
7) Infrared sensor(2x)
8) Battery
9) Jumper wires
10) DC power switch

overview

- Arduino IDE is a type microcontroller used to interpret the input signal and decide what to do
- Sensor system :

  Collects the information
- Drive system :

  Implements the signals for motor control

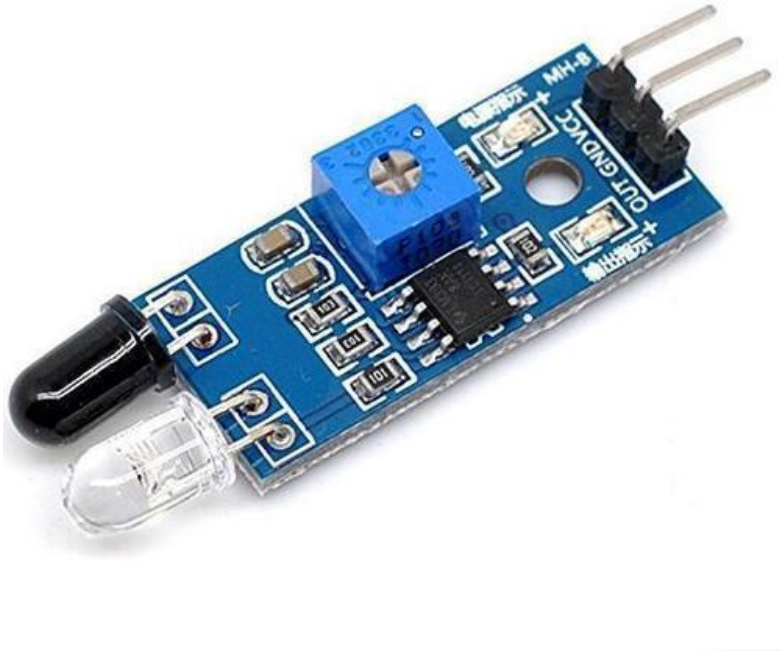
Here we use arduino IDE software to program the arduino

sensor

- Servo motor
- Servos have integrated gears and a shaft that can be precisely controlled. Standard servos allow the shaft to be positioned at various angles, usually between 0 and 180 degrees.

IR sensor

- An infrared sensor is an electronic device, that emits in order to sense some aspects of the surroundings. An IR sensor can measure the heat of an object as well as detects the motion.



Drive

- Dc motor is used to drive the wheels and motor drive gives the instructions to the motor

working

The IR sensor receives the analog signal (it detects the object around 100cm radius) . These signals are send to the Arduino , which creates digital signals and then motor receives the digital signal and it moves forward

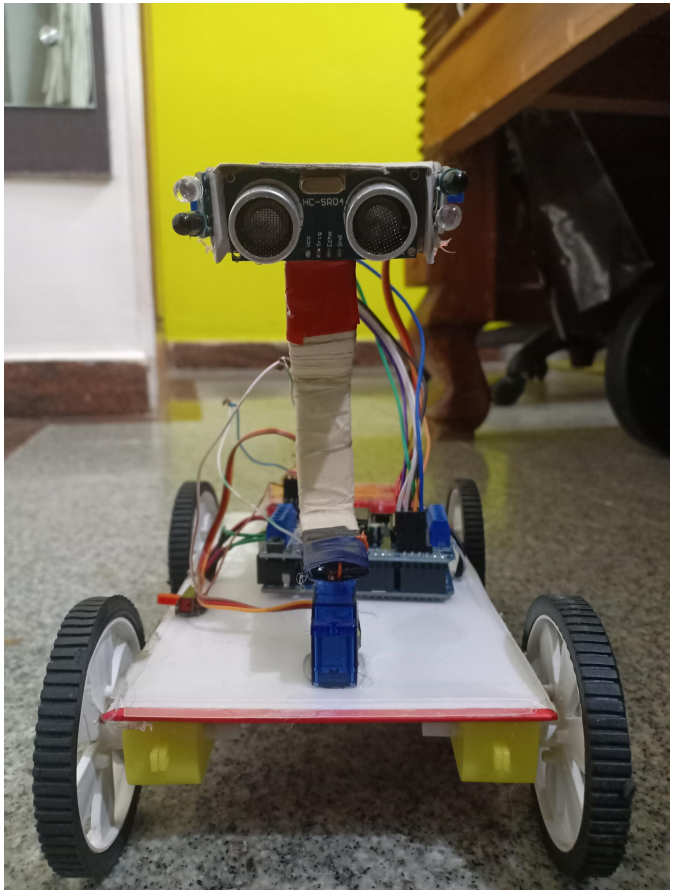
Human Following Algorithm

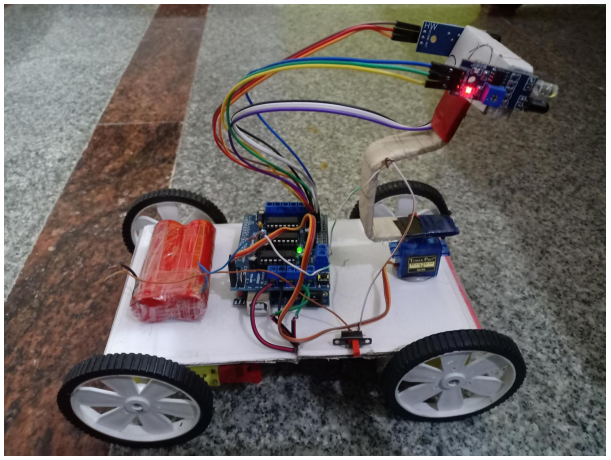
- Robot determines the direction of movement by what it see's

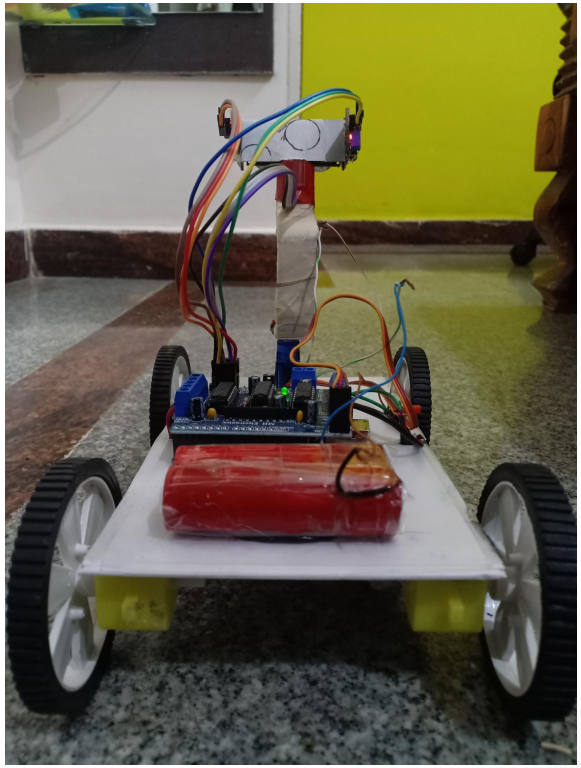
If the object(assume that the object is 'hand') is in front of the robot ,it moves forward towards the object and simultaneously

if the object is moving left or right then the robot continuous to follow the object . If there is no object detected the it remains in the stationary position

model made







Conclusion

- A successful implementation of a follower robot is illustrated. This robot have the detection capability and also the tracking, following ability as well. The tests were performed on the different conditions to check the mistakes in the algorithm and correct them. The different sensors that are used with the robot add an additional advantage.