RoboVR

SRB CRICKET

About the game:

For Cricket at RoboVR, participants have to build 2 robots per team. One robot for balling and the other for batting as well as fielding.

Components and its Specifications:

Sr. No.	Components	Specifications
1.	Chassis	Aluminum Sheet (5mm thick)
2.	BO Motor(x2)	100 rpm
3.	Johnson Motors (x9)	100 rpm
4.	Wheels(x4)	-
5.	Battery	5A, 12V
6.	Remote	With 4 DPDT switches
7.	Wires	-

Robot Details:

Robot Dimensions: 20'' x 20'' x 20''

Robot Control: Wired

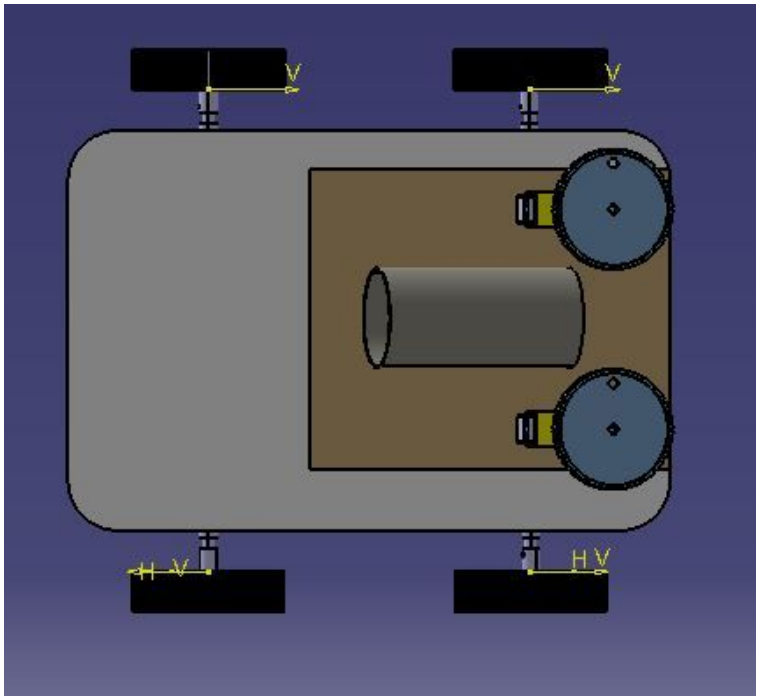
Robot Drive: 4 Wheel Drive

Bat Specification: 12'' length x 2'' wide

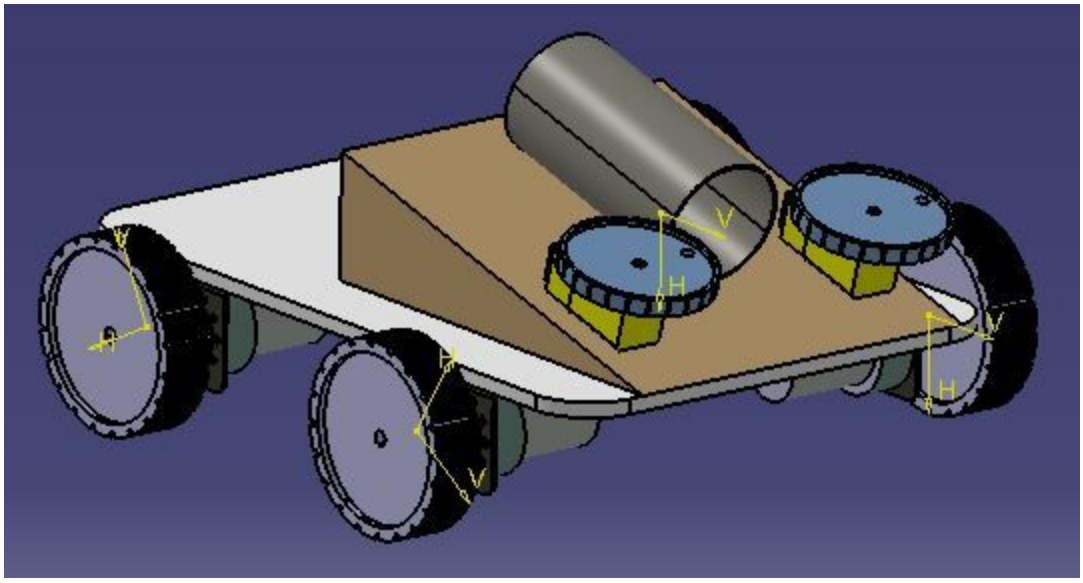
Bowling Robot:

Mechanical Design:

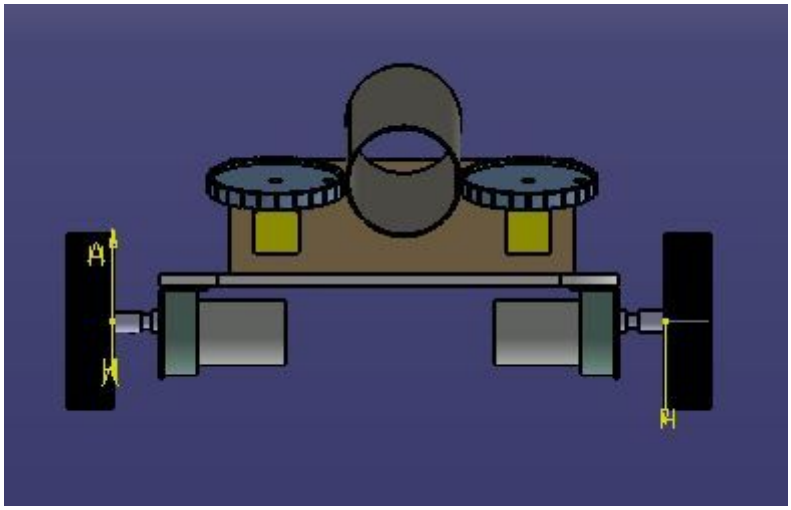
Top View



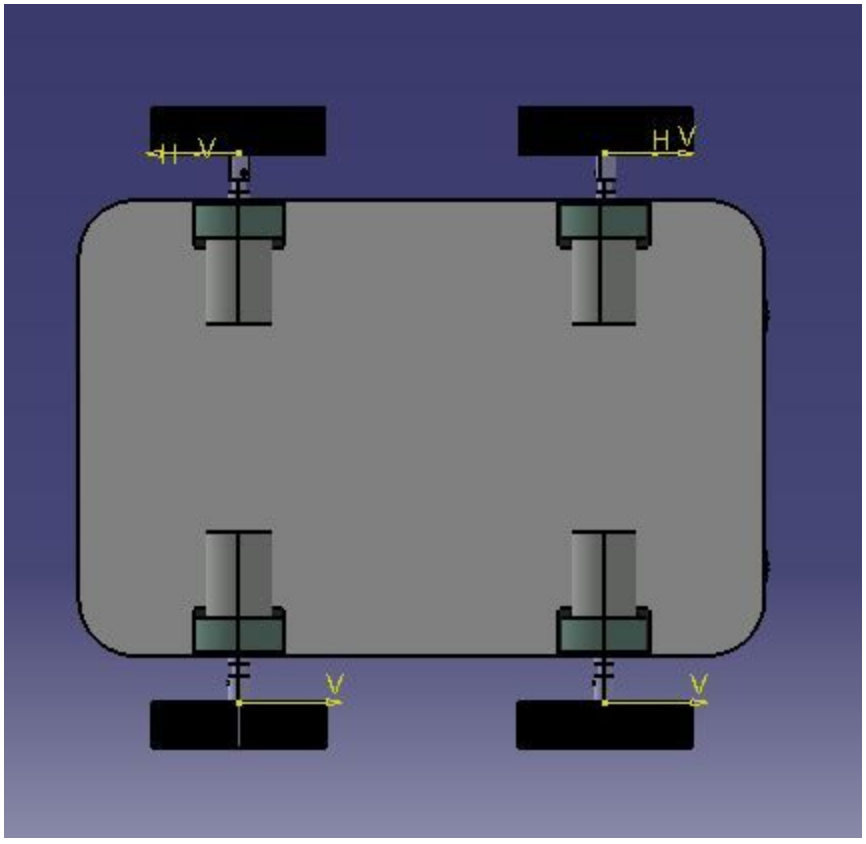
Isometric View



Front View



Bottom View

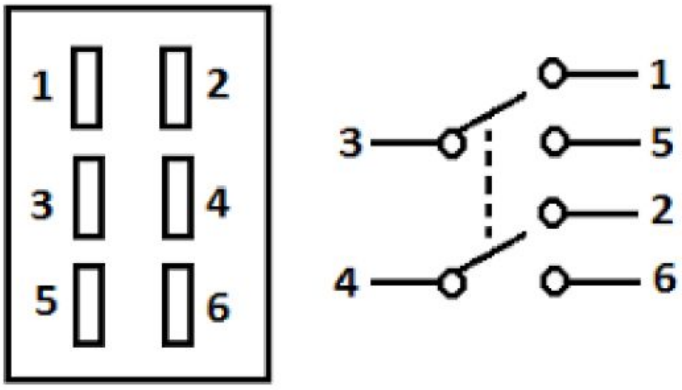


Remote Details:

A similar remote is needed to be built for this robot.

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:

In **bowling bot**, the ball is kept in the hollow cylinder. The gears are attached with 100 rpm BO motors. The ball is allowed to pass through the cylinder and then it passes through gears with gained force.

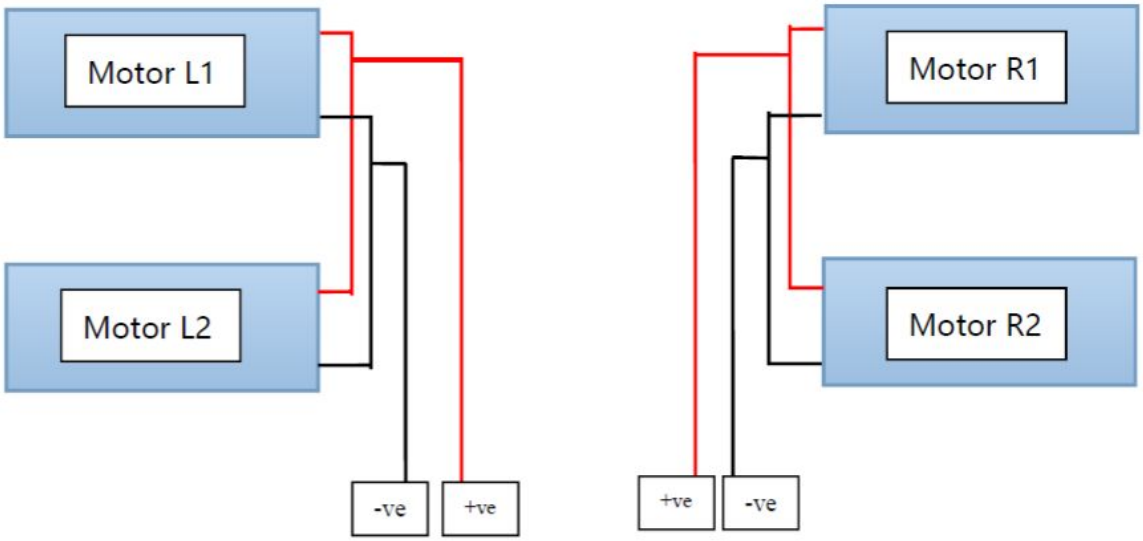
The movement of the robot with respect to the switch operation are given below in the table.

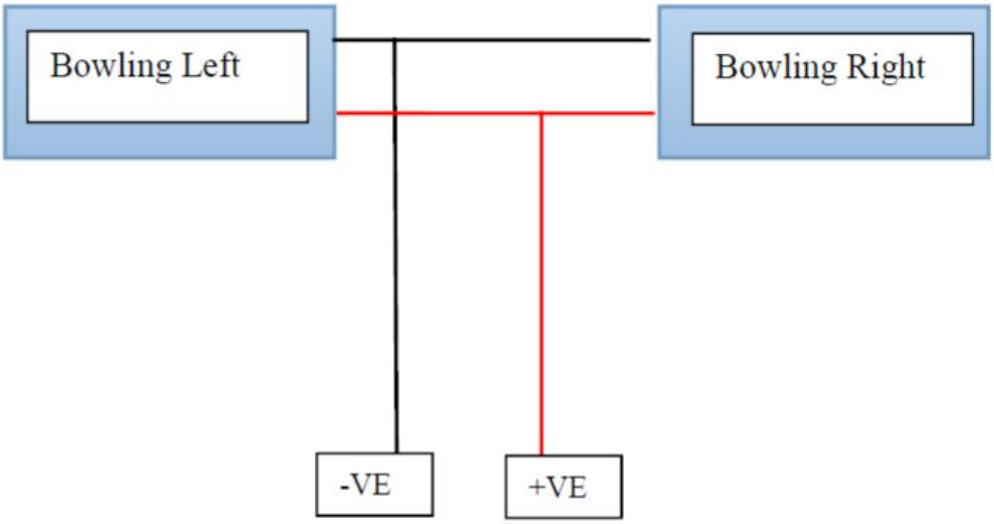
Movement of the Bot :

Motion	Switch s1	Switch s2
Forward	Forward	Forward
Backward	Backward	Backward
Left	n/c	Backward
Right	Backward	n/c
360° Right	Forward	Backward
360° Left	Backward	Forward

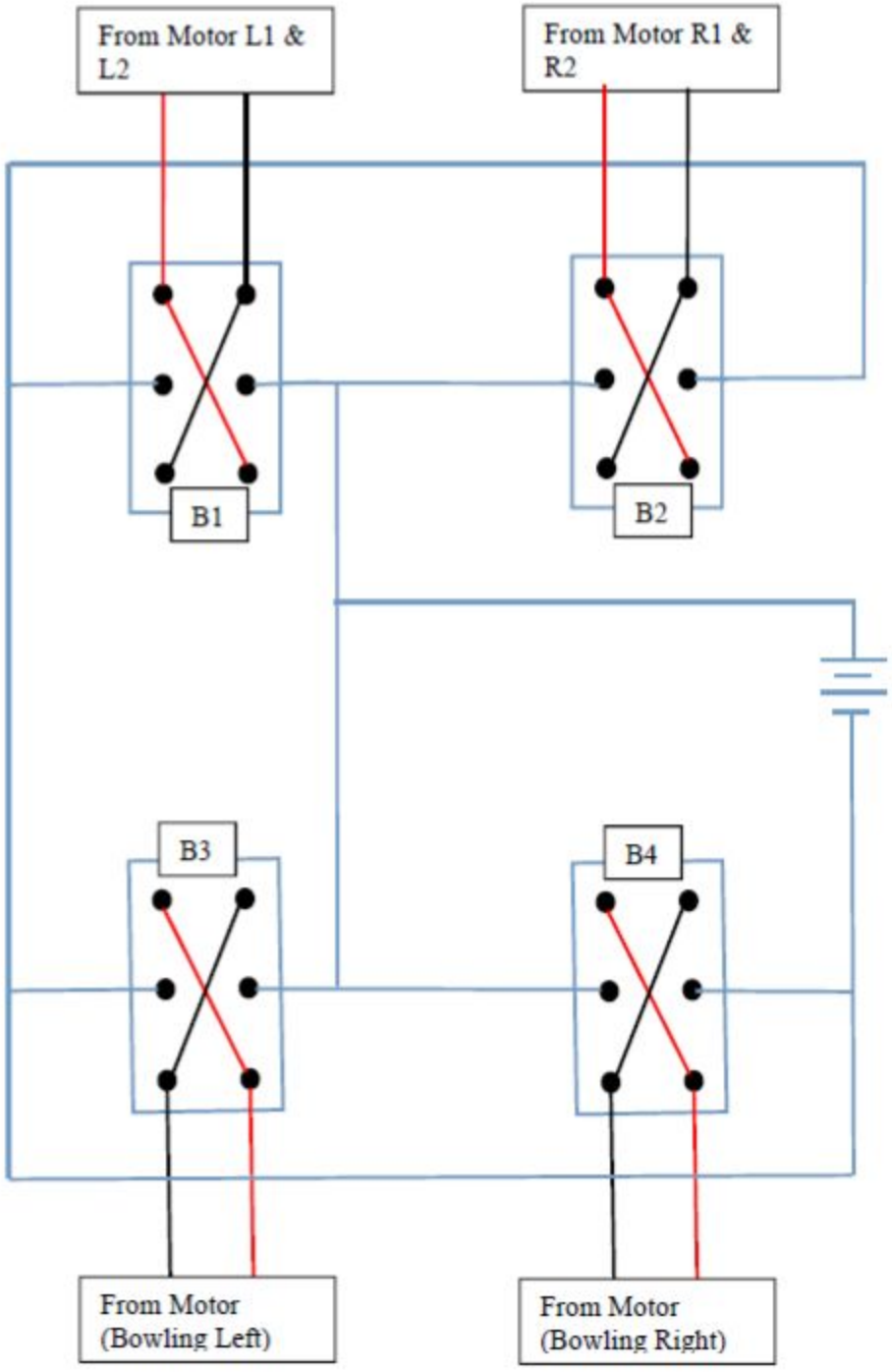
Bowling	Switch B3	Switch B4
Forward	Forward	Forward

Motor Connections:




Bowling Left
Bowling Right
-VE
+VE

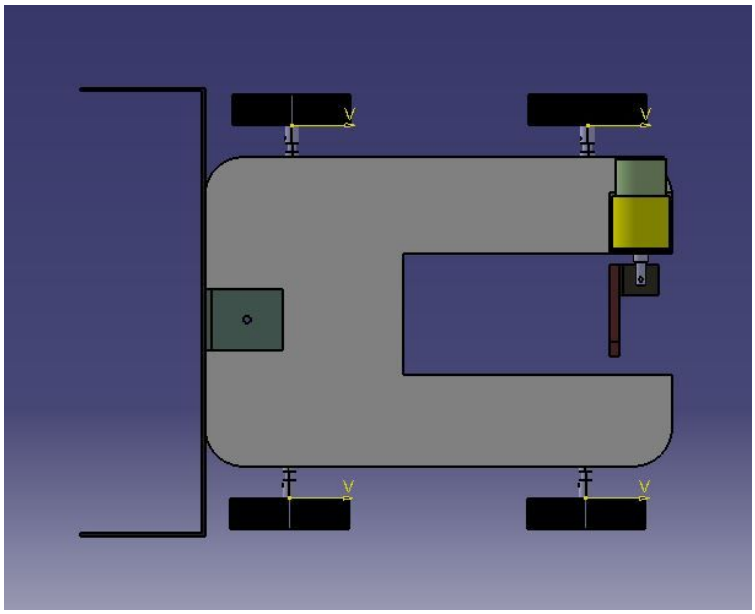
Remote Connections:



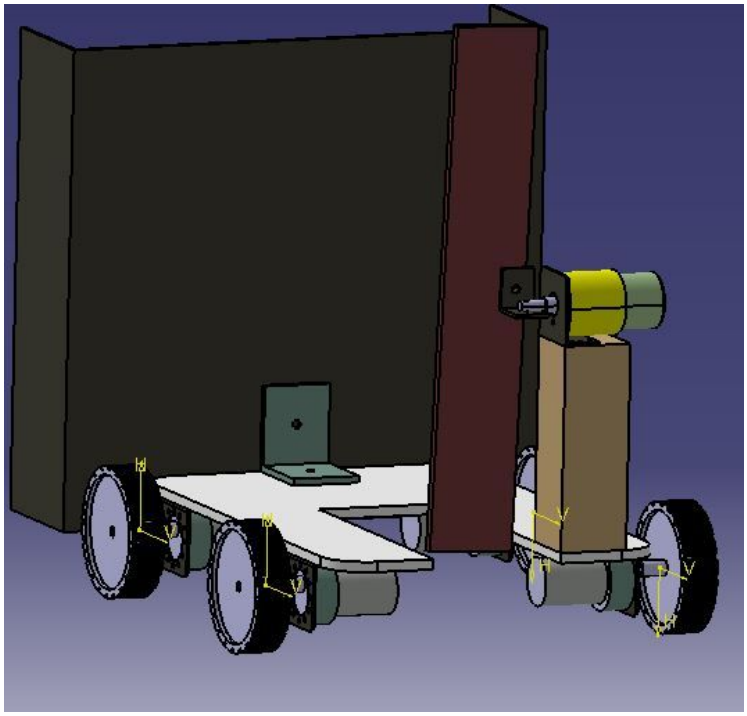
Batting Robot:

Mechanical Design:

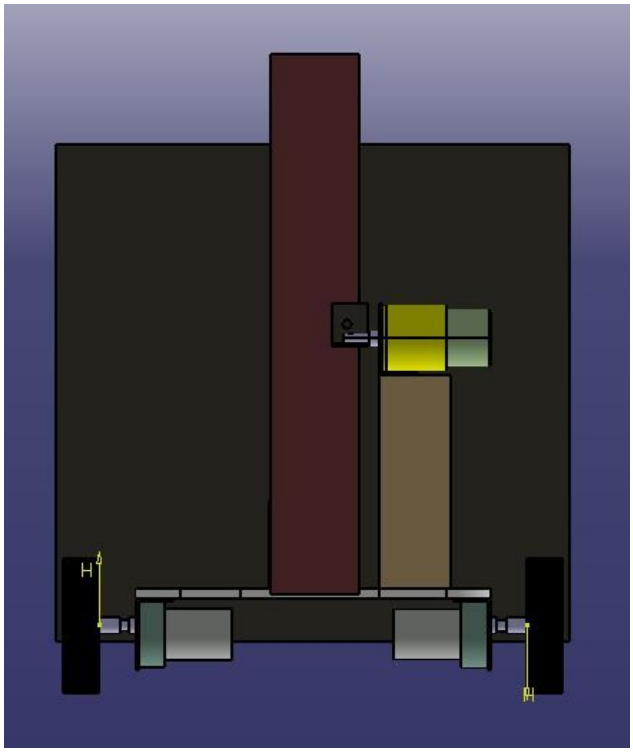
Top View



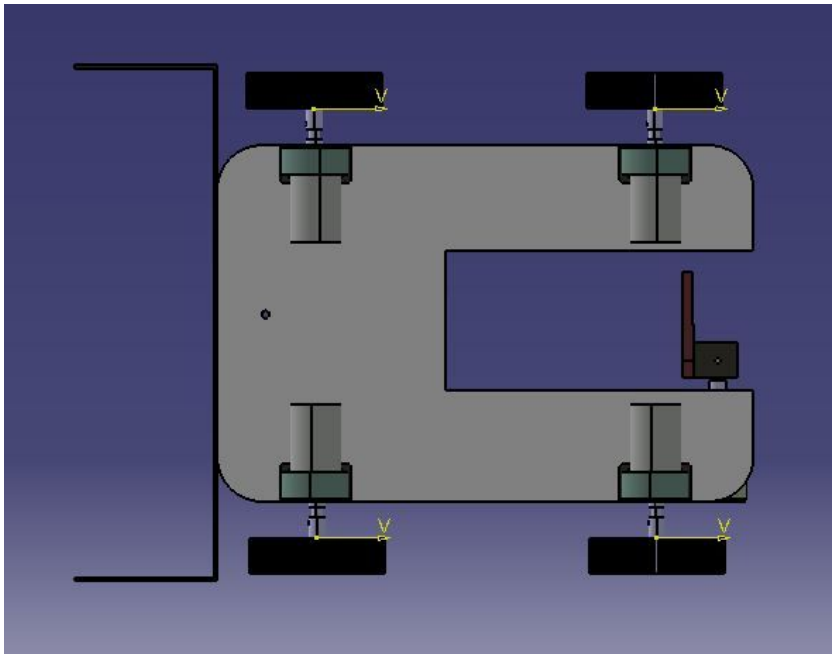
Isometric View



Front View



Bottom View

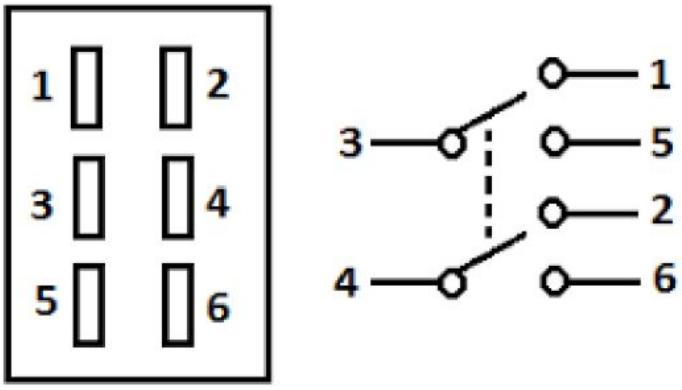


Remote Details:

A similar remote is needed to be built for this robot.

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:

In **Batting bot**, a rectangular clamp is attached with 100 rpm Johnson motor in front so that it hits the ball when the clamp rotates.

For **fielding bot**, U-shape clamp is attached at the back of the batting bot it is used to cover the ball. Bot moves with the remote control.

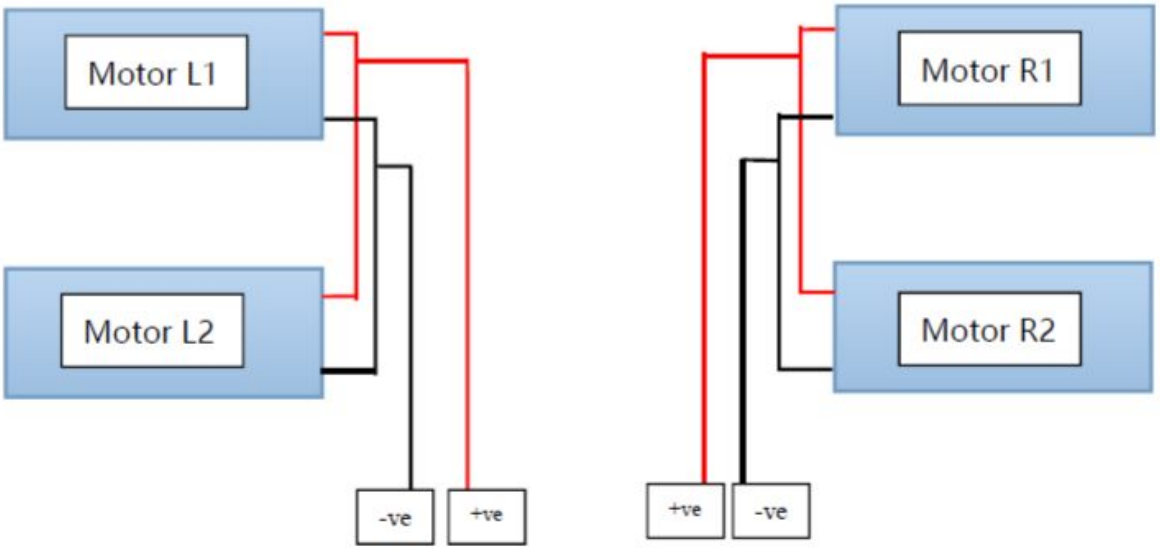
The movement of the robot with respect to the switch operation are given below in the table.

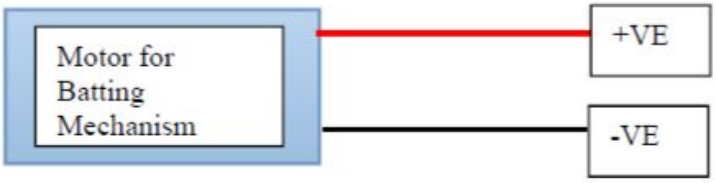
Movement of the Bot :

Motion	Switch s1	Switch s2
Forward	Forward	Forward
Backward	Backward	Backward
Left	n/c	Backward
Right	Backward	n/c
360° Right	Forward	Backward
360° Left	Backward	Forward

Movement of metal plate	Switch B3
Clockwise	Forward
Anticlockwise	Backward

Motor Connections:





6

Remote Connections: