1- Design and drive Robot

Practicle Mobile Robotics

Robotics

Electronics

Software

Mechanics

Circuit
Sensor
Battery
Processor
Motors

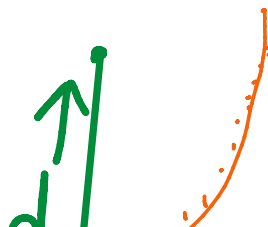Structure and design
Motors gearing

Controlling commands —
Automatic Processing ●
Algorithms —
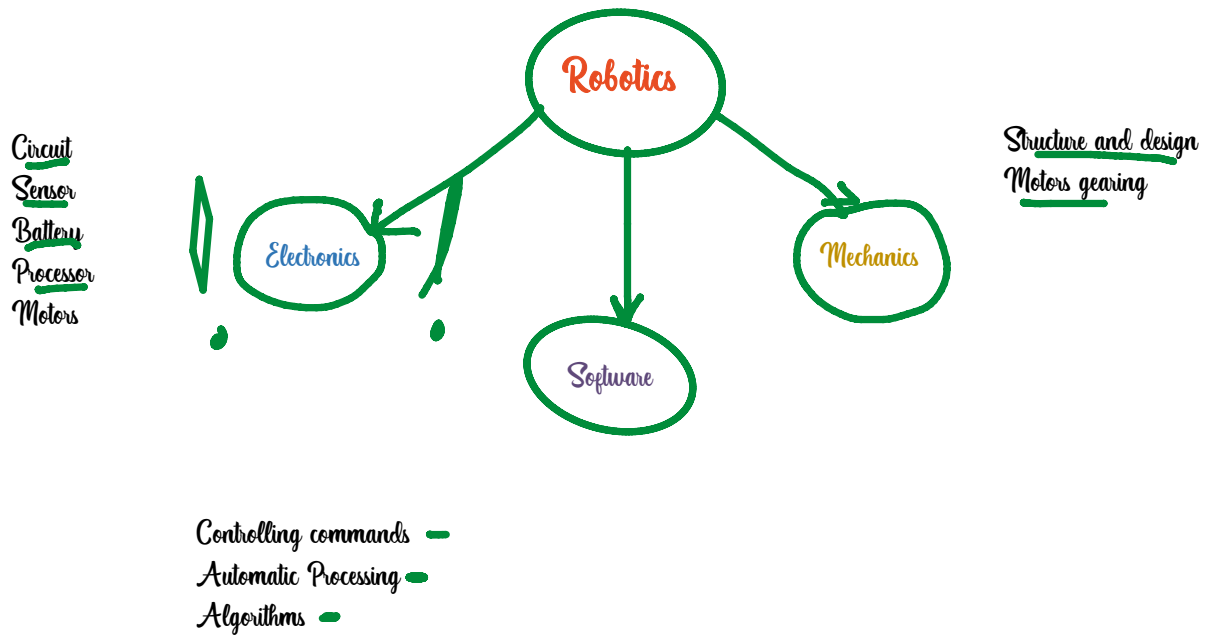
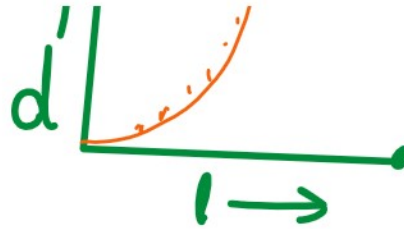Our Robot that we will be using
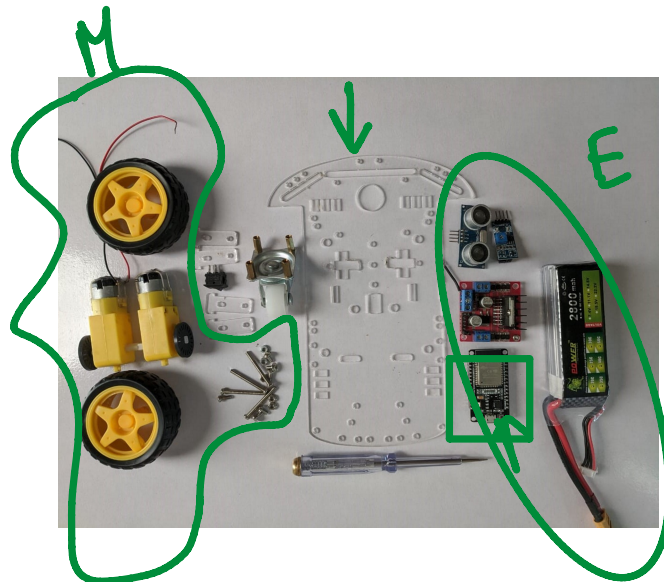
Learning curve at starting is exponential
darna nahi
Online course hy jo chez samjh nahi aye

Learning curve at starting is exponential
darna nahi
Online course hy jo chez samjh nahi aye
wo google karo or dubara dekho !

d'↑
l→

Selection of Components

Why we need it before start building?

1 - Body :
- Easily avaible body
- Design and 3d print it (more versatile and problem orientated)
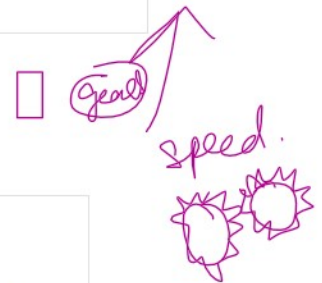
2 - Motors :

- Types
  Servo
  BLDC
  Stepper.
  [DC]

- Requirements
  • 2 kg   (torque)
  • 20 m/h. (speed)
  • Power.

- DC and Gearing

  (gear)   speed.

  - Load current 250mA MAX
  - 0.0784532 Nm torque
  - 1kg - 9.81 N .(gear)

3 - Battery :

- Types
  Led acid
  Lithic ion.
  (Lipo)

- Requirements
  - 12V.
    current.

- Specifications
  2800 mah = 2.8 A/h
  3 × 3.7 = 11.1 V.

  2.8A, 11.1 → 1. hr
  5.6A, 11.1 → 30 min.

4 - Electronic Circuit : (200mA) (5V)

- MicroController

- Motor Driver

- Schematic

- MicroController **(5V)**   – Motor Driver   – Schematic

Brain :
[ESP32]

(• 1A
 • 12V)

M D   MC
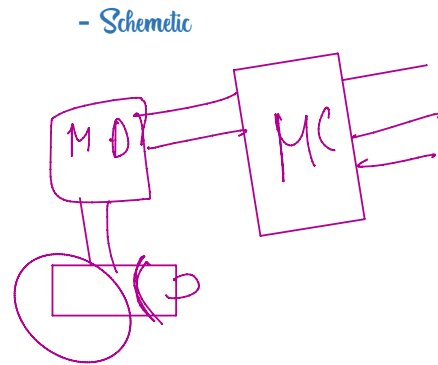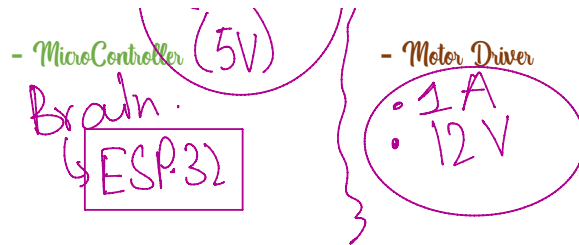
5 - Software

- Arduino IDE + install esp32 library

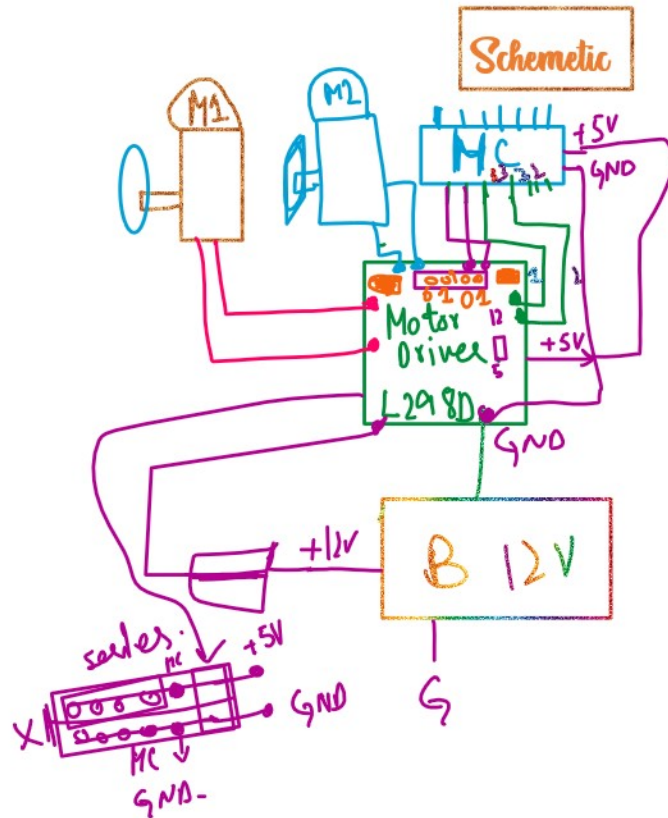! Lets build the Hardware !

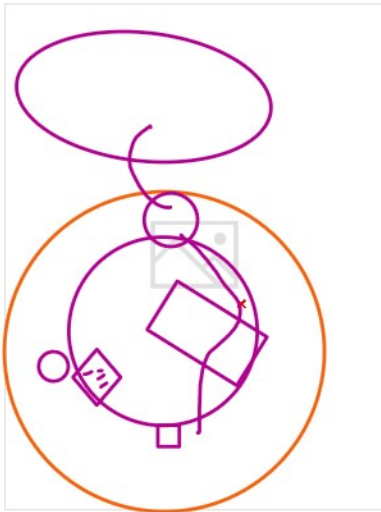Important decision points revised
(in kay jawab anay chahiaen)
- Problem understanding
- Build Theory
- Complete Hardware build
- Write Code
- Analyze results

Understand Theory behind motion

- How we *rotate* a tyre
  - Battery
  - Motor driver
  - Signals

M1   **M2**   MC   +5V   GND

Motor Driver
L298D

+5V

GND

3 3
0 0   Stop
1 0   → forward
0 1   Reverse

+12V   B 12V

series:
MC   +5V
X
MC
GND-

GND

G

PCB

Lets complete the Robot Building Process !!

Code Syntax Understanding

- Define
- Setup
- Loop
- Adding More Functions

a