TELLO

SDK 2.0 User Guide

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RYZE

Introduction

The Tello SDK connects to the aircraft through a Wi-Fi UDP port, allowing users to control the aircraft with text commands. After downloading and installing Python, download the Tello3.py file via the link: https://dl-cdn.ryzerobotics.com/downloads/tello/20180222/Tello3.py.

* Tello3.py is a sample program based on python that establish a UPD communication port, which can implement simple interaction with Tello, including sending SDK instructions to Tello and receiving Tello information. Tello3.py is for reference only and user can develop more.

Architecture

Use Wi-Fi to establish a connection between the Tello and PC, Mac, or mobile device.

Send Command & Receive Response

Tello IP: 192.168.10.1 UDP PORT: 8889 <<- ->> PC/Mac/Mobile

Step 1: Set up a UDP client on the PC, Mac, or mobile device to send and receive messages from the Tello via the same port.

Step 2: Before sending any other commands, send “command” to the Tello via UDP PORT 8889 to initiate SDK mode.

Receive Tello State

Tello IP: 192.168.10.1 ->> PC/Mac/Mobile UDP Server: 0.0.0.0 UDP PORT: 8890

Step 3: Set up a UDP server on the PC, Mac, or mobile device and check the message from IP 0.0.0.0 via UDP PORT 8890. Steps 1 and 2 must be completed before attempting step 3. For more details, refer to the Tello State section.

* Refer to the Tello State section for details.

Receive Tello Video Stream

Tello IP: 192.168.10.1 ->> PC/Mac/Mobile UDP Server: 0.0.0.0 UDP PORT: 11111

Step 4: Set up a UDP server on the PC, Mac, or mobile device and check the message from IP 0.0.0.0 via UDP PORT 11111.

Step 5: Send “streamon” to the Tello via UDP PORT 8889 to start streaming. Steps 1 and 2 must be completed before attempting step 5.

Tello Command Types and Results

The Tello SDK includes three basic command types.

Control Commands (xxx)

- Returns “ok” if the command was successful.
- Returns “error” or an informational result code if the command failed.

Set Command (xxx a) to set new sub-parameter values

- Returns “ok” if the command was successful.
- Returns “error” or an informational result code if the command failed.

Read Commands (xxx?)

- Returns the current value of the sub-parameters.

Tello Commands

Control Commands

Command	Description	Possible Response
Command	Enter SDK mode.	ok / error
takeoff	Auto takeoff.	
land	Auto landing.	
streamon	Enable video stream.	
streamoff	Disable video stream.	
emergency	Stop motors immediately.	
up x	Ascend to “x” cm. x = 20-500	
down x	down “x” Descend to “x” cm. x = 20-500	
left x	Fly left for “x” cm. “x” = 20-500	
right x	Fly right for “x” cm. “x” = 20-500	
forward x	Fly forward for “x” cm. “x” = 20-500	
back x	Fly backward for “x” cm. “x” = 20-500	
cw x	Rotate “x” degrees clockwise. “x” = 1-360	
ccw x	Rotate “x” degrees counterclockwise. “x” = 1-360	
flip x	Flip in “x” direction. “l” = left “r” = right “f” = forward “b” = back	
go x y z speed	Fly to “x” “y” “z” at “speed” (cm/s). “x” = -500-500 “y” = -500-500 “z” = -500-500 “speed” = 10-100 Note: “x”, “y”, and “z” values can’t be set between -20 – 20 simultaneously.	

stop	Hovers in the air. Note: works at any time.	
curve x1 y1 z1 x2 y2 z2 speed	Fly at a curve according to the two given coordinates at “speed” (cm/s). If the arc radius is not within a range of 0.5-10 meters, it will respond with an error. “x1”, “x2” = -500-500 “y1”, “y2” = -500-500 “z1”, “z2” = -500-500 “speed” = 10-60 Note: “x”, “y”, and “z” values can’t be set between -20 – 20 simultaneously.	
go x y z speed mid	Fly to the “x”, “y”, and “z” coordinates of the Mission Pad. “mid” = m1-m8 “x” = -500-500 “y” = -500-500 “z” = -500-500 “speed” = 10-100 (cm/s) Note: “x”, “y”, and “z” values can’t be set between -20 – 20 simultaneously.	ok / error
curve x1 y1 z1 x2 y2 z2 speed mid	Fly at a curve according to the two given coordinates of the Mission Pad ID at “speed” (cm/s). If the arc radius is not within a range of 0.5-10 meters, it will respond with an error. “x1”, “x2” = -500-500 “y1”, “y2” = -500-500 “z1”, “z2” = -500-500 “speed” = 10-60 Note: “x”, “y”, and “z” values can’t be set between -20 – 20 simultaneously.	
jump x y z speed yaw mid1 mid2	Fly to coordinates “x”, “y”, and “z” of Mission Pad 1, and recognize coordinates 0, 0, “z” of Mission Pad 2 and rotate to the yaw value. “mid” = m1-m8 “x” = -500-500 “y” = -500-500 “z” = -500-500 “speed” = 10-100 (cm/s) Note: “x”, “y”, and “z” values can’t be set between -20 – 20 simultaneously.	

Set Commands

Command	Command	Possible Response
speed x	Set speed to “x” cm/s. x = 10-100	ok / error
rc a b c d	Set remote controller control via four channels. “a” = left/right (-100-100) “b” = forward/backward (-100-100) “c” = up/down (-100-100) “d” = yaw (-100-100)	
wifi ssid pass	Set Wi-Fi password. ssid = updated Wi-Fi name pass = updated Wi-Fi password	
mon	Enable mission pad detection (both forward and downward detection).	
moff	Disable mission pad detection.	
mdirection x	“x” = 0/1/2 0 = Enable downward detection only 1 = Enable forward detection only 2 = Enable both forward and downward detection Notes: Perform “mon” command before performing this command. The detection frequency is 20 Hz if only the forward or downward detection is enabled. If both the forward and downward detection are enabled, the detection frequency is 10 Hz.	
ap ssid pass	Set the Tello to station mode, and connect to a new access point with the access point’s ssid and password. ssid = updated Wi-Fi name pass = updated Wi-Fi password	

Read Commands

Command	Command	Possible Response
speed?	Obtain current speed (cm/s).	“x” = 10-100
battery?	Obtain current battery percentage.	“x” = 0-100
time?	Obtain current flight time.	“time”
wifi?	Obtain Wi-Fi SNR.	“snr”

