Aim of the Project: **Building a Gesture controlled Robot**

Name: Asutosh Swain

Roll no: 1701CS12

HARDWARE USED:

TRANSMITTER PART AND ROBOT:

1. Arduino Nano
2. Ultrasonic sensor
3. 433 MHz RF transmitter.
4. Breadboard.

RECEIVER PART AND ROBOT:

1. Arduino Uno.
2. 433 MHz RF receiver.
3. L293D motor driver IC.
4. Chassis and wheels.
5. 4 DC motors
6. 4 wheels

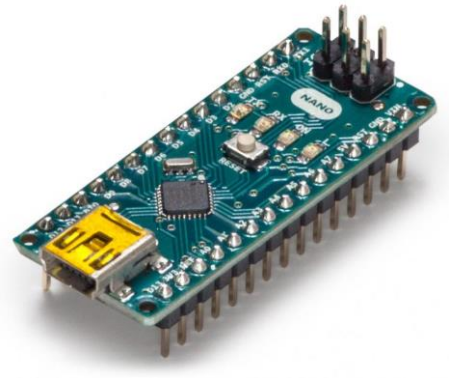
BRIEF ABOUT SOME HARDWARE :

ULTRASONIC SENSOR:

This sensor measures the distance to tha hand.

ARDUINO NANO:

The arduino board in the transmitter part acts as an interpreter. This takes the distance calculated by ultrasonic sensor as input and send it through radio wave with the help of RF 433Mhz transmitter.

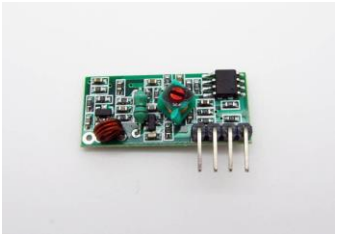


433MHZ TRANSMITTER:

This is one of the popular plug and play RF module which comes with a RX pair. It transmits the command received from Arduino and transmit it to rx module at a frequency of 433Mhz.

RF RECEIVER:

This is a matching pair of TX used in the transmitter part o this project. On receiving the bytes from Transmitter it sends the data to Arduino for further procesesing.



ARDUINO UNO:

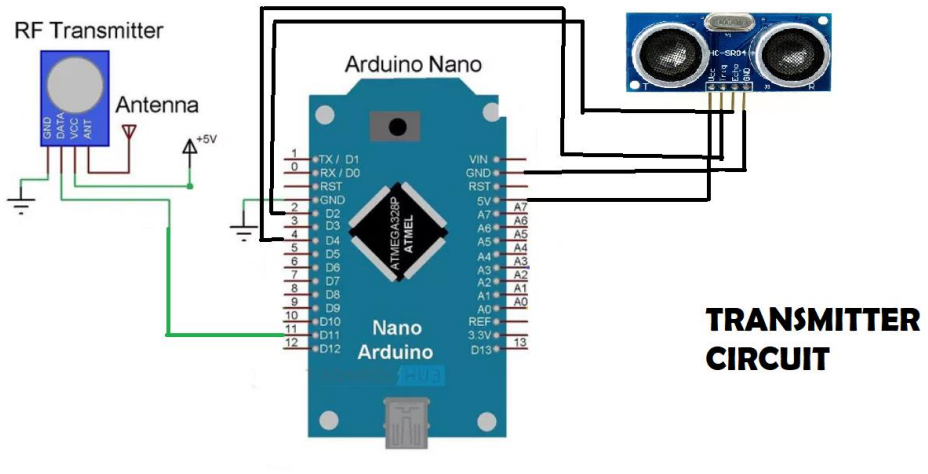
The data from the Receiver is used for interpretation of movements. Once interpretations Arduino commands the motor to move in appropriate directions. I have used only forward and backward movement for the motors.It controls the motor driver for the rotation of motors and signals it which motor to rotate at what time.

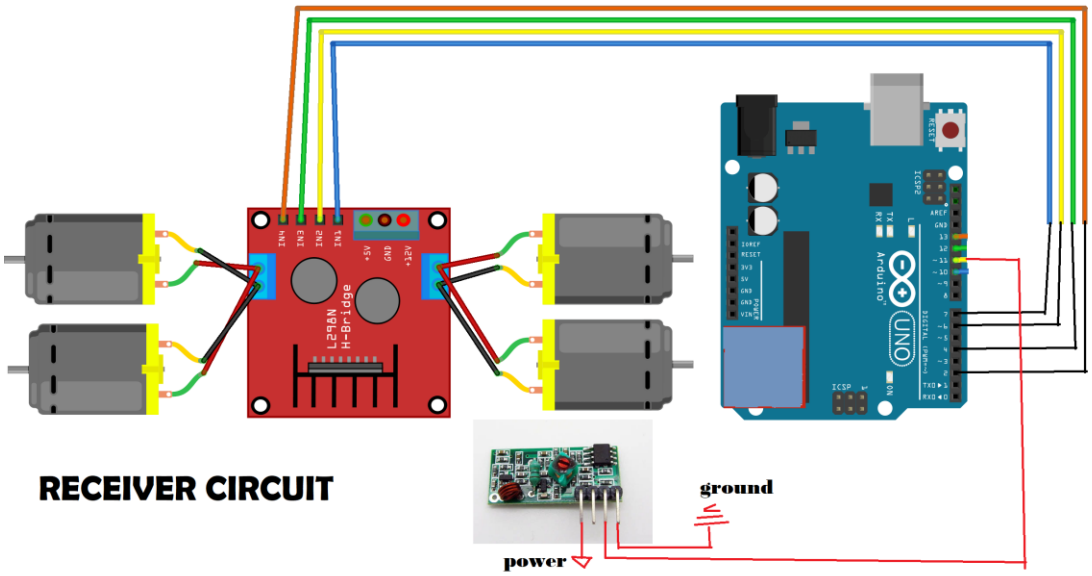
L293D & MOTORS:

L293D is a motor driver IC which is used since Arduino cannnot provide enough current to drive a motor. Two motors are used to take care of all the movements (Forward, Backward, Left and Right)

WORKING :

Circuit Diagram and Explanation





Gesture Controlled Robot is divided into two sections:

1. Transmitter part
2. Receiver part

In transmitter part the ultrasonic sensor detects the distance from the hand then send it to the Arduino nano from which the RF transmitter sends the packet through radio signal with a particular address.

The receiver part then receives the packets and checks for the address to be same, If the address of the received packet is same then it loads it to the Arduino. Here we get the distance that is transmitted from the transmitter end. Then the arduino Uno checks for the if condition and runs the motor driver as forward or backward.

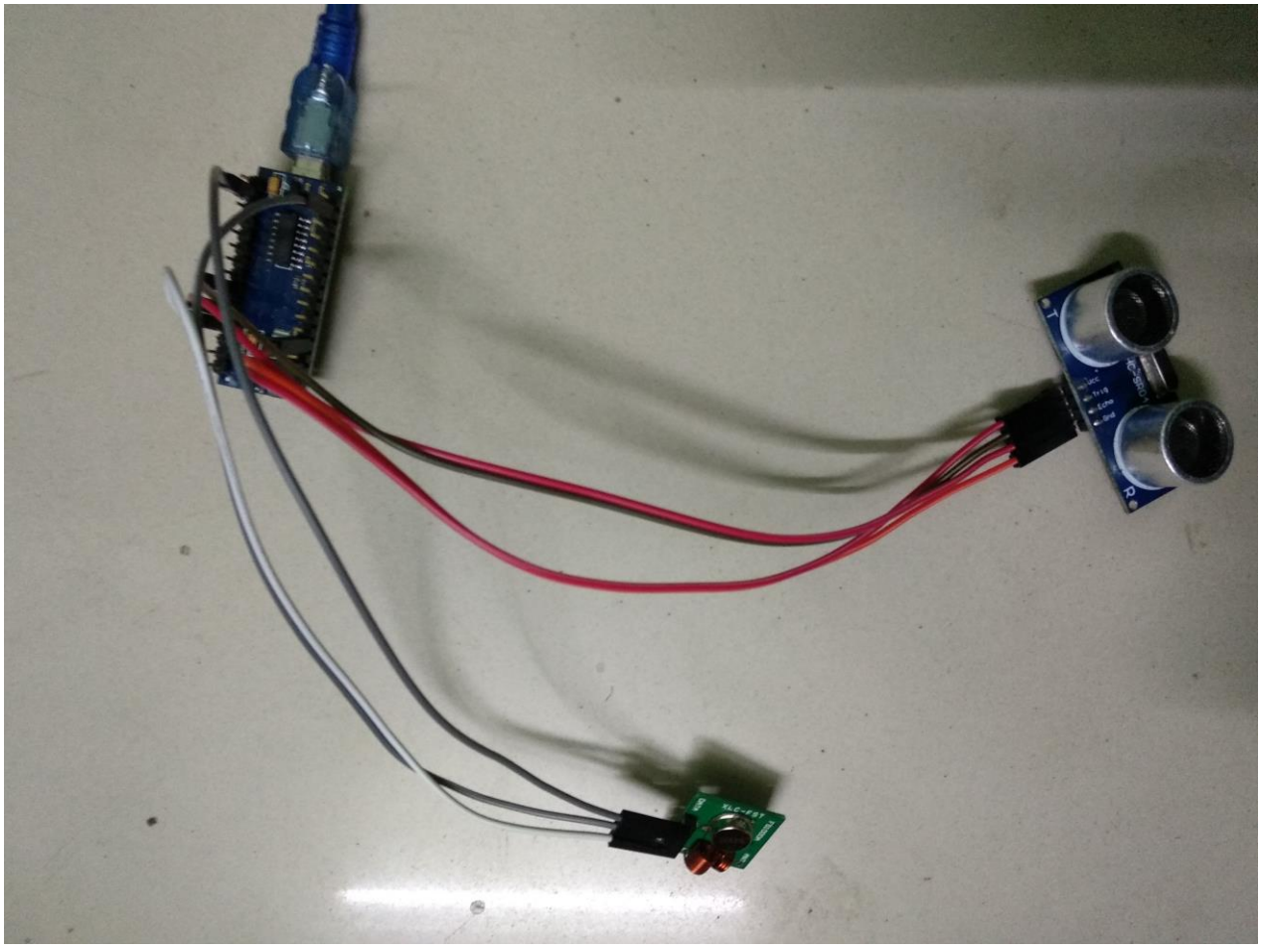
Working

The bot or the vehicle moves only forward or backward direction.

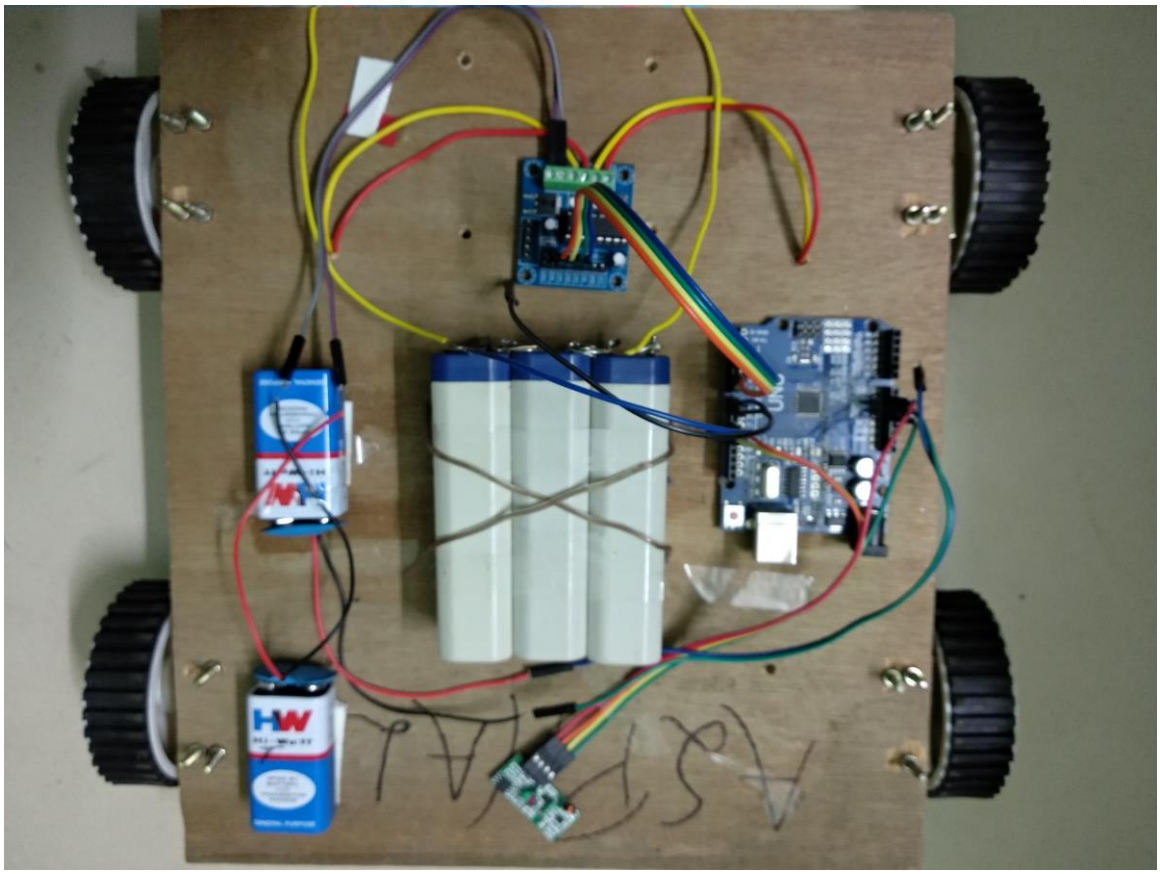
If the distance measured by the ultrasonic sensor if less than 10CM then the motor driver pins are set enable for forward motion.

If the distance is in between 10CM to 20CM then the motor drives pins are set to backward motion.

SOME PICTURES OF THE PROJECT:



TRANSMITTER PART



RECEIVER PART