Robotic Presentation

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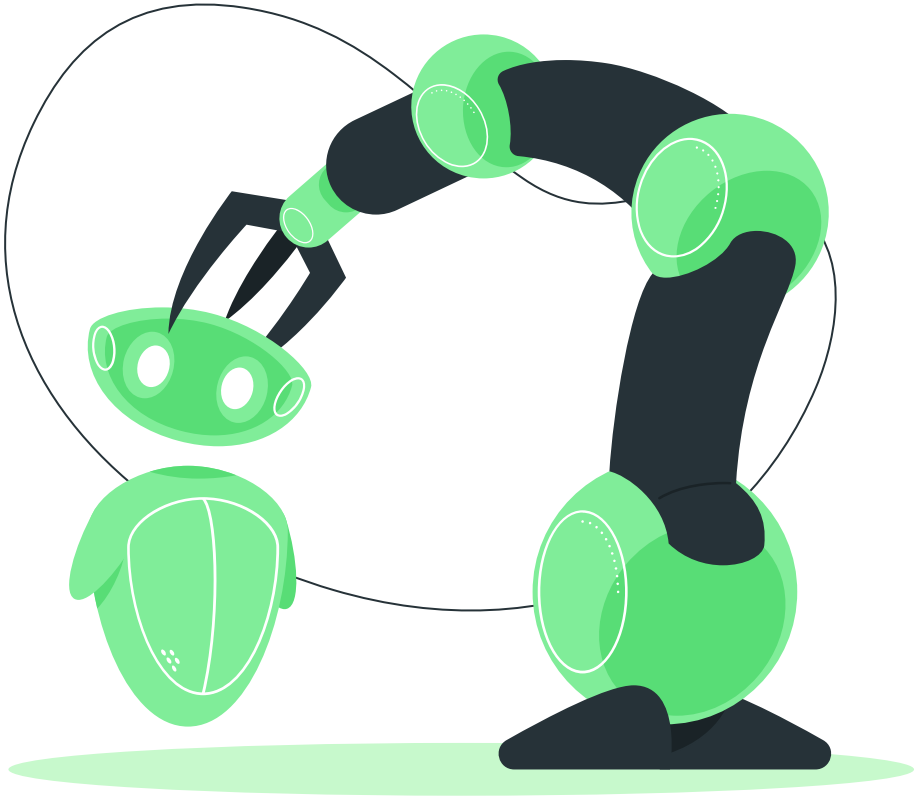

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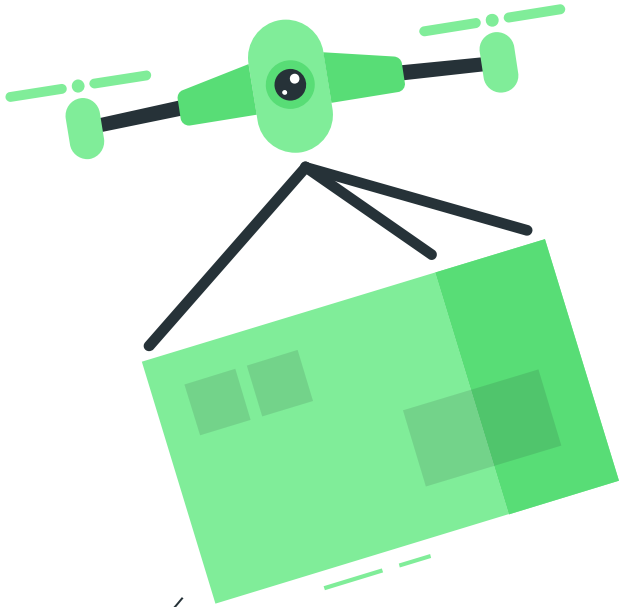
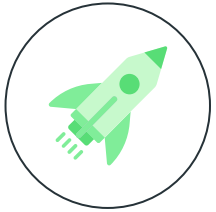
Explaining different motor models and finding the proper drivers for them



Mechanical Parts: Motors

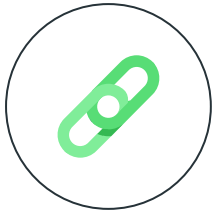
DC Brushed

The most varied and available type.



Stepper

When the angle and accuracy are important.



DC Brushless

Commonly have been used for making Multirotor Robots

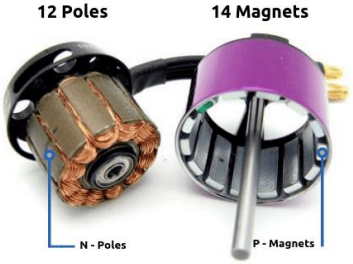
Servo

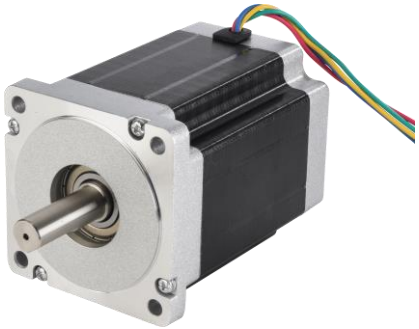
Best option for creating Robotics Arms.

Mechanical Parts: Motors

There are several parameters when we want to buy a motor for our project:

- Nominal Voltage
- No Load RPM
- Stall Torque and Current
- Size & Shaft Specifications
- Gear Down Ratio

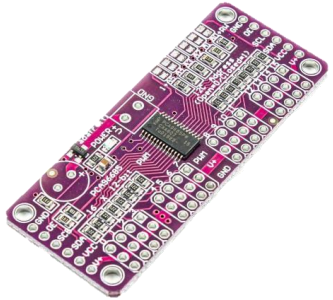




Mechanical Parts: Motor Drivers

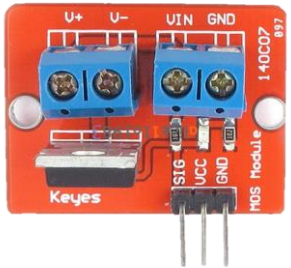
Servo Drivers

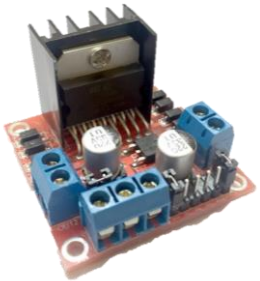
- Tester driver: 32t
- PWM module: 69t

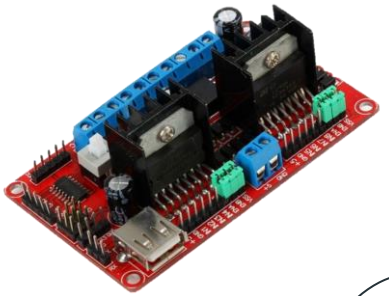


Mercury

- L298N 4channel: 150t
- **IRF520 Mosfet:**
- L293 series
- L298: 48t



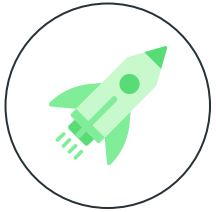




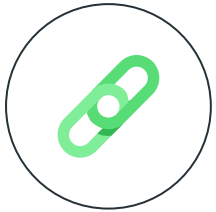
What Sensors to choose?

Electronic Parts: Sensors

Distant Measurement Sensors



Inertial Measurement Unit (IMU)



Global Positioning System (GPS)

Sensors: Distance Measurement

GP2Y0A21YK0F

Price: 146,000T
Distance: 10-80cm
Viewing Angle: 12

HC-SR04

Price: 26,000T
Distance: 2-400cm
Viewing Angle: 15
Accuracy: 3mm

SRF05

Price: 32,000T
Distance: 2-450cm
Viewing Angle: 15
Accuracy: 2mm

ST-5L5B

Price: 1,600T
Distance: 0-2.54 cm

CNY70

Price: 10,000T
Distance: 0-7 cm

E18-D80NK

Price: 66,000T
Distance: 3-80cm
Viewing Angle: 15

Sensors: Inertial Measurement Unit

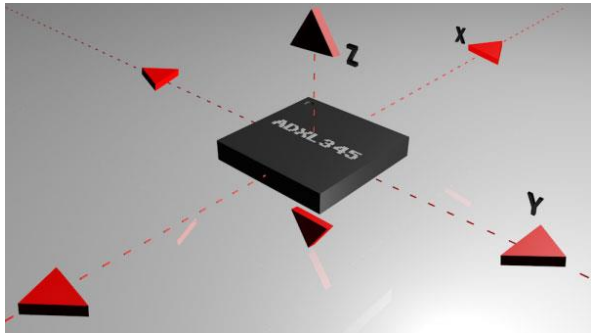
ADXL330

Price: 70,000T
Axis: 3
Sensitive Range: ±2g

Note: Low Power and Small

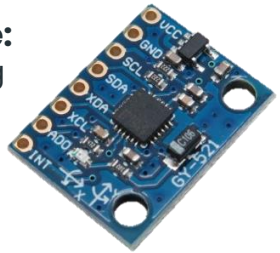
ADXL345

Price: 38,000T
Axis: 3
Sensitive Range:
±2g ±4g ±8g ±16g



MPU6050: GY-521

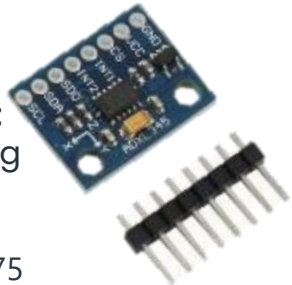
Price: 26,000T
Axis: 6
Sensitive Range:
±2g ±4g ±8g ±16g



MPU9150

Price: 377,000T
Axis: 9
Sensitive Range:
±2g ±4g ±8g ±16g

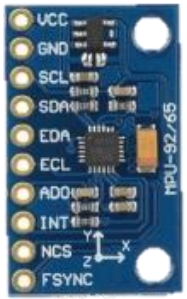
Note:
MPU-6050 + AK8975



MPU9250: GY-9255

Price: 229,000T
Axis: 9
Sensitive Range:
±2g ±4g ±8g ±16g

Note:
MPU-6500 + AK8963



Note: MPU Family Sensors have onboard Digital Motion Processor™ (DMP™) and support MotionFusion algorithms

Practice

Implimentation of a small project

Resources

GPS:

- https://roboeq.ir/articles/detail/192/%D8%B1%D8%A7%D9%87%D9%86%D9%85%D8%A7%DB%8C%D8%A7%D9%86%D8%AA%D8%AE%D8%A7%D8%A8GPS/

Motor:

- https://dronebotworkshop.com/real-robot-003/
- https://www.youtube.com/watch?v=SR1fkrsq2L0
- https://www.youtube.com/watch?v=0hWe1oF5UBg
- http://www.robotplatform.com/knowledge/actuators/electric_motor.html
- https://www.youtube.com/watch?v=IW5s7fS80bc

Sensors:

- https://forum.arduino.cc/index.php?topic=580522.0
- https://www.iran-module.ir/product_info.php/products_id/349/
- https://www.sanatbazar.com/tech/electronic/item/248
- https://www.iran-module.ir/product_info.php/products_id/472
- https://melec.ir/accelerometer-with-adxl330-and-pc-interface/
- https://melec.ir/%d8%b4%d8%aa%d8
- https://www.iran-module.ir/product_info.php/products_id/349

Thanks!

Do you have any questions?

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