ROBOTICS LABORATORY 2

Tello EDU Mini-Drone | Worksheet#2

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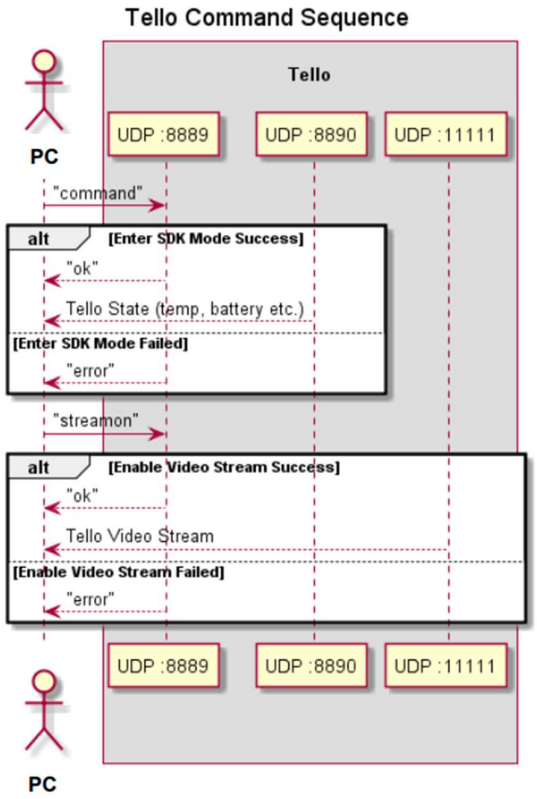
1. Please answer questions

What is UDP communication?

UDP stands for User Datagram Protocol. It is a communication protocol used across the internet with a high-speed data transmission rate. However, this communication protocol is not reliable since UDP sends data without establishing a connection first.

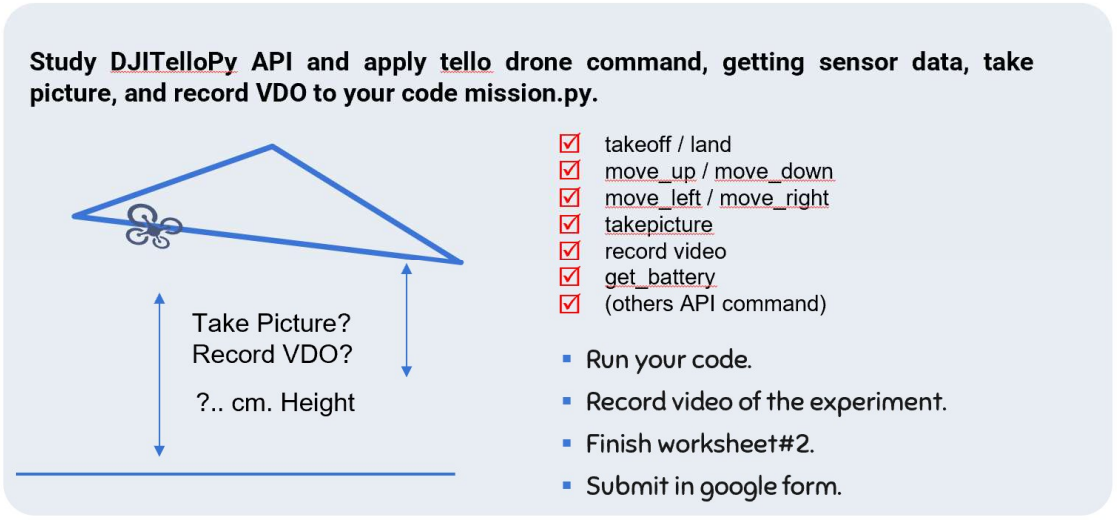
Explain Tello Drone UDP communication.

In Tello Drone, there are 3 UDP ports to handle different communications and messages. 8899 for command, 8890 for sensor data, and 11111 for Videostream. For example, commands such as 'takeoff', 'landing', and 'move up 30 cm' were trasmistted via 8899 port, sensor data like 'get_high' and 'battery' were trasmistted via 8890 port, and video stream data was trasmistted via 11111 port.



2. Please explain DJITelloPy API command that you applied in your experiment.

What's the problem you found and how did you solve it?



List of API that were used in the experiment.

- connect (): connect with UDP port of the drone.
- get_battery (): request battery status from drone via port 8890.
- streamon (): request live camera from drone via port 11111.
- takeoff (): order drone to start up all motors.
- move_up (x): order drone to move up x cm.
- move_left (x), move_right (x): order drone to move left and right x cm respectively.
- go_xyz_speed (x, y, z, speed): move to x y z coordinates with speed.
- rotate_clockwies (x): rotate in yaw axis clockwise x degree.

Problem that I had faced during the experiment.

Cannot connect to live camera of the drone. First, I read an error from the terminal to know what line of code the problem came from. Next, think follow the code each line to find out the invalid command. From those two steps of troubleshooting, I found that my camera never turned off after some errors from ordering drone to move (It made a video 30 min long for me). Then, I just turn it off, and everything just works fine.

// the pictures and video that the drone take is in git