Week 1
Introduction to Robotic Hardware System

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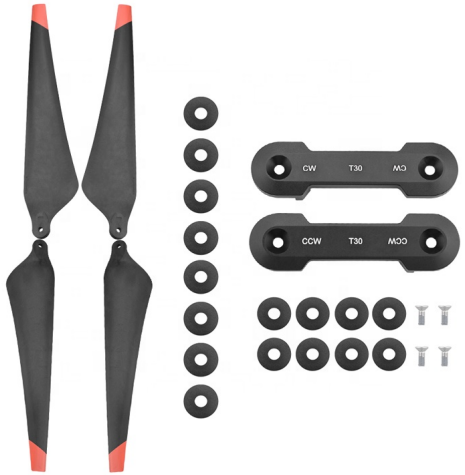
Robotic Hardware Components

1) Robot Body Design vs Tasks

- Body shapes and materials use for different application (Underwater, Ground, Air, Space). Regulation, Certification and Compliant Needed?

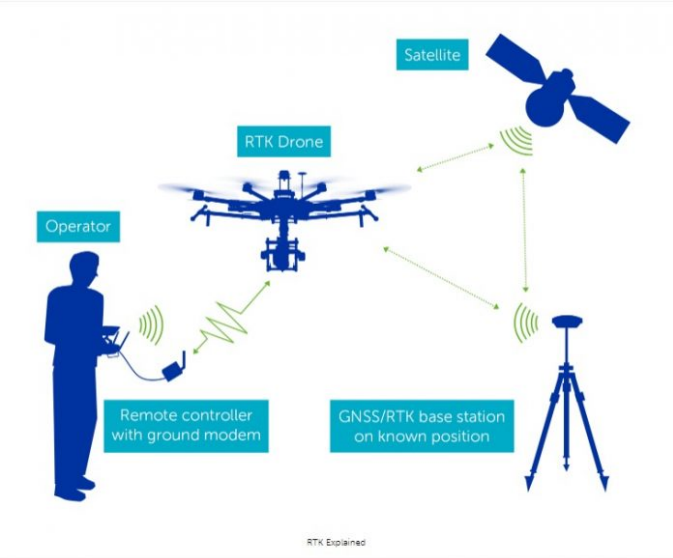
2) Actuators/Locomotions

- Types of actuator. To move the main body of the robot (Tires, motors, rotor, drivers n etc). Add on accesories to the robot (Manipulator, End Effector, Custom/Specific task, Servo, Dyanmixal Servo, DC/AC Motor, Hydraulics, Pneumatic, Linear actuator etc). Bearing, Sliders, Gears, Pulley System, Slip Ring, Linear etc)



3) Navigation System & Controller

- Types of sensors/controller for perception and navigation. (Types of Computer (Edge AI, Industrial PC, PC104, DAQ, Controller) Sensor (LIDAR, Camera IR/Color/Thermal, Depth Camera, Radar, Ultrasonic, Laser, Bumper Sensor, Magnetic Guide, IMU, Encoder etc)

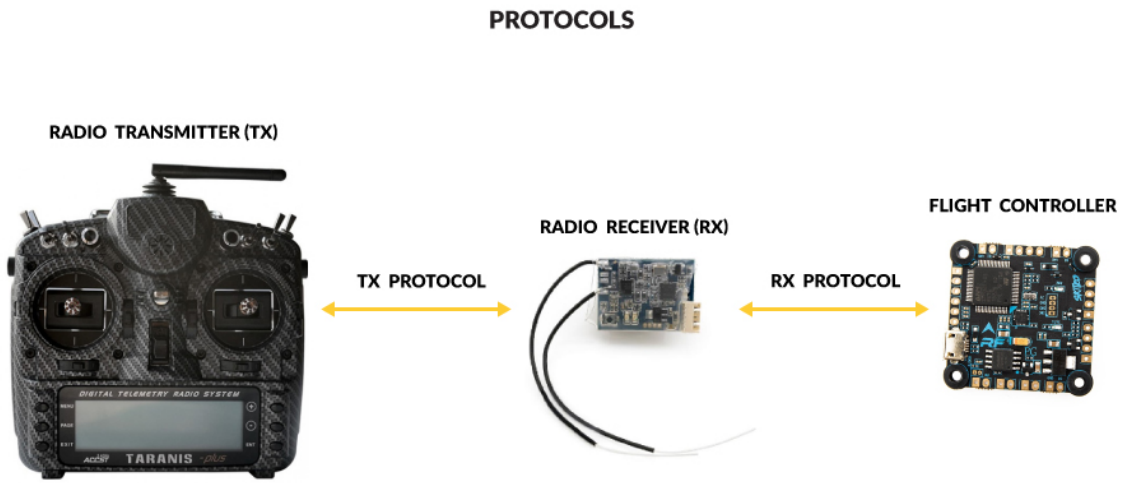


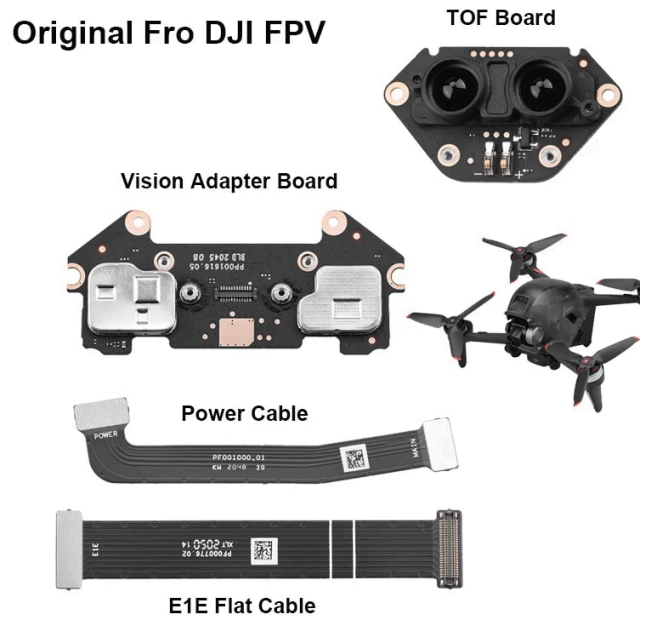
4) Data Collection

- Types of Instruments for data collections. (Remote Sensing, Mapping, Surveillance, etc)

5) Data Transmission

- Types of communication devices and protocols. Cables (Digital vs Analog, RS232/485/422, BUS, CAN, HARP, I2C, ISP, Ethernet, OPTIC etc) vs Wireless (IR, Bluetooth, WIFI, BLE, RF, Satellite, Telco 4G/5G, GPRS & etc)





6) Power System Management

- Types of power supply. AC, DC cables. Batteries. Engin. Renewable Energy.

CR800-D/R

4F-R16RTCPU (optional)
Required for CR800-R Functionality