

ROBOVR

SRB SWIMMING

About the game:

In the Olympic of Robots, the robot has to swim across the water body to a distance and return.

Components and its Specifications:

Sr. No.	Components	Specifications
1.	Chassis	Polyester Fibre Sheet (5mm thick)
2.	DC Motors (x4)	300 rpm
3.	Wheels(x4)	Propeller type
4.	Battery	5A, 12V
5.	Remote	With 2 DPDT switches
6.	Wires	8m-10m

Robot Details:

Robot Dimensions: 12" x 6" x 12"

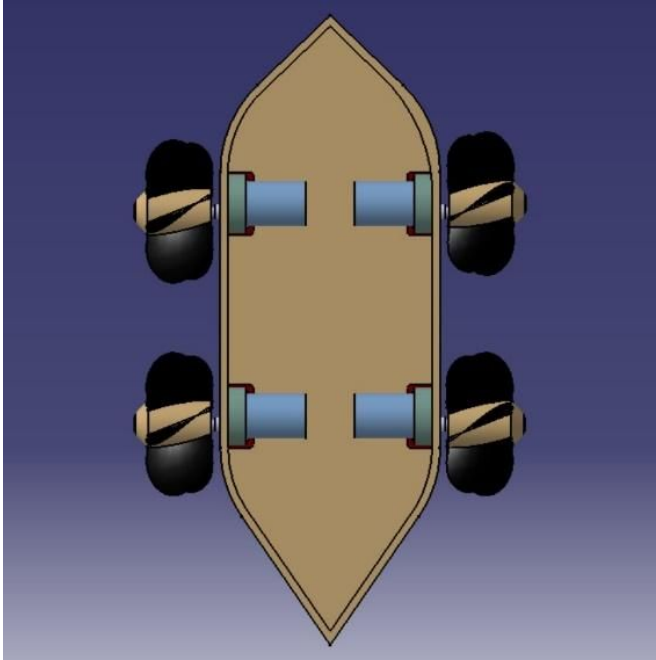
Robot Weight: 2kg

Robot Control: Wired

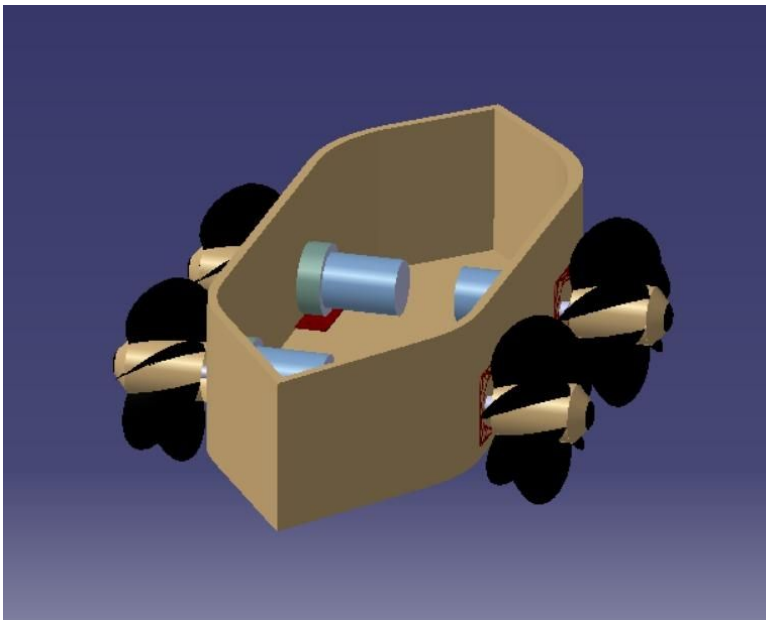
Robot Drive: 4 Wheel Drive

Mechanical Design:

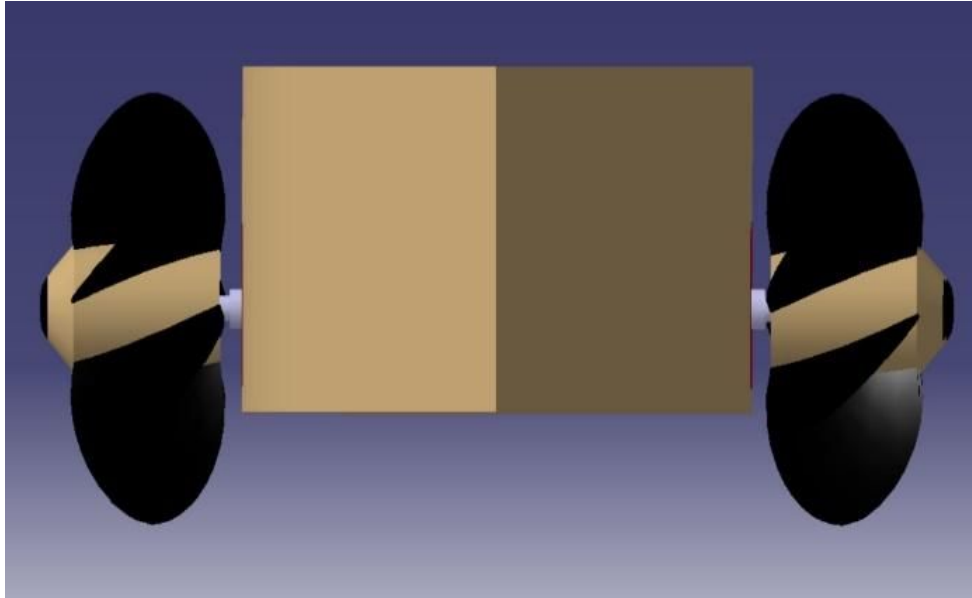
Top View



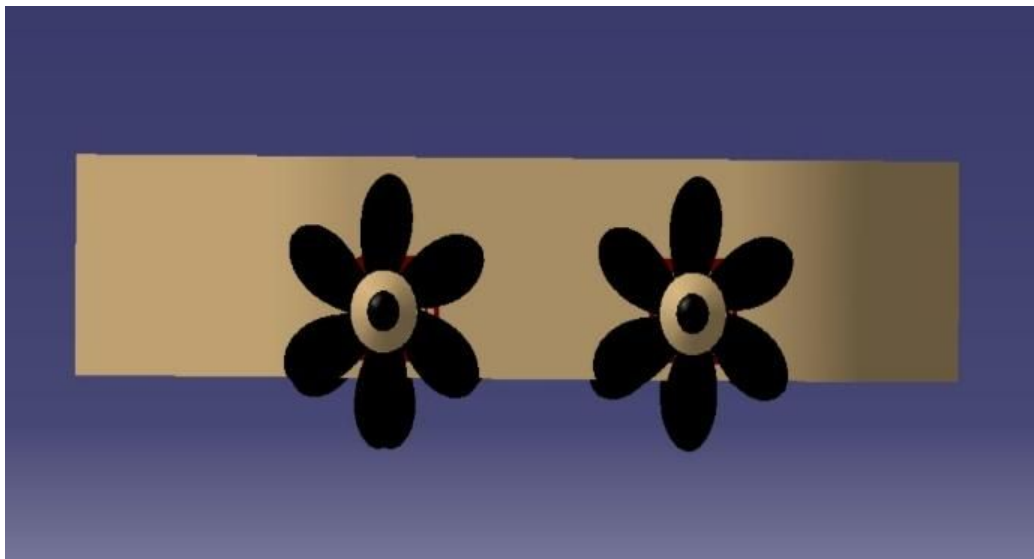
Isometric View



Front View



Side View



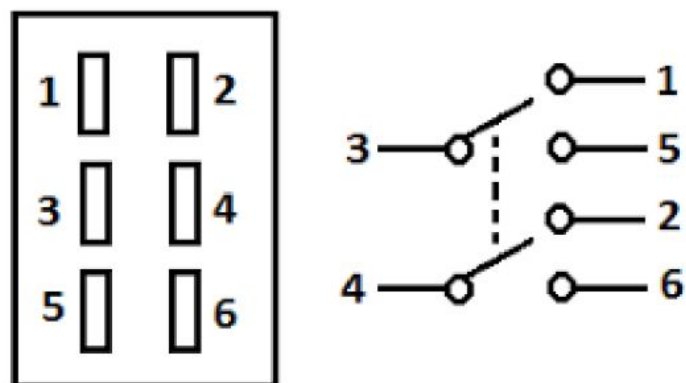
Remote Details:



A similar remote is needed to be built for this robot in which 3 DPDT switches are to be attached instead of 2 as shown in the above figure.

A Double Pole Double Throw (DPDT) switch is an electromechanical switch that has 2 inputs and 4 outputs and each input has 2 corresponding outputs that it can connect to.

Given below is the diagram of a DPDT switch.



Working:

The robot has 4 Propeller type wheels operated using the 4 DC motors.

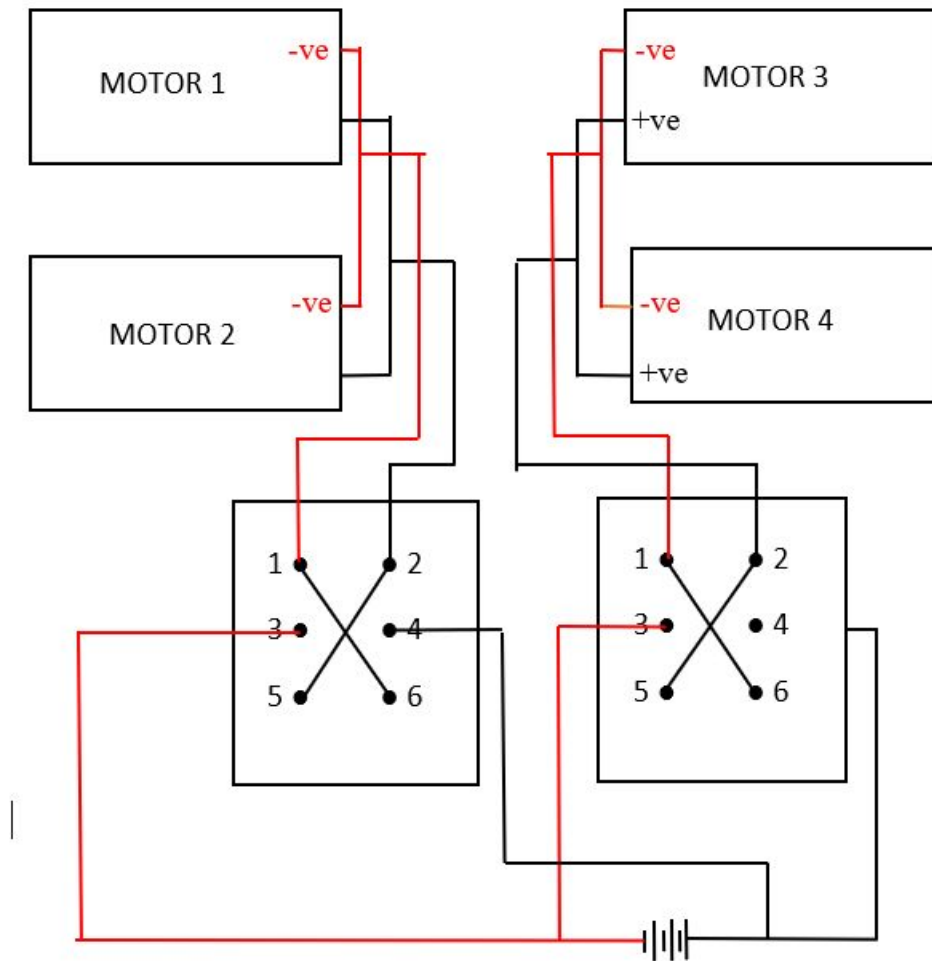
The wheels of the robot are designed in such a way that it will push the water around it to make the robot move forward and backward.

The movement of the robot with respect to the switch operation are given below in the table.

Movement of the Bot :

Motion	Switch s1	Switch s2
Forward	Forward	Forward
Backward	Backward	Backward
Left	n/c	Backward
Right	Backward	n/c

Connections:



Motors 1 and 2 are used to control the 2 left wheels of the robot and the Motors 3 and 4 are used to control the 2 right wheels of the robot.

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