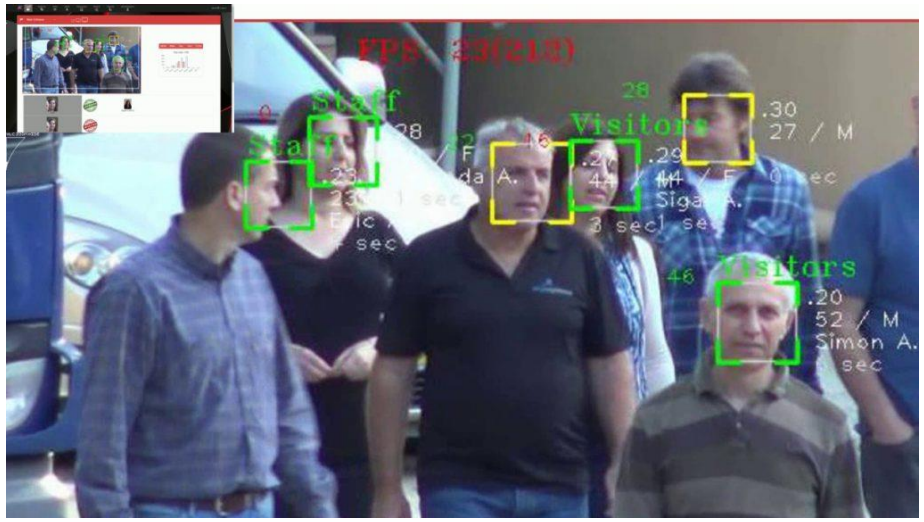

AI 드론 프로그래밍

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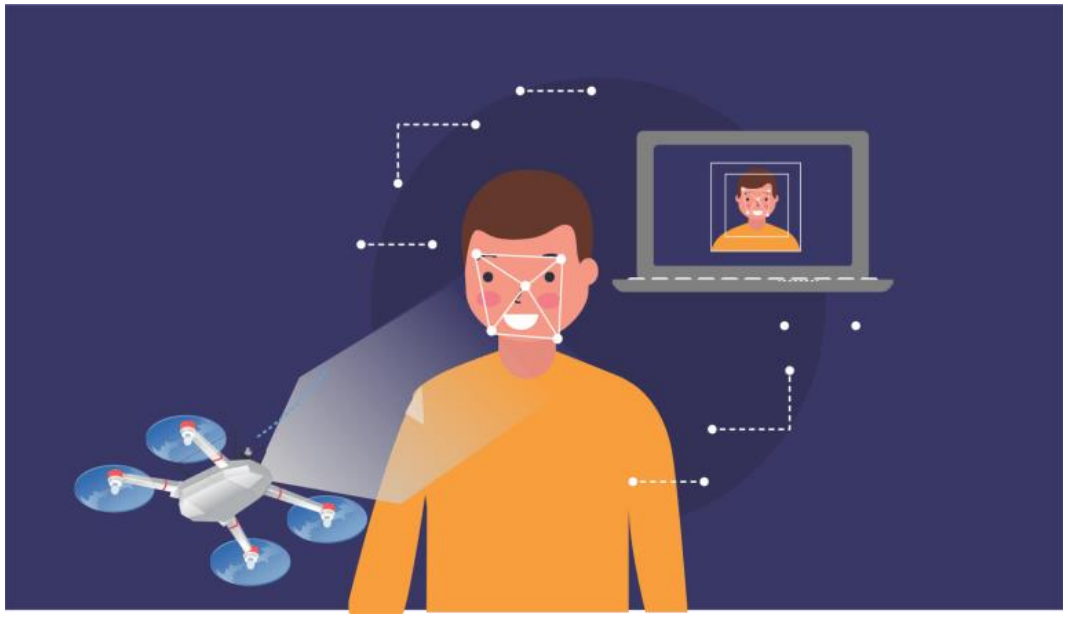
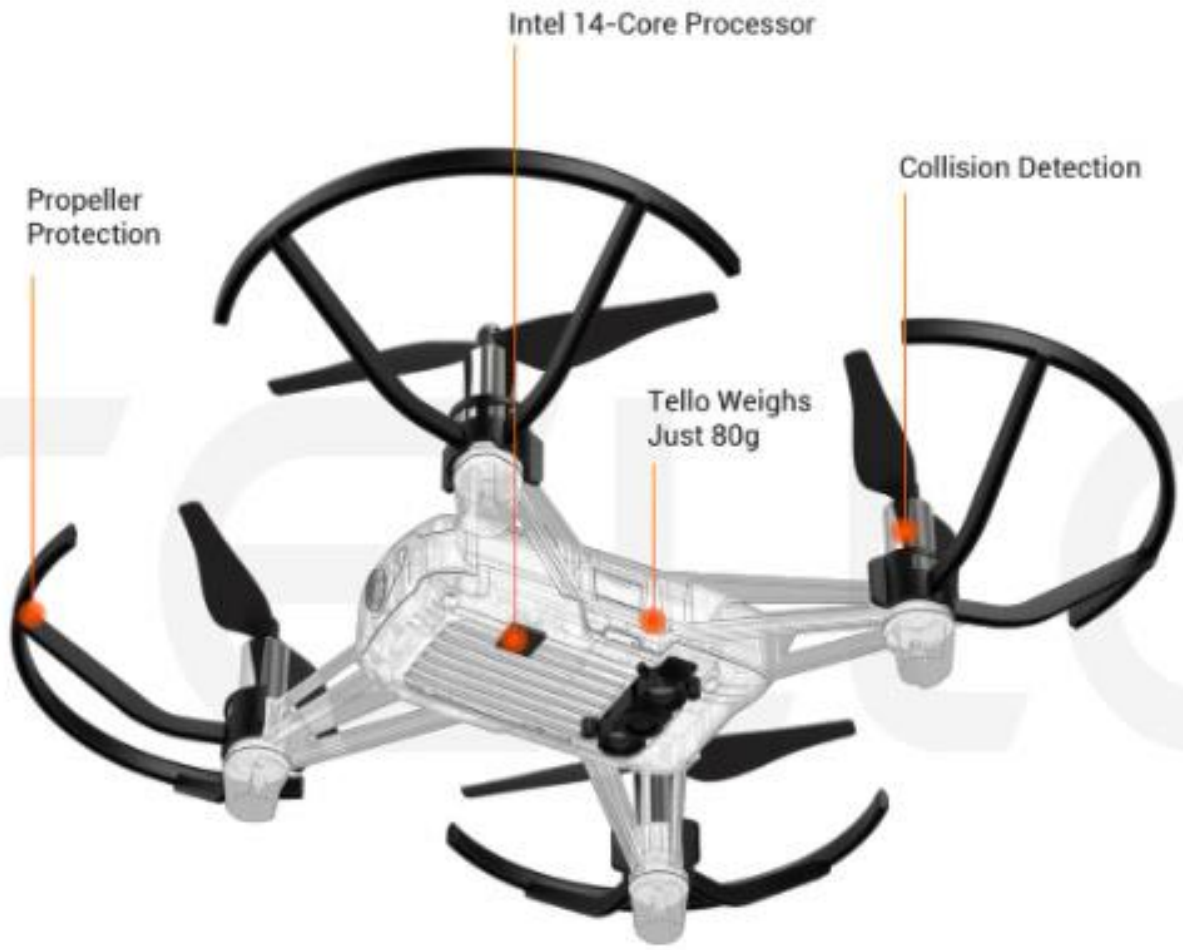
강의 내용

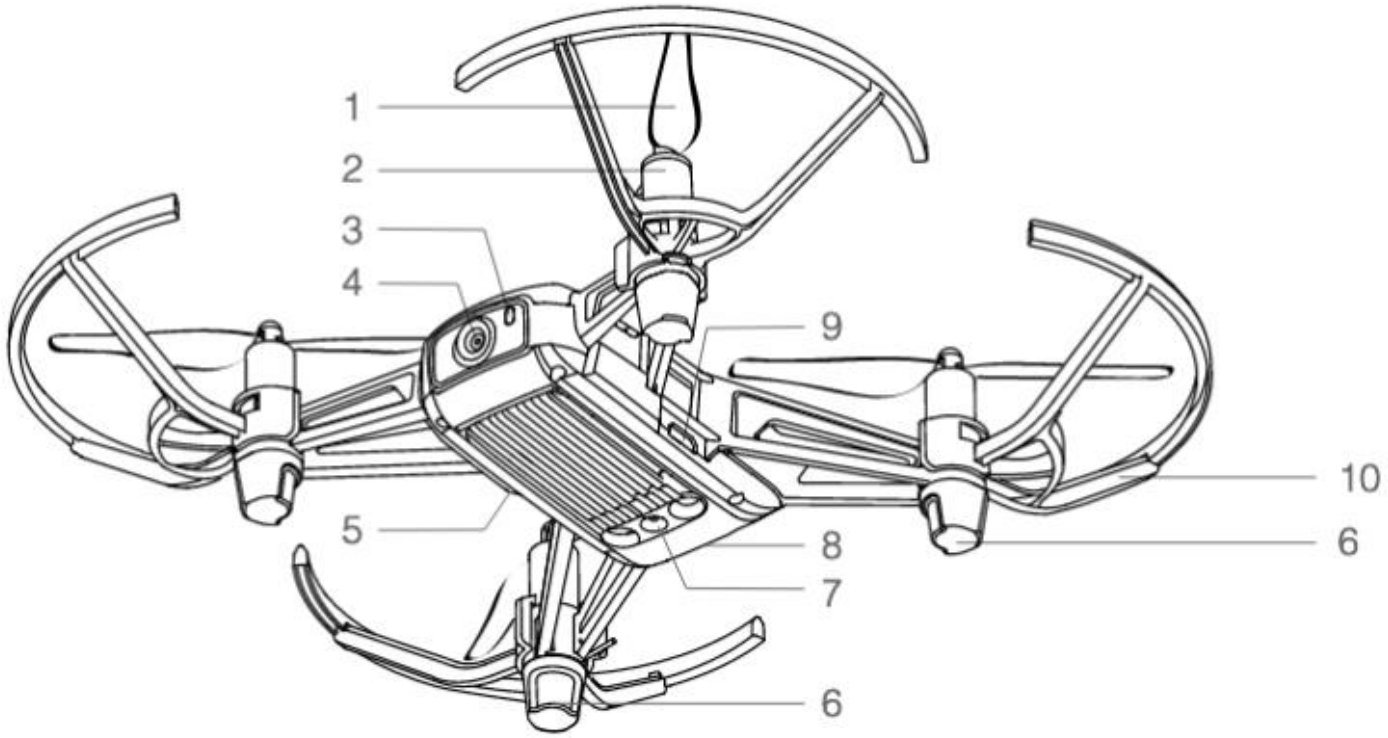
- DJI Tello 드론 기초
  - 드론의 종류, 비행원리, Tello 드론 구성요소(HW, SW) 등
  - 드론 앱을 사용한 드론 비행 기초 실습
  - DroneBlocks를 이용한 기초 드론 코딩
  - 드론 비행시 주의 할 점
- Tello SDK를 이용한 파이썬 코딩(1)
  - DJITelloPy 모듈
  - 기본 동작 제어
    - takeoff, land, up/down, forward/backward, cw/ ccw 등
  - 키보드 제어
- Tello SDK를 이용한 파이썬 코딩(2)
  - OpenCV 기초
  - 드론 카메라 이미지 캡쳐 및 저장
  - 드론 동영상 전송 및 저장
- 파이썬 기반 AI 드론 코딩
  - Cascade Classifier를 이용한 안면 인식
  - 드론 제어(PID 제어)
  - following me 드론 제작
- 팀 프로젝트 : 창의적인 AI 드론 제작



Tello Drone 구성 요소



Tello Drone 구성 요소



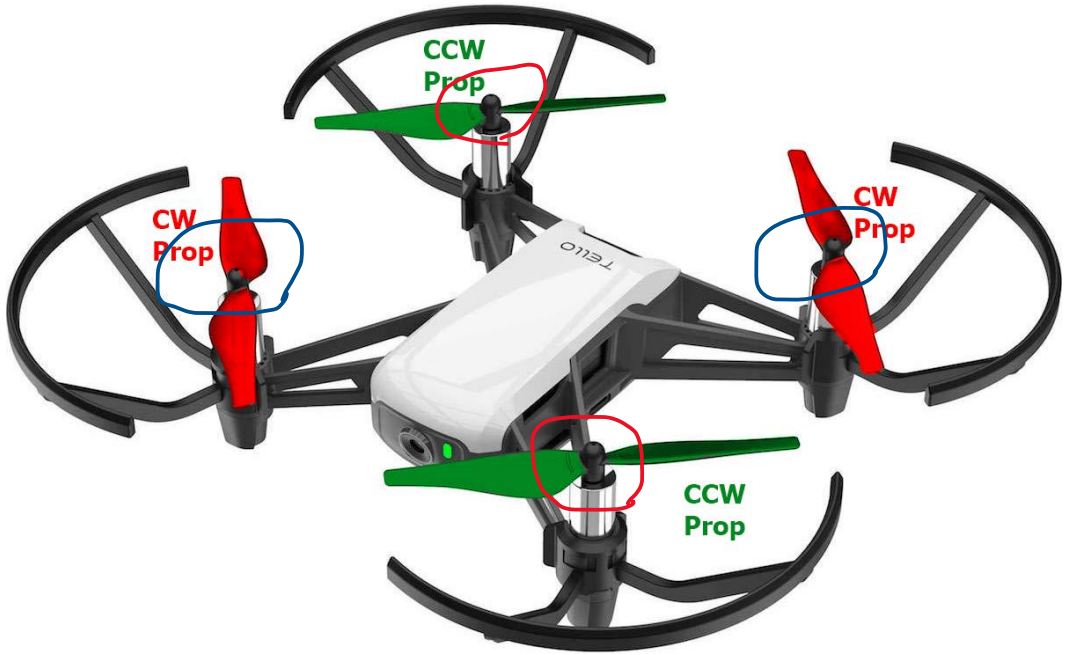
1. Propellers
2. Motors
3. Aircraft Status Indicator
4. Camera
5. Power Button
6. Antennas
7. Vision Positioning System
8. Flight Battery
9. Micro USB Port
10. Propeller Guards

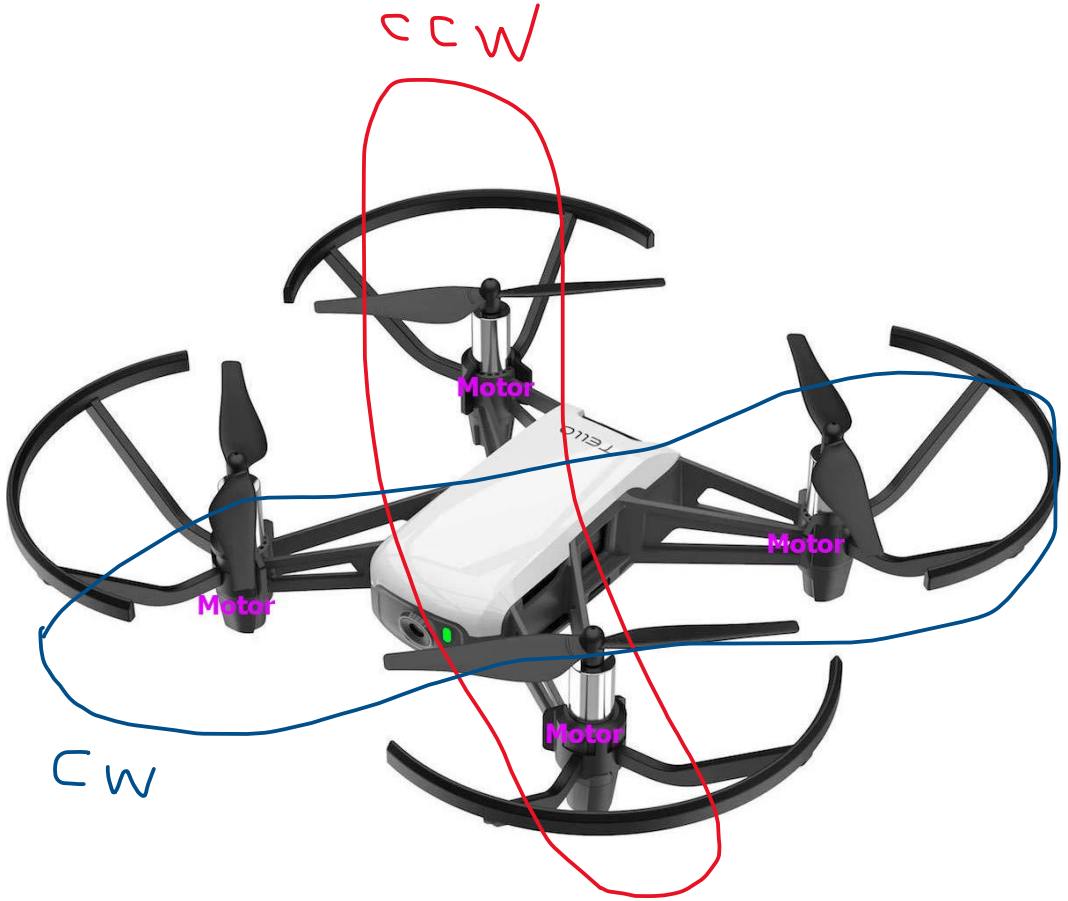
Tello 드론 사양

Weight	87 g
Dimensions	98×92.5×41 mm
Propeller	3 inches
Integrated Functions	Telemetric sensor
	Barometer
	LED
	Vision System
	Wi-Fi 2.4 GHz 802.11n
	Real-time streaming 720p
Port	USB battery charging port
Operating temperature range	from 0° to 40°
Operating frequency range	from 2.4 to 2.4835 GHz
Transmitter (EIRP)	20 dBm (FCC)
	19 dBm (CE)
	19 dBm (SRRC)

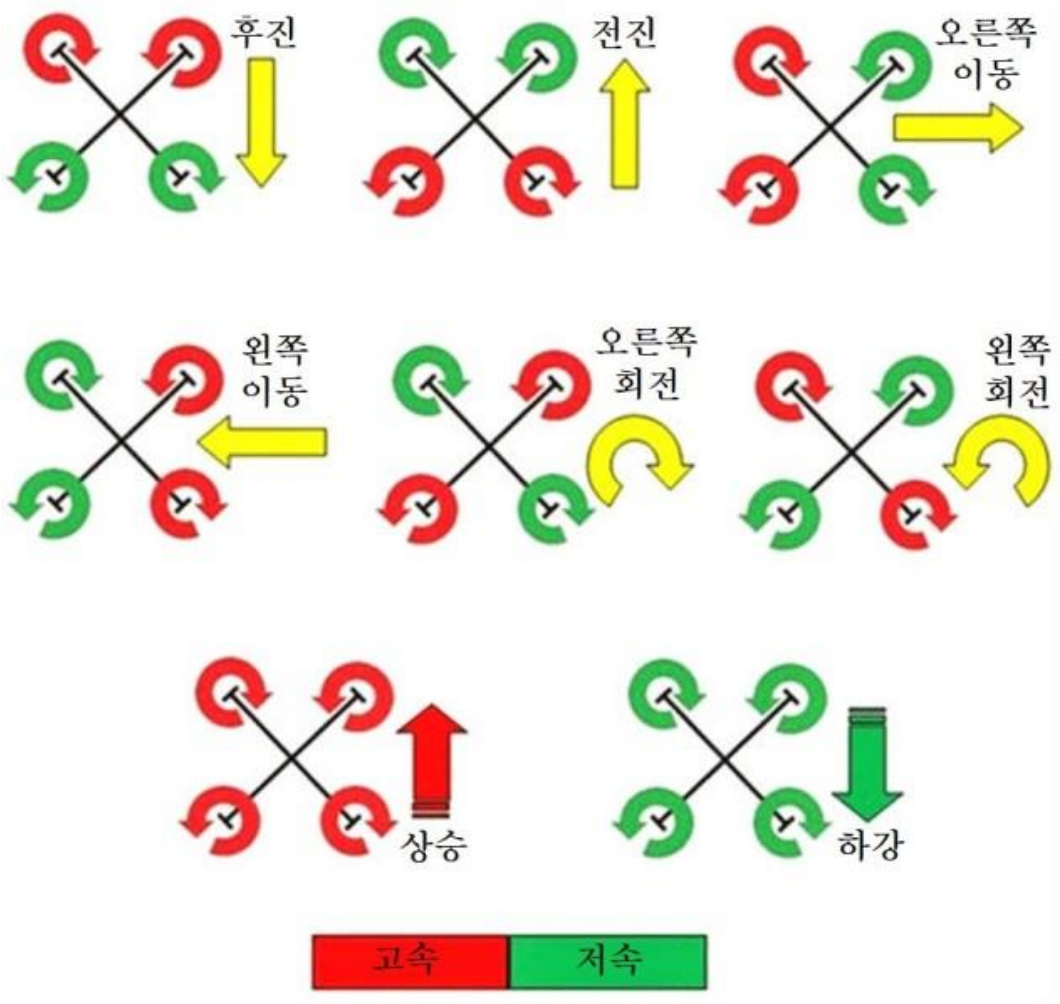
참고 : https://dl-cdn.ryzerobotics.com/downloads/Tello/Tello%20User%20Manual%20v1.4.pdf

프로펠러/ 모터


CCW
Prop
CW
Prop
CW
Prop
CCW
Prop


CCW
Motor
Motor
Motor
Motor
CW

드론의 비행 원리 : Quadcopter



Tello 드론 전용 앱

Tello App

Tello App can experience more flight modes of Tello, with real-time image-transmission interface and camera,video-recording functions, which can easily experience the fun of aerial-photography. Tello app can also set the parameters of the drone, upgrade the firmware and calibrate the drone. Therefore, the Tello app is an essential software for using the Tello.

Download on the App Store

Requires iOS 9.0 or later.

Download for Android

Android version 4.4.0 or later.

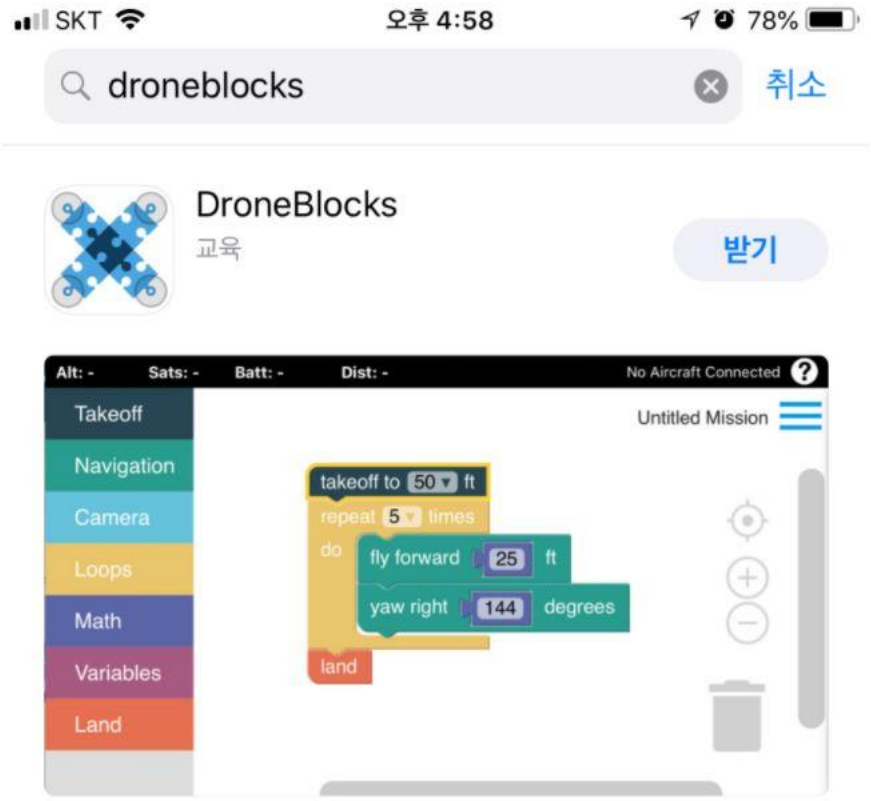
Tello 드론 전용 앱

- Tello 사용자 매뉴얼 : https://bit.ly/3ygby6T

실습01 : 드론 앱 사용하기

DroneBlocks 블록 코딩

- 전용 코딩 앱
  - 크롬 앱 : https://bit.ly/3xi6qPr
  - iOS : https://apple.co/3hek00N
  - Android : https://bit.ly/3qLuuYM



DroneBlocks 블록 코딩

실습02 : Droneblocks 앱 사용하기