Tello SDK

1.3.0.0

1. OVERVIEW

The Tello SDK connects to the aircraft through a Wi-Fi UDP port, allowing users to control the

drone with text commands. Click here to download the Tello3.py file.

2. ARCHITECTURE

Use Wi-Fi to establish communication between Tello and PC, Mac or Mobile device

Send Command & Receive Response

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

Remark1: Set up a UDP client on PC, Mac or Mobile device to send and receive message from Tello via the same port.

Remark2: Send "command" command to Tello via UDP PORT 8889 to initiate Tello's SDK mode, before sending all other commands.

Receive Tello State

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

Remark3: Set up a UDP server on PC, Mac or Mobile device and listen the message from IP 0.0.0.0 via UDP PORT 8890. Do Remark2 to start receiving state data if you haven't.

Receive Tello Video Stream

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

Remark4: Set up a UDP server on PC, Mac or Mobile device and listen the message from IP 0.0.0.0 via UDP PORT 11111.

Remark5: Do Remark2 if you haven't. Then send "streamon" command to Tello via UDP PORT 8889 to start the streaming.

3. TELLO COMMAND TYPES AND RESULTS

This SDK includes three basic command types.

• Control Commands (xxx)

- returns "ok" if the command is executed successfully

- returns "error" or an informative result code if unsuccessful

• Read Commands (xxx?)

- returns the current value of the sub-parameter(s).

• Set Command (xxx a) will attempt to set a new sub-parameter value(s)

- returns "ok" if the command is executed successfully

- returns "error" or an informative result code if unsuccessful

4. TELLO COMMANDS

Control Commands

Command	Description	Possible Response
command	entry SDK mode	ok error

Command	Description	Possible Response
takeoff	Tello auto takeoff	ok error

Command	Description	Possible Response
land	Tello auto land	ok error

Command	Description	Possible Response
streamon	Set video stream on	ok error

Command	Description	Possible Response
streamoff	Set video stream off	ok error

Command	Description	Possible Response
emergency	Stop all motors immediately	ok error

Command	Description	Possible Response
up x	Tello fly up with distance x cm x: 20-500	ok error

Command	Description	Possible Response
down x	Tello fly down with distance x cm x: 20-500	ok error

Command	Description	Possible Response
left x	Tello fly left with distance x cm x: 20-500	ok error

Command	Description	Possible Response
right x	Tello fly right with distance x cm x: 20-500	ok error

Command	Description	Possible Response
forward x	Tello fly forward with distance x cm x: 20-500	ok error

Command	Description	Possible Response
back x	Tello fly back with distance x cm x: 20-500	ok error

Command	Description	Possible Response
cw x	Tello rotate x degree clockwise x: 1-3600	ok error

Command	Description	Possible Response
ccw x	Tello rotate x degree counter-clockwise x: 1-3600	ok error

Command	Description	Possible Response
flip x	Tello fly flip x l (left) r (right) f (forward) b (back)	ok error

Command	Description	Possible Response
go x y z speed	Tello fly to x y z in speed (cm/s) x: 20-500 y: 20-500 z: 20-500 speed: 10-100	ok error

Command	Description	Possible Response
curve x1 y1 z1 x2 y2 z2 speed	Tello fly a curve defined by the current and two given coordinates with speed (cm/s) If the arc radius is not within the range of 0.5-10 meters, it responses false x1, x2: 20-500 y1, y2: 20-500 z1, z2: 20-500 speed: 10-60 x/y/z can't be between -20 – 20 at the same time .	ok error

Set Commands

Command	Description	Possible Response
speed x	set speed to x cm/s x: 10-100	ok error

Command	Description	Possible Response
rc a b c d	Send RC control via four channels. a: left/right (-100~100) b: forward/backward (-100~100) c: up/down (-100~100) d: yaw (-100~100)	ok error

Command	Description	Possible Response
wifi ssid pass	Set Wi-Fi with SSID password	ok error

Read Commands

Command	Description	Possible Response
speed?	get current speed (cm/s)	x: 1-100

Command	Description	Possible Response
battery?	get current battery percentage	x: 0-100

Command	Description	Possible Response
time?	get current fly time (s)	time

Command	Description	Possible Response
height?	get height (cm)	x: 0-3000

Command	Description	Possible Response
temp?	get temperature (℃)	x: 0-90

Command	Description	Possible Response

attitude?	get IMU attitude data	pitch roll yaw

Command	Description	Possible Response
baro?	get barometer value (m)	x

Command	Description	Possible Response
acceleration?	get IMU angular acceleration data (0.001g)	x y z

Command	Description	Possible Response
tof?	get distance value from TOF （cm）	x: 30-1000

Command	Description	Possible Response
wifi?	get Wi-Fi SNR	snr

5. TELLO STATE

Data type: String

Example:
"pitch:%d;roll:%d;yaw:%d;vgx:%d;vgy%d;vgz:%d;templ:%d;temph:%d;tof:%d;h:%d;bat:%d;baro: %.2f; time:%d;agx:%.2f;agy:%.2f;agz:%.2f;\r\n"

Explanation:

- o   pitch: Attitude pitch, degree

- o   roll: Attitude roll, degree

- o   yaw: Attitude yaw, degree

- o   vgx: Speed x,

- o   vgy: Speed y,

- o vgz: Speed z,

- o templ: Lowest temperature, celcius degree

- o temph: Highest temperature, celcius degree

- o tof: TOF distance, cm

- o h: Height, cm

- o bat: Current battery percentage, %

- o baro: Barometer measurement, cm

- o time: Motors on time,

- o agx: Acceleration x,

- o agy: Acceleration y,

- o agz: Acceleration z,

6. SAFETY FEATURE

If Tello does not receive any command input for 15 seconds, it will land automatically.

7.Reset Tello Wi-Fi

Long press Tello for 5 seconds while Tello is on, and the indicator light will turn off and then flash yellow. When the indicator light shows a flashing yellow light, the Wi-Fi SSID and password will be reset to the factory settings, and there is no password by default.