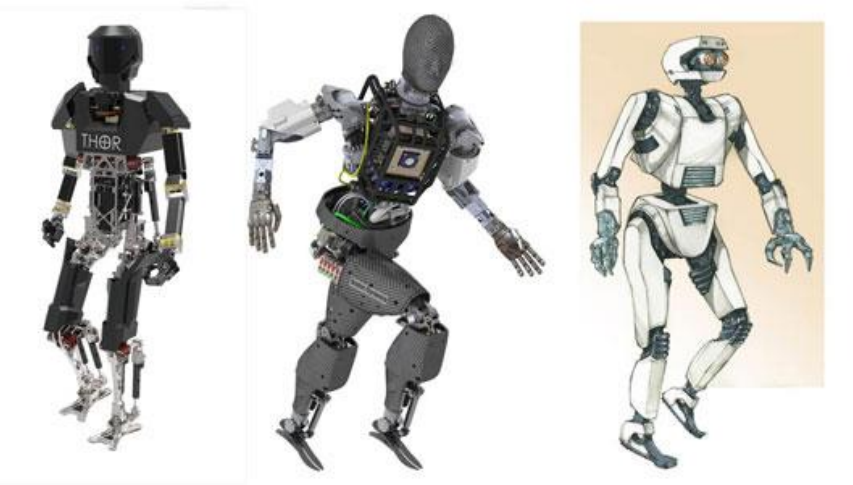
# IEEE-KCCOE

Presents

# Wired Robotics Workshop




# Introduction

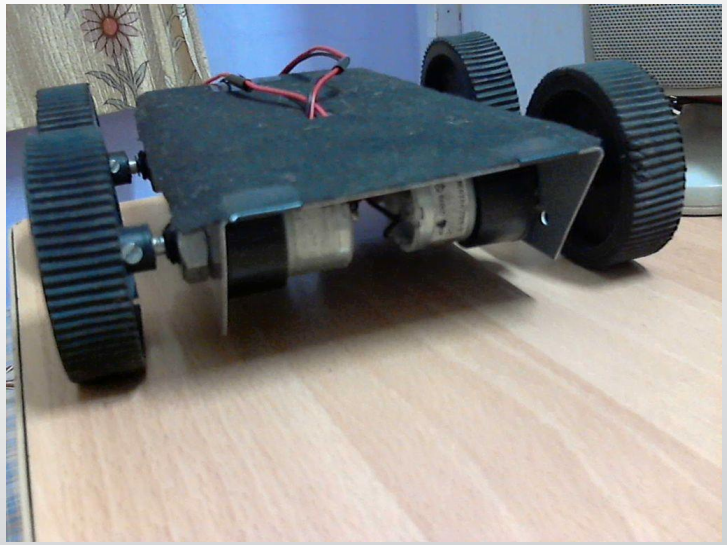
- Robotics is a branch of engineering that involves the conception, design, manufacture, and operation of robots. This field overlaps with electronics, computer science, artificial intelligence , mechatronics, nanotechnology , and bioengineering
- Robotics brings together several very different engineering areas and skills.

# Types

- Wired Robot (Level 1)
- Wireless
- Autonomous
- Semi-autonomous
- IC Engine
- Robotics arms

# Wired Robot (Level 1)

- Level 1 Robot is completely manual . A robot that must be controlled manually by someone or something. It needs to be told what to do, how to do it, and when to do it.

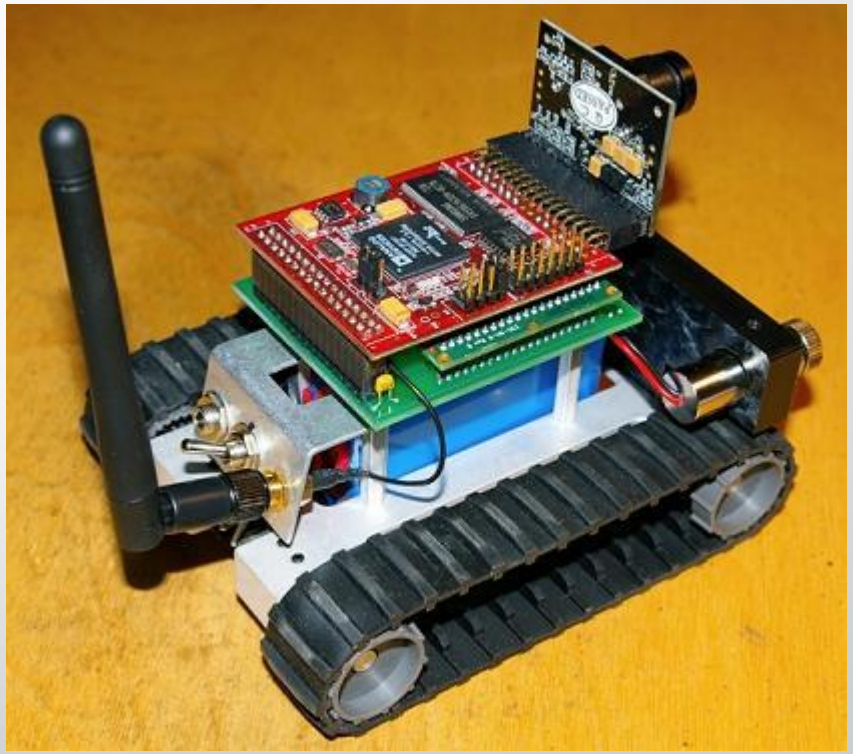


# Wireless Robot

- Wireless Robot has a system so that it  can be controlled with a wireless joystick or controller

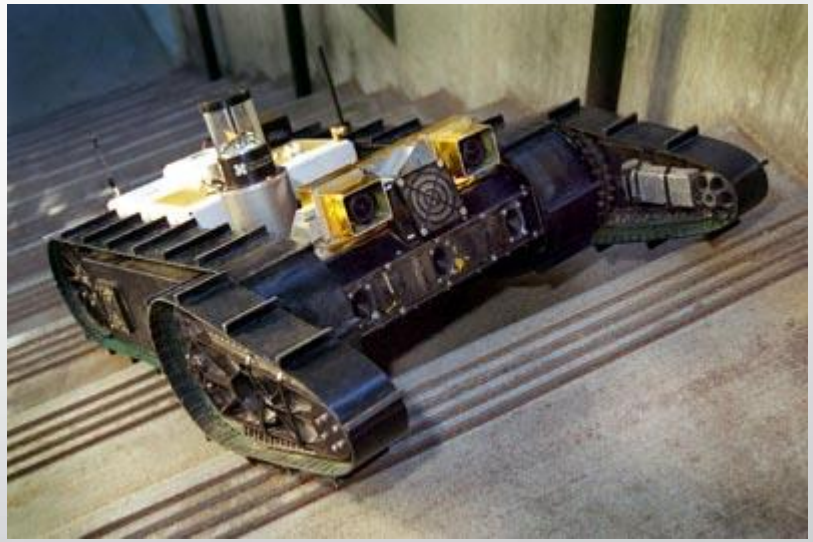
# Autonomous

- **Autonomous robots** are robots that can perform desired tasks in unstructured environments without continuous human guidance.



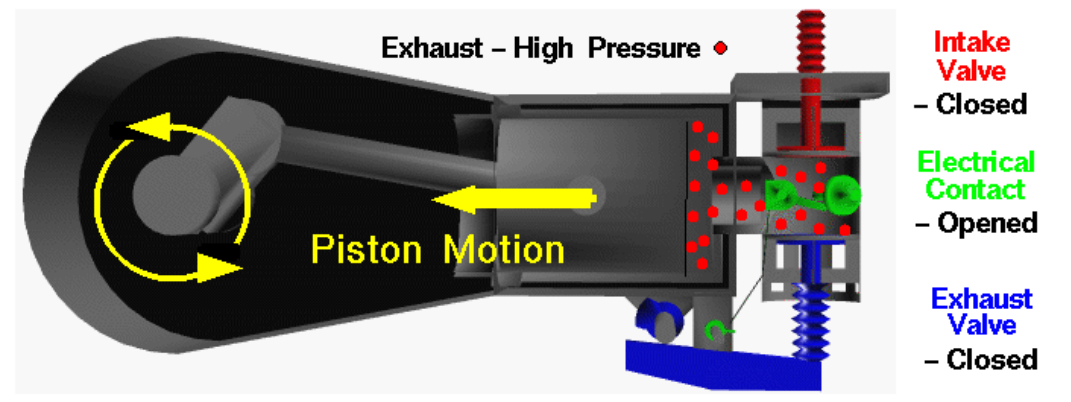
# Semi – Autonomous

- A semiautonomous robot is controlled by its programming and is restricted to what its programming tells it. It can not learn further than a certain point



# IC Engine

- The **internal combustion engine** is an engine in which the combustion of a fuel (normally a fossil fuel) occurs with an oxidizer (usually air) in a combustion chamber that is an integral part of the working fluid flow circuit.

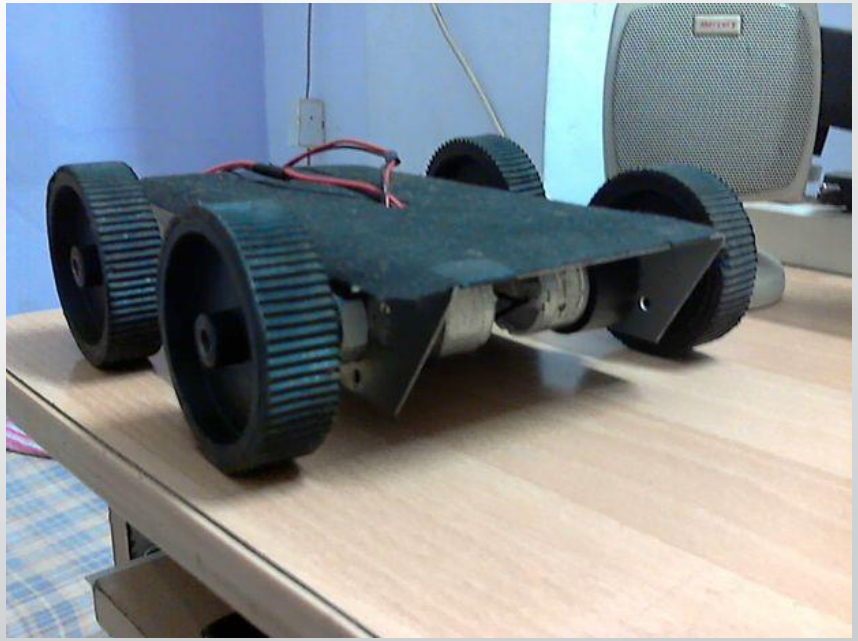


# Robotic Arms

- A typical robotic arm is made up of metal segments and can be joined by number of  joints. The computer controls the robot by rotating individual **step motors** connected to each joint (some larger arms use hydraulics or pneumatics).

# Workshop Details

- Understanding the basics of robotics (Level 1)
- Assembly
- Connection



Level 1 Bot

# KIT CONTENT

- These are following components provided in your kit :-

| | |
|---|---|
| Power Supply (12 volt , 4.5 Ah) - | 1 |
| DPDT Switch- | 2 |
| Ribbon wire strip- | 5 meters+ |
| DC Geared Motors | 4 |
| Chassis(having holes for motor) - | 1 |
| Remote box | 1 |
| Wheels | 4 |
| Soldering wire - | as required |

# Chassis

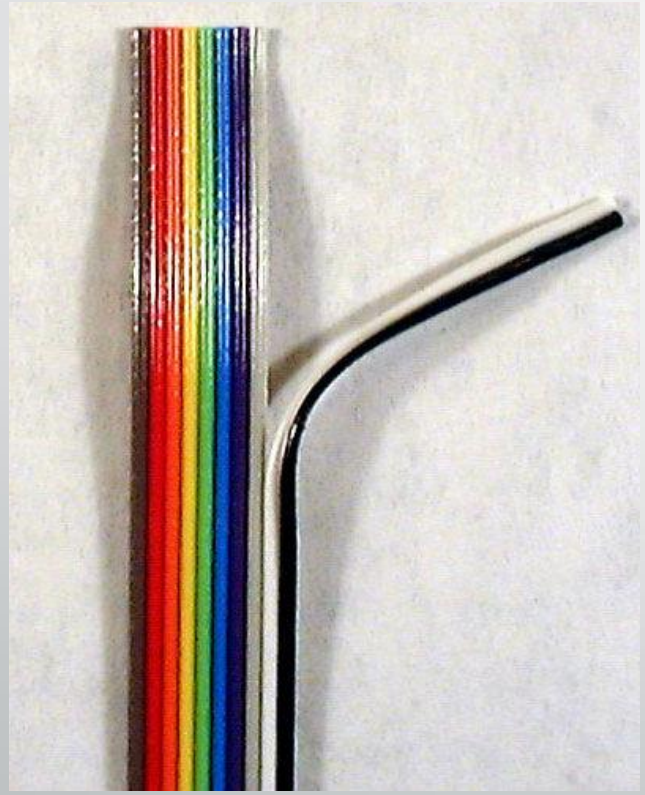
- A **chassis** acts as an mainframe body support for man-made object in its construction and use. It is analogous to an animal's skeleton
- Base on which other components are attached

# Chassis

# Motor

- Internal Diagram of DC Motor
- Types-
  Geared motors and Stepper motors

# Wires

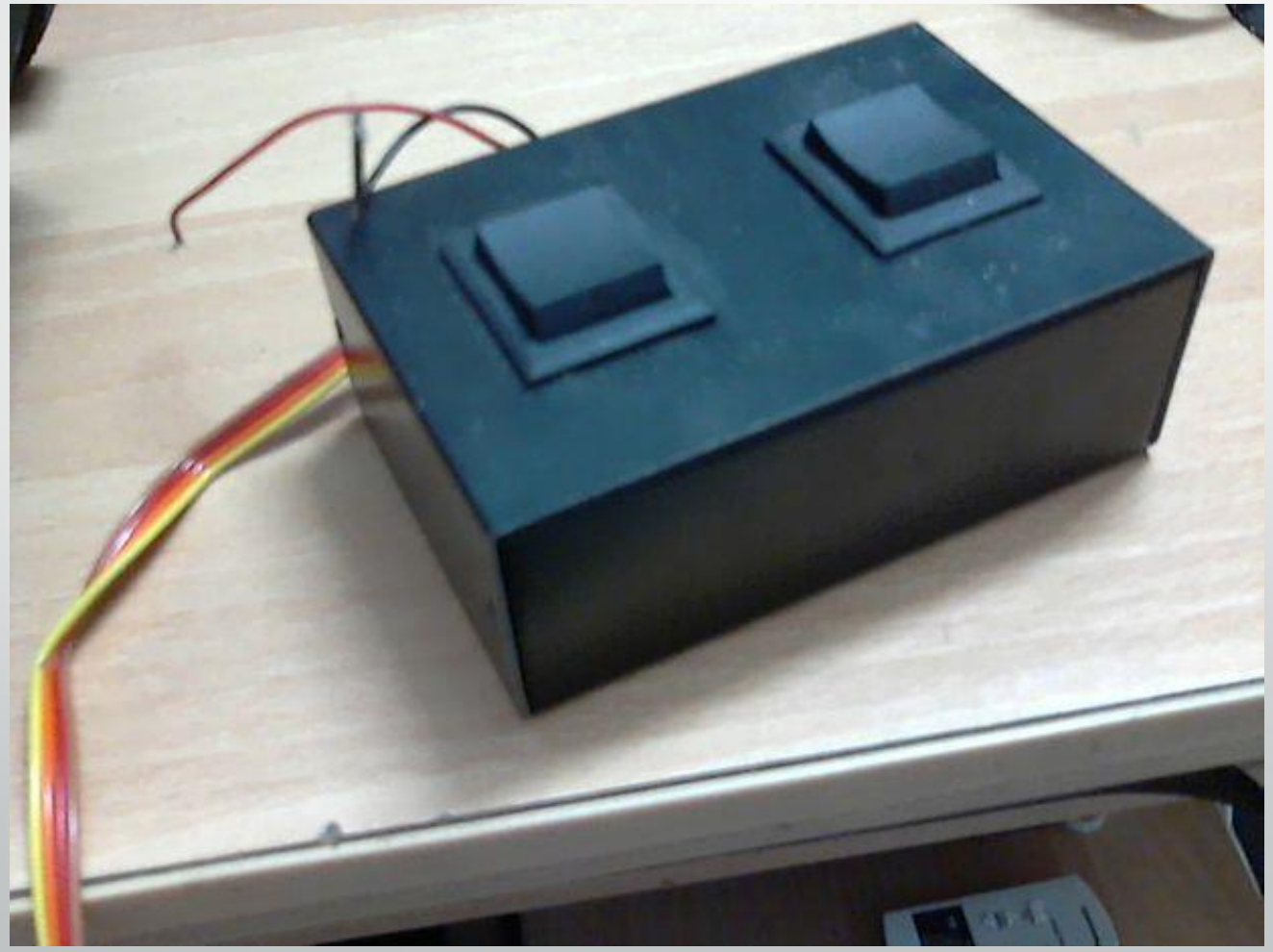


Types :-

→ On the basis of the structure
Single Strand
Multiple strand

→On the basis of thickness
1$mm^2$
4$mm^2$
6$mm^2$ .....etc

# Remote Box



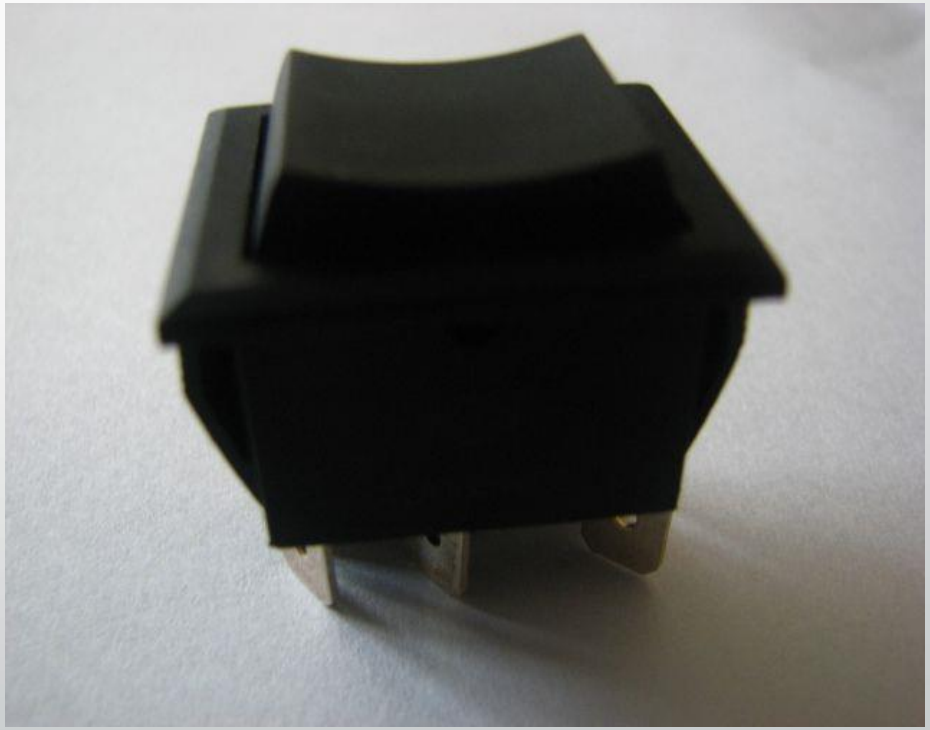
# Power Supply

12 V , 4.5 Ah

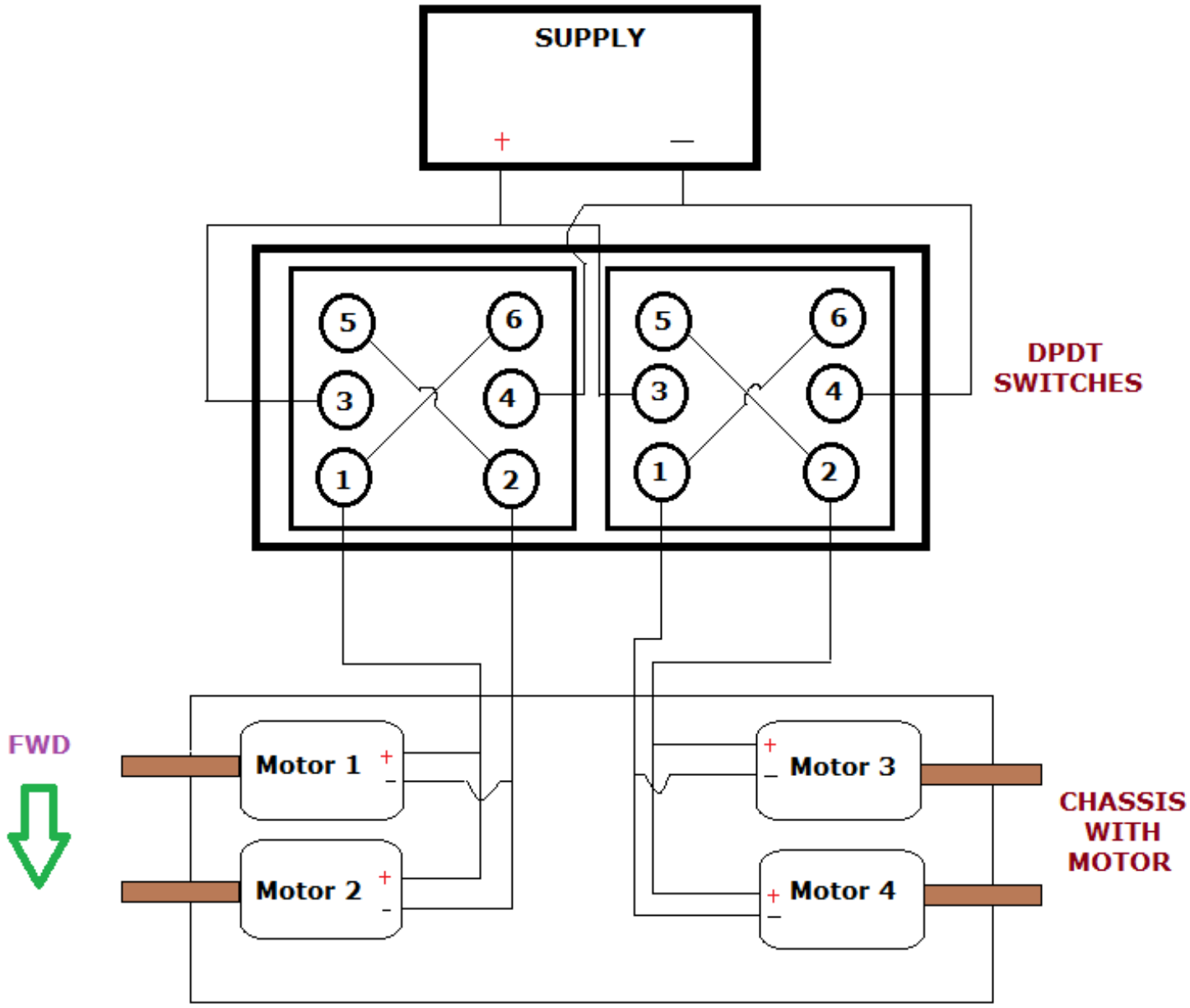
# DPDT Switches

## Double Pole Double Throw

- A DPDT switch allows the electrical relays to operate an electrical structure. The transistor devices use an electromagnet that produces a low voltage control circuit.
- The way in which the DPDT switch works is through electrical voltage.



# CONNECTIONS



# FUTURE MODIFICATIONS

- Showcase
- Videos
- Pictures
- Detroix Event bots



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# THANK YOU!