13). Scroll to the bottom to verify the new file was created:

	🤝 🖬 5:49 PM		
Category Directory	<sup>A</sup> Z = SORT BY		
Internal Storage			
Podcasts 2014-02-09 23:44:06	$\overline{\bigcirc}$		
<b>Ringtones</b> 2014-02-09 23:44:06	$\bigcirc$		
tmp 2020-01-27 09:56:51	$\bigcirc$		
Upgrade 2020-01-27 09:59:02	$\bigcirc$		
Yuneec 2019-06-02 21:39:38	$\bigcirc$		
<b>yuneecOTA</b> 2020-01-27 09:56:16	$\bigcirc$		
20.0Byte 2019-08-04 21	$\bigcirc$		
Flight2Log.zip 44.6M 2020-02-03 17:48:48	$\bigcirc$		
yuneecOTA.zip           443.6M         2020-01-27 12:17:49	$\odot$		

**NOTE:** Most common USB charging cables will not work. The USB cable must be data capable, such as the USB cable originally shipped with the Typhoon H Plus.

14). Connect ST16S to a computer via data capable USB cable.

15). Return to the Forum and create a new Post:

Nev	v Pos	t for d	emonstr	ation								
@ AT	TACH	FILES							► P08	ST REPI	LY	PREVIEW

#### 16). Select "ATTACH FILES":



**NOTE:** The ST16S registers on the computer as "**anzhen4\_mrd7\_w**" unless it has been renamed. 17). Navigate the computer file system to the ST16S (anzhen4\_mrd7\_w) and open it:

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🗸 🍃 This PC		1.65 GB fr	ee of 4.54 GB		
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✓ anzhen4_mrd7_w					
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18). Select "Internal Storage":

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19). Scroll to the bottom of "Internal Storage" as required:

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anznen4_mrd7_w Internal storage				
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> 🙀 Videos				~
File name:		<ul><li>All files (*)</li><li>Open</li></ul>	Cancel	

20). Select "Flight2Log.zip" (or as you renamed it) to highlight the filename:

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#### 21). Select "Open":



22). Verify file registers on Forum upload screen:

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#### 23). Select "POST REPLY":

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#### 24). Verify file uploaded:

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	New Post for demonstration	
	Attachments	
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WTFDproject Moderator		
Staff member	Flight2Log.zip	
Premium Pilot	57.2 KB Views: 0	
Joined: Oct 27, 2018		
Messages: 1,292		

### Attachment 57 Pitch, Roll and Yaw Discussion

**Introduction:** Gimbal Stabilization is related to anomalies of drone orientation related to only horizon and compass heading. Gimbal stabilization does not respond to vertical changes in elevation.

#### **Vertical Elevation Changes:**

When the drone elevation changes with no change in compass heading and with no horizontal travel in any direction, there is no change in orientation related to either the horizon or to compass heading. Gimbal Stabilization plays NO ROLE in this maneuver.



### Attachment 57 Pitch, Roll and Yaw Discussion

### Forward/Reverse Travel (Pitch):

When the drone is traveling forward or reverse, the DRONE is tilted either up or down in relation to the horizon. In response to this tilt, the gimbal stabilization system adjusts the camera PITCH in the opposite direction to maintain the original camera angle in relation to the horizon. The goal is to maintain the original camera angle during and after the maneuver. Automatic Camera Pitch is from gimbal stabilization. Camera pitch is also manually controllable from the ground station.



#### Left/Right Travel (Roll):

When the drone is traveling left or right, the DRONE is tilted either left or right in relation to the horizon. In response to this tilt, the gimbal stabilization system ROLLS the camera in the opposite direction to maintain a level view in relation to the horizon. The goal is to maintain the original camera angle during and after the maneuver. Camera Roll is from automatic gimbal stabilization only. Unlike Camera Pitch, there is no manual control of Camera Roll.



### Attachment 57 Pitch, Roll and Yaw Discussion

#### Left/Right Yaw:

When the drone is yawed left or right, with no horizontal travel in any direction, the DRONE alignment is altered in relation to **COMPASS HEADING**. In response to this, the gimbal stabilization system adjusts the camera **YAW** to minimize the visible effect of the movement. Unlike Pitch and Roll, the system DOES NOT MAINTAIN THE ORIGINAL COMPASS HEADING. Instead, the change in heading is initially DAMPENED by the YAW stabilization, and then smoothly re-aligned to the NEW drone compass heading. The goal is to minimize the effects of sharp heading changes on the final video product.

Normal automatic camera YAW is from gimbal stabilization. For cameras designed for the ST10 series controllers, there is NO manual Yaw control. For cameras designed for ST12, ST16, ST16S and ST24, YAW can also be controlled manually from the ground station. Some of these are also capable of advanced camera functions, such as "panorama" that are manually initiated, but carried out by computer automated changes to both pitch and yaw.



### Addendum 1 Links for Software Experts

# Use of this information is at your own risk.

#### For Software Experts:

**NOTE:** This link does not support Internet Explorer.

• The latest Flight Mode firmware for ST10/ST12: https://github.com/azvampyre/st10-v01b31c

**NOTE:** This link does not support Internet Explorer.

• The source for the Android CGO3 app: https://github.com/unfaix/yuneecFly

**NOTE:** This link does not support Internet Explorer.

 PX4 flight control : <u>https://github.com/kyChuGit/YuneecDroneCode</u>

#### **NOTE:** This link does not support Internet Explorer.

• Thunderbird Firmware (A fork of PX4 Autopilot Software for Yuneec Typhoon H): <u>https://github.com/tonirosendahl/Thunderbird</u>

Note: A discussion of the Thunderbird firmware is in this thread: <u>https://yuneecpilots.com/threads/typhoon-h-480-px4-v1-10-stability-issues.18205/#post-204392</u>

## Addendum 2 Video Links

• Yuneec Typhoon Repair Tutorials: <u>https://www.youtube.com/playlist?list=PLFbieNfMBg1bGjmp5lxlkmXsAL9Y\_RJ8G</u>

# Addendum 3 Contributing Members



WTFDproject



Sureshot



**Steve Carr** 



h-elsner



Haydn



georgero



Cmendemen