

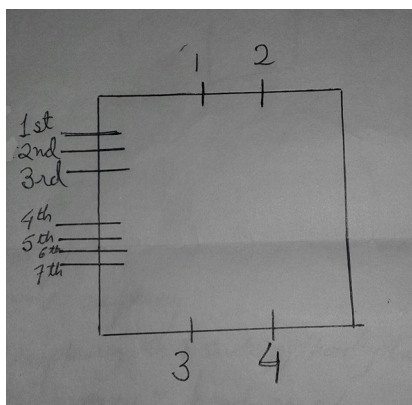
## Amphibious Wireless RC CAR:

**Objective:** This project is aimed at developing an amphibious bot which can traverse in both land and water including rough terrains. We mainly aim at traversing it in all sort of surfaces including stony path, sand, water and glass surface.

**Equipments:** Raspberry Pi, Bread Board, Plastic Case used as the chassis, 2 wheels, one axis ball, 2 Johnson motors, 1 motor driver, Connecting Wires, Power Bank ( used as power source), Cobbler Port, Cobbler breakout.

**Theory:** The motor driver used is L293D H Bridge IC. Here we used two wheels for one motor driver. We will also use an axis ball on the lower surface of the bot for free movement. We used Raspberry pi for this project. Rpi is connected with power bank (for 5V power supply). Rpi is connected to bread board by cobbler port and cobbler outbreak. As we know there are 40 pins in R pi. Port 1 and port 2 of the motor driver is connected with Johnson motor of left wheel. Port 3 and 4 with Johnson motor of right wheel. There are 7 ports at the side of motor driver. 1<sup>st</sup> port is conncted to lipo(9-12V) , 2<sup>nd</sup> port with ground, 3<sup>rd</sup> port with port2(5V) of Rpi, 4<sup>th</sup> port with pin 13 of Rpi, 5<sup>th</sup> port with pin 15 of Rpi, 6<sup>th</sup> port with pin 18 of Rpi, 7<sup>th</sup> port with pin 22 of Rpi, pin 20 of Rpi is ground and connected in the bread board.

The motor driver describing ports are given below:

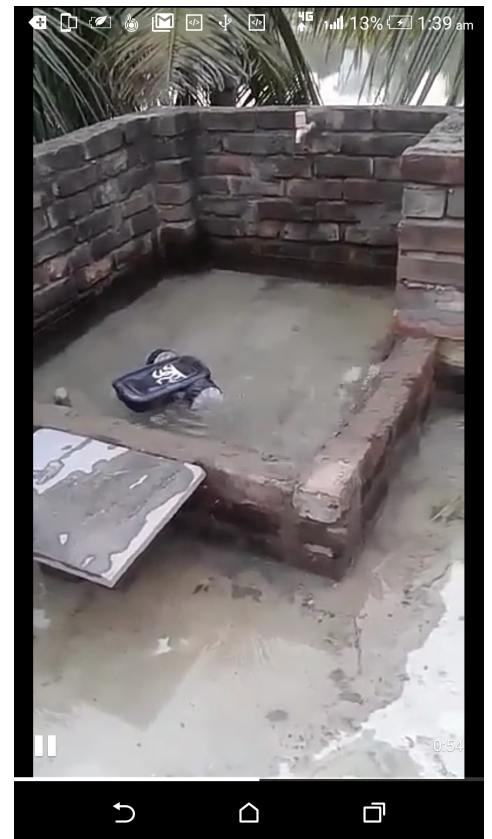


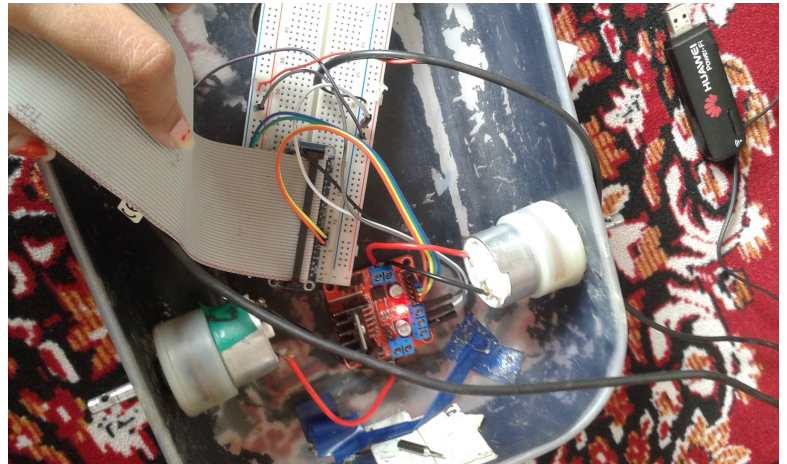
**Procedure:** Coding is done in Raspberry pi using python to control the movement of the bot. If two wheels rotate anticlockwise bot will move forward and if clockwise bot will move backward. The table below clearly describes the bot movement:

Movement	Left motor	Right motor
Forward	anticlockwise	anticlockwise
Reverse	clockwise	clockwise
Turn Right	anticlockwise	-
Turn Left	-	anticlockwise
Pivot Right	anticlockwise	clockwise
Pivot Left	clockwise	anticlockwise

Keyboard Keys which will control the bot movement:

- w- two wheels will rotate forward.
- s- two wheels will rotate reverse.
- d- one wheel will rotate (right turn).
- a- one wheel will rotate (left turn).
- e- two wheels will rotate (pivot right).
- q- two wheels will rotate (pivot left).
- x- to end the program.





**Conclusion:** We have developed a bot which can traverse in all surfaces and this is our first step towards making a wireless bot.

**Future Projects:** We attempt to develop an automated RC using OpenCV neural network and Raspberry Pi.