Aerocraft Maker

Manual for Wright Flyer

Including aircraft build, V7RC installation, and tutorial for test fly

Contents

I. Three-view diagram

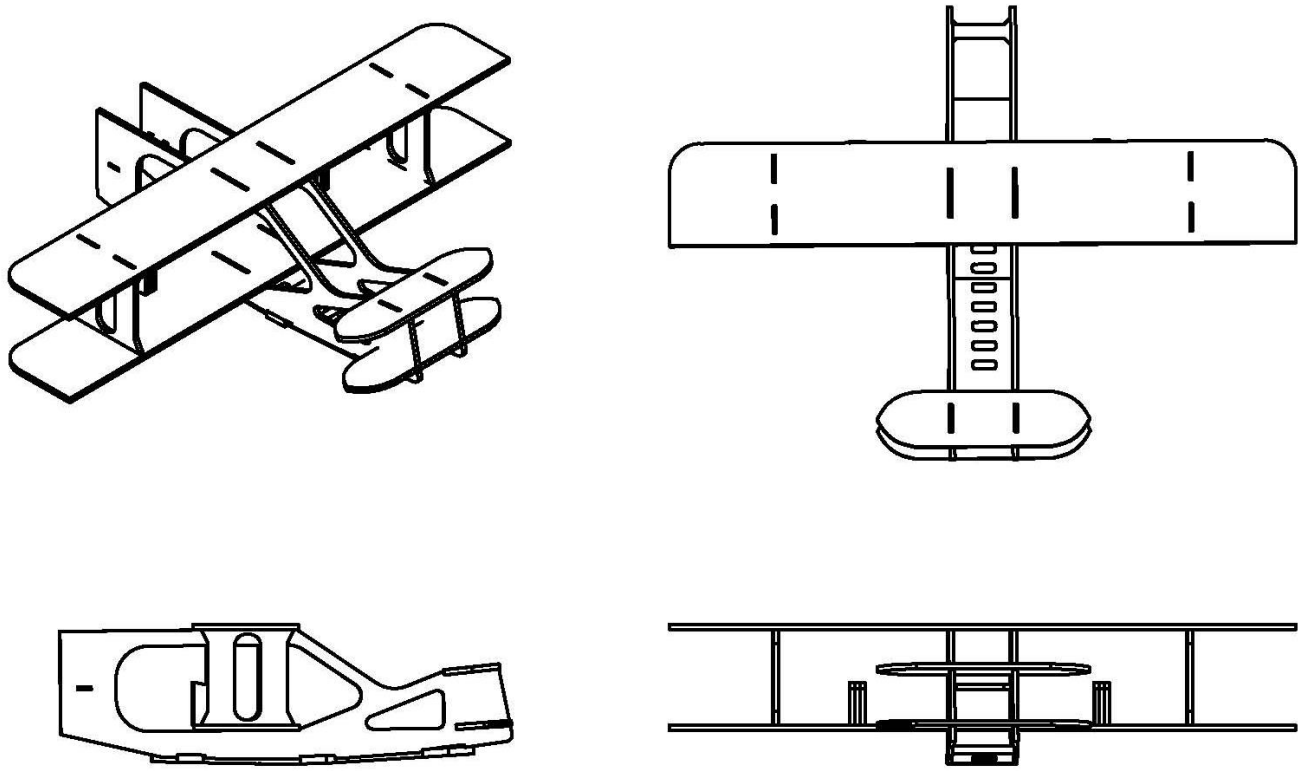


Figure 1 Three-view diagram of Wright Flyer

Figure 1 shows the three-view diagram of Wright Flyer. The dimensions of Wright Flyer are 264mm x 386mm x 78.5mm. It is designed with H beam structure to make it stronger to resist crashes.

II. Numbering of Wright Flyer units

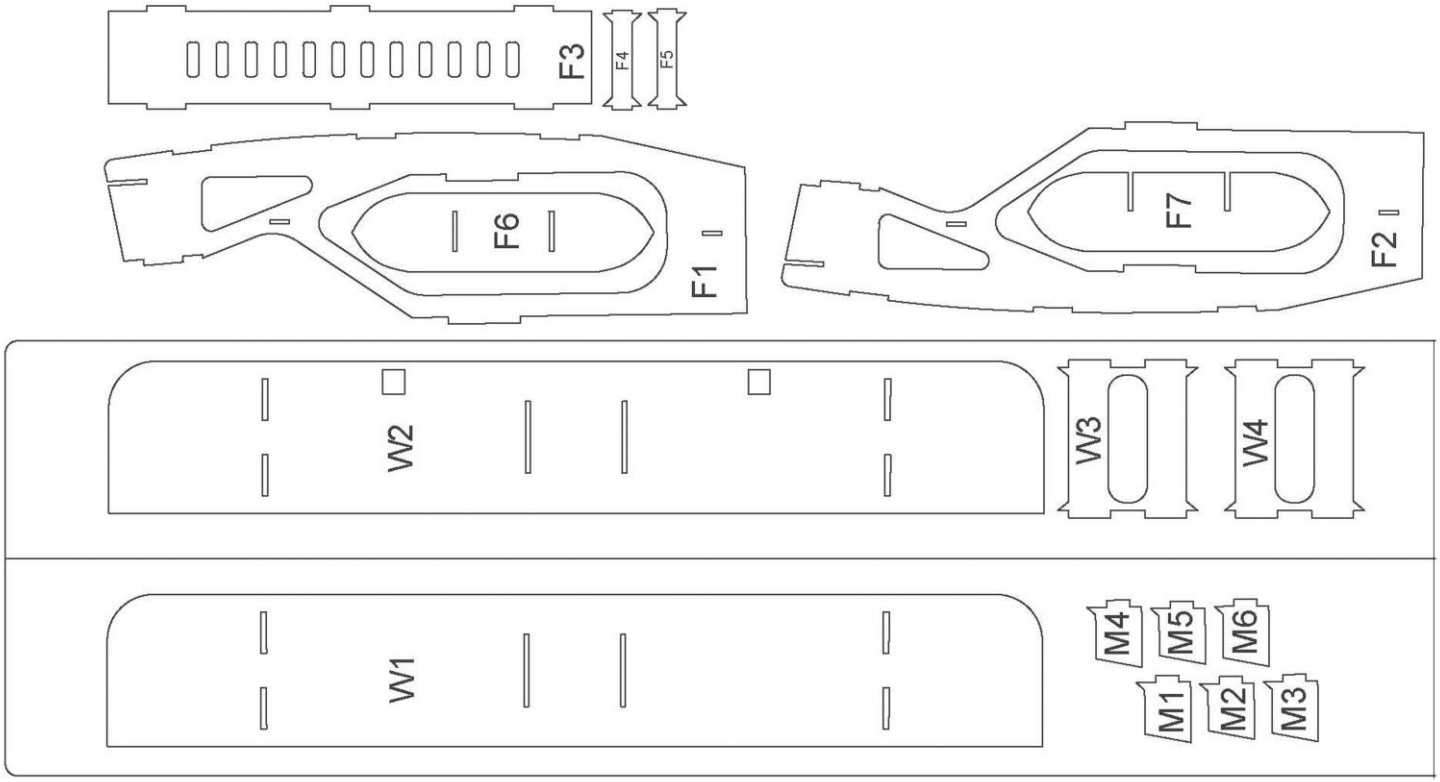
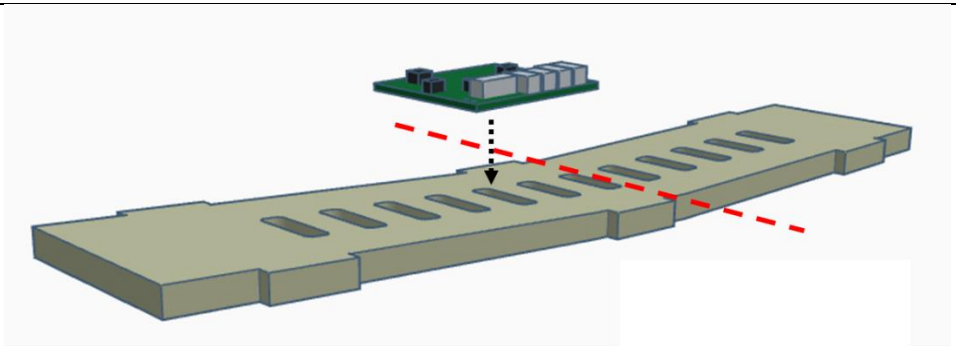
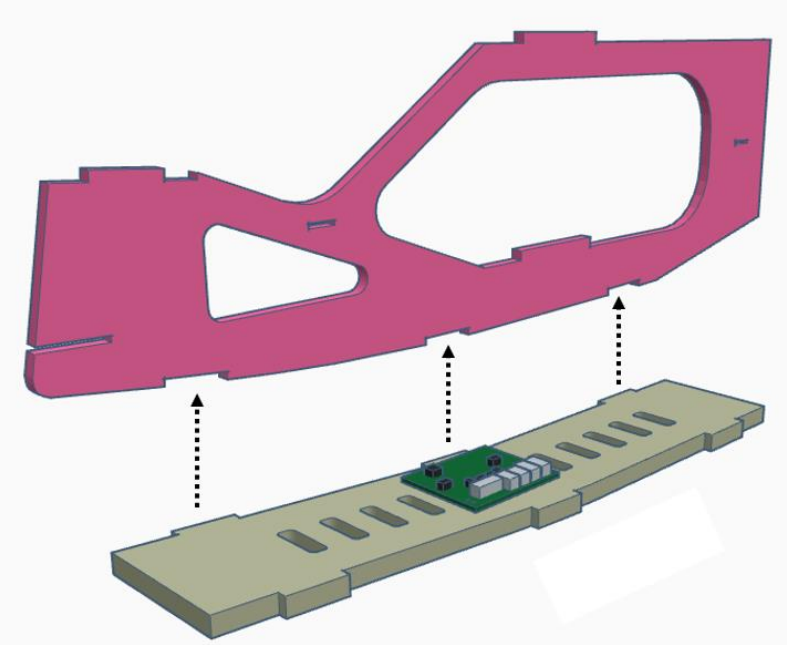
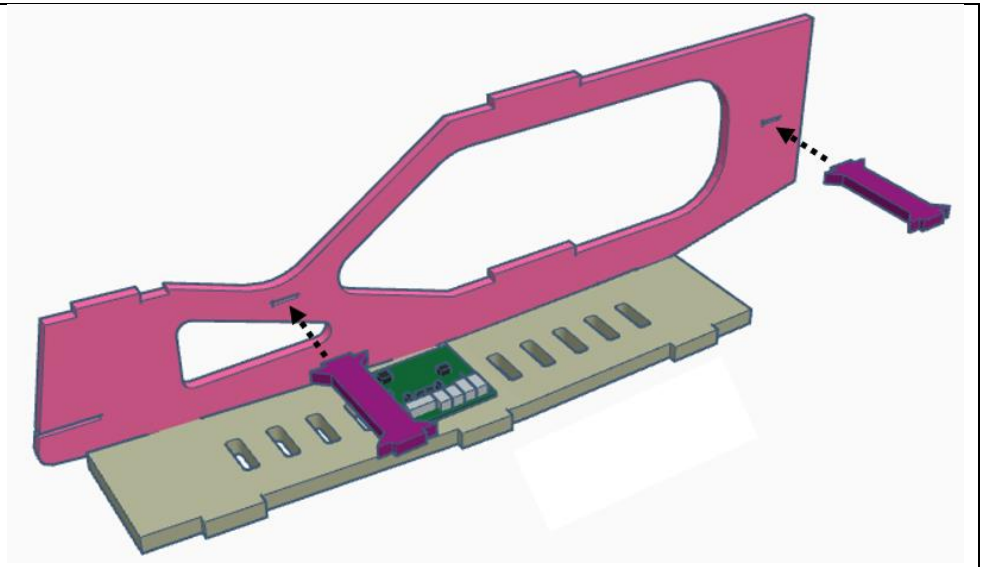
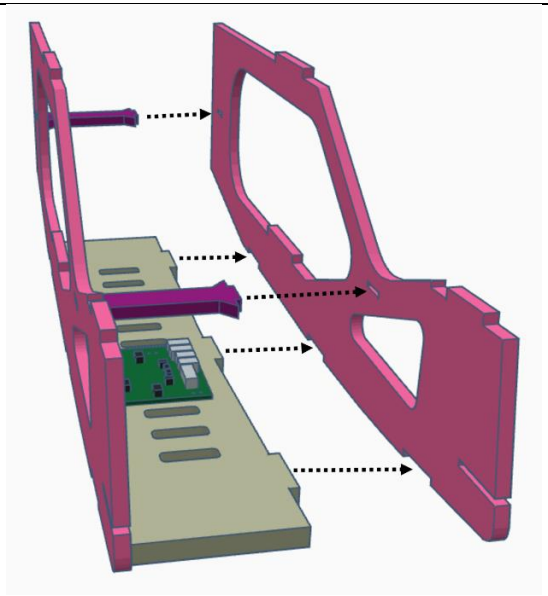


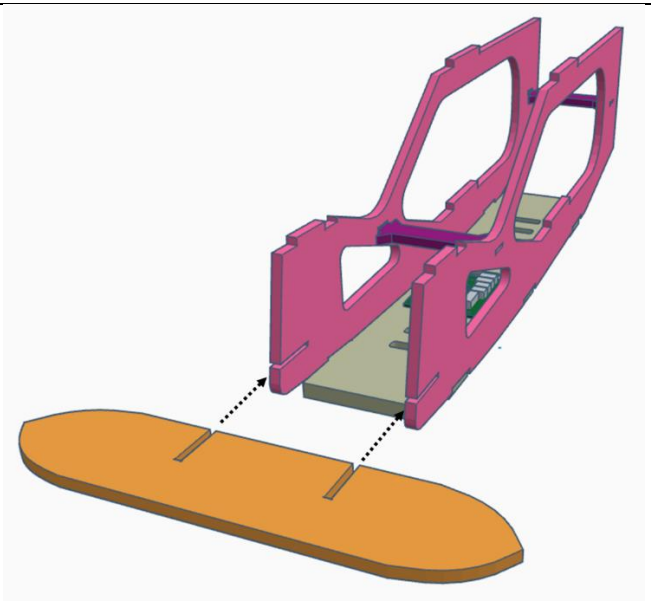
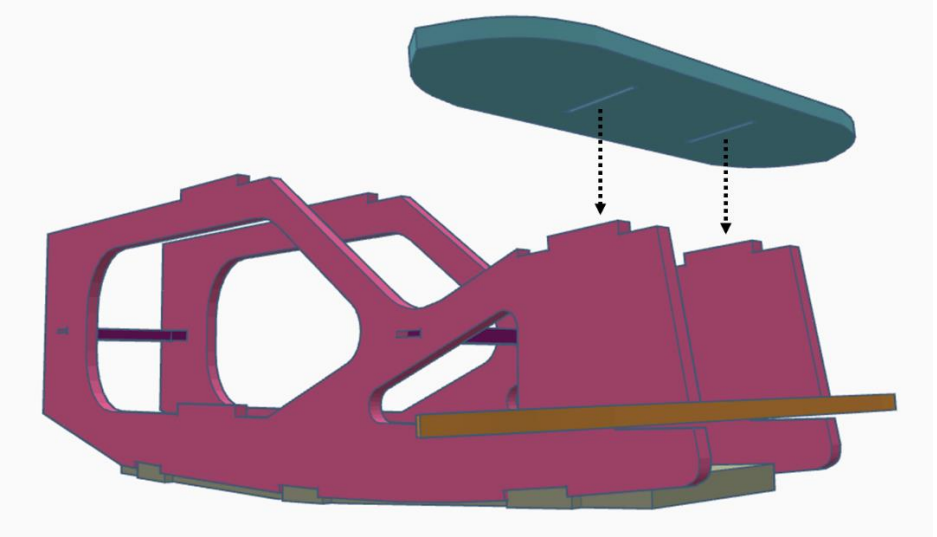
Figure 2. Numbering of Wright Flyer units

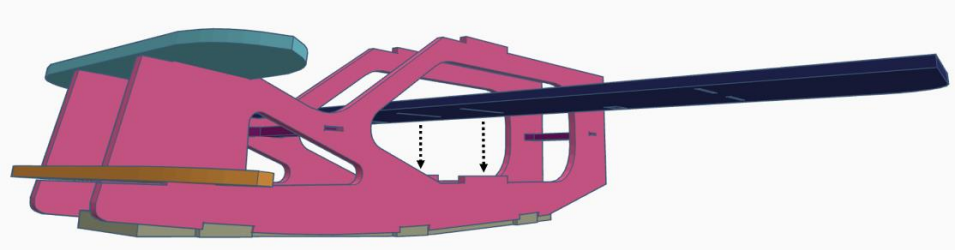
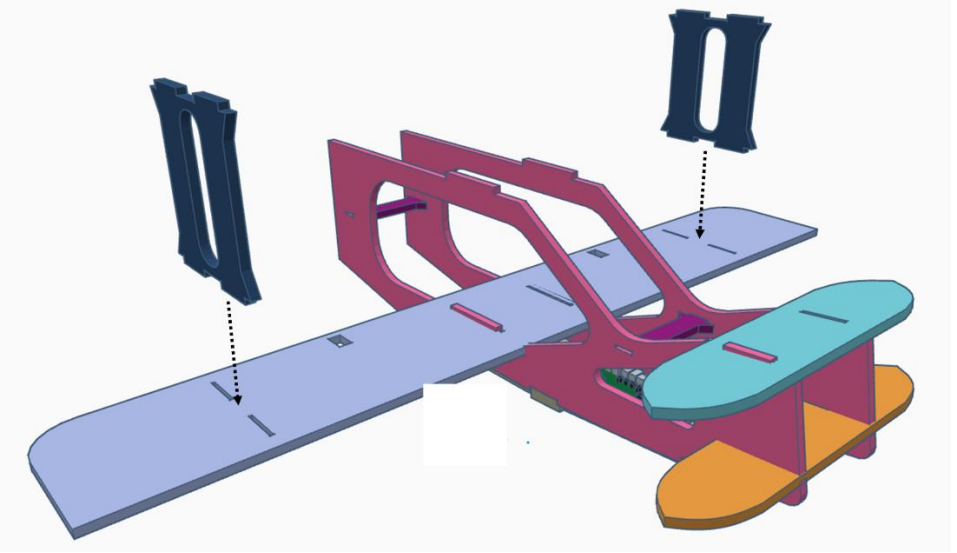
Figure 2 shows the numbering of Wright Flyer units. The units are numbered based on the following rules. For those related to fuselage, the numbering starts with initial of “F”. For those related to wing, the numbering starts with initial of “W”. Finally, for those related to motor, the numbering starts with initial of “M”.

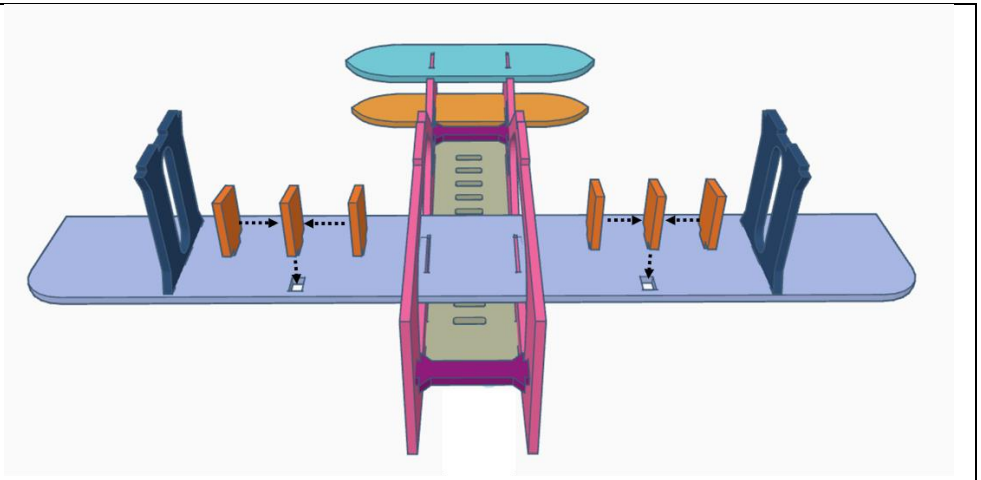
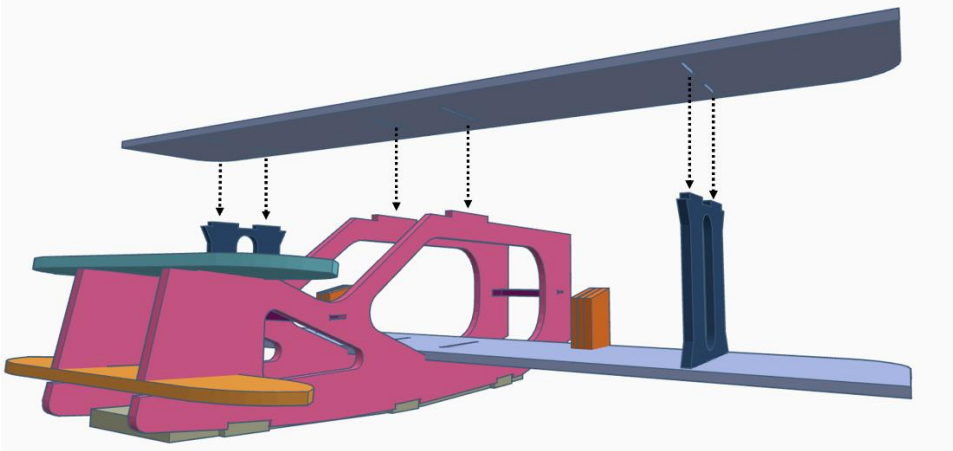
III. Assembly steps

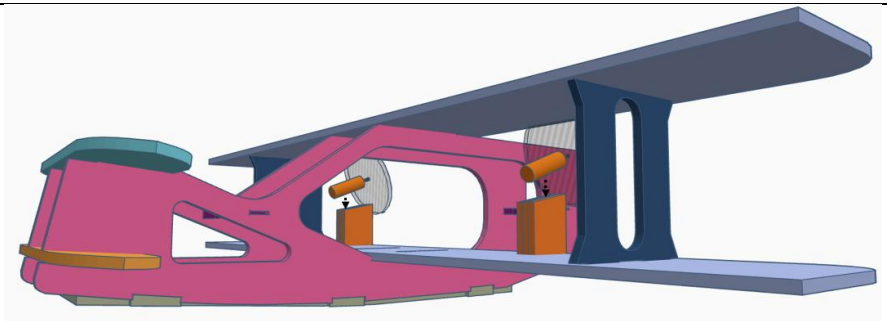
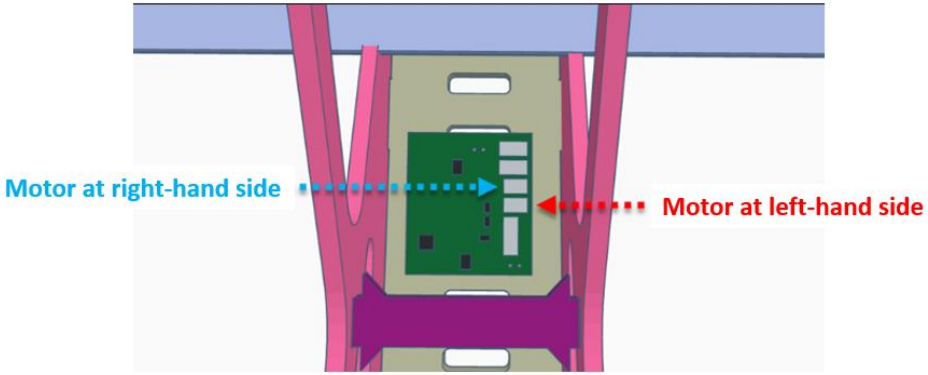
1	Attach Li-Gyro flight controller on the bottom part of fuselage (F3). You can confirm the correctness of the orientation of the flight controller by checking that Y axis of Gyro is pointing to the front of the fuselage. Moreover, you need to ensure that the rear edge is aligned with the dash line in red. You can put four drops of hot glue to hold the flight controller.	
2	Attach the right-hand part of the fuselage (F1) to the bottom part of the fuselage (F3). You just need to squeeze a litter bit of polystyrene glue along the contact area, assemble it to the bottom part of the fuselage, and hold them tight for 30-40 seconds until the glue is dry.	

3	Stick fuselage supporters (F4 and F5) to the right-hand part of the fuselage (F1). You just need to drop a litter bit of glue along the contact area, insert them into the right-hand part of fuselage, and hold them tight for 30-40 seconds until the glue is dry.	
4	Stick the left-hand part of the fuselage (F2) to the part assemble until Step 3. You just need to drop a litter bit of glue along the contact area, assemble it to the part completed at Step 3, and hold them tight for 30-40 seconds until the glue is dry.	

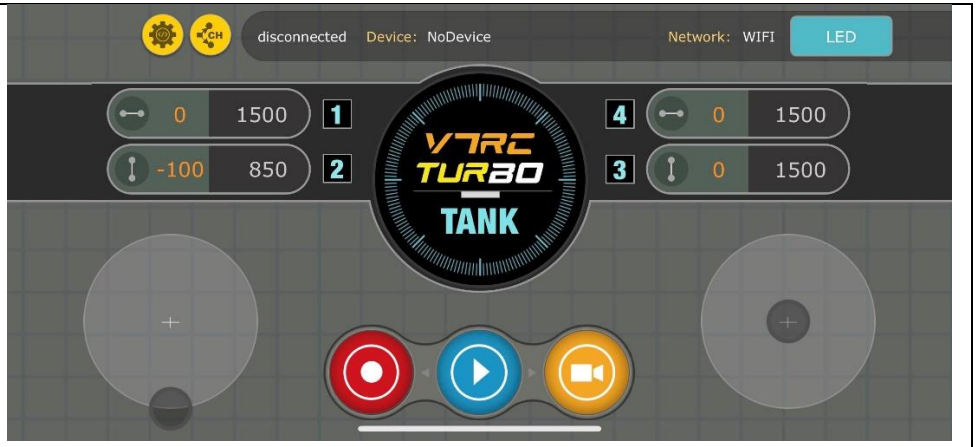
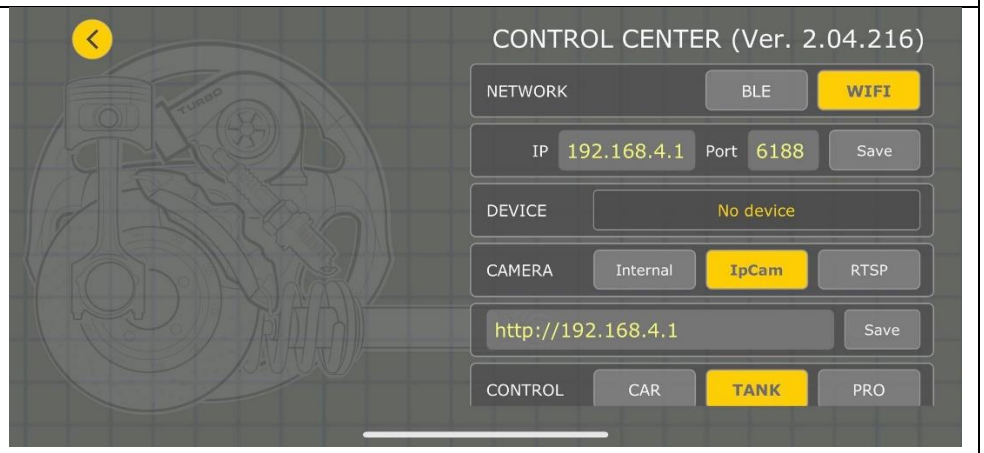
5	Attach aircraft head (F7) to the part completed at Step 4. You just need to drop a litter bit of glue along the contact area, insert it to the part completed at Step 4, and hold them tight for 30-40 seconds until the glue is dry.	
6	Attach aircraft head (F6) to the part completed at Step 5. You just need to drop a litter bit of glue along the contact area, insert it to the part assemble until Step 5, and hold them tight for 30-40 seconds until the glue has dried.	

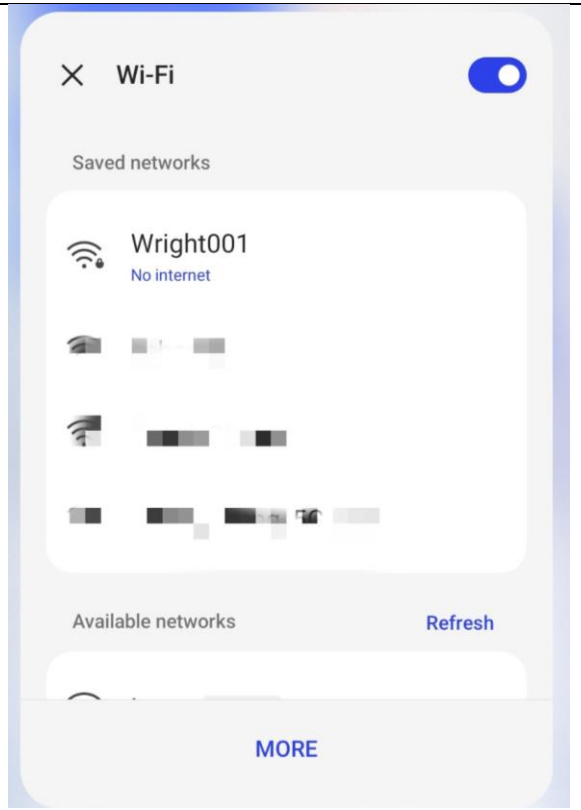
7	Attach lower wing (W2) to the part completed at Step 6. You just need to drop a litter bit of glue along the contact area, assemble it to the part completed at Step 6, and hold them tight for 30-40 seconds until the glue is dry.	
8	Stick the wing supporters (W3 and W4) to the lower wing (W2). You just need to drop a litter bit of glue along the contact area, insert them to the lower wing, and hold them tight for 30-40 seconds until the glue is dry.	

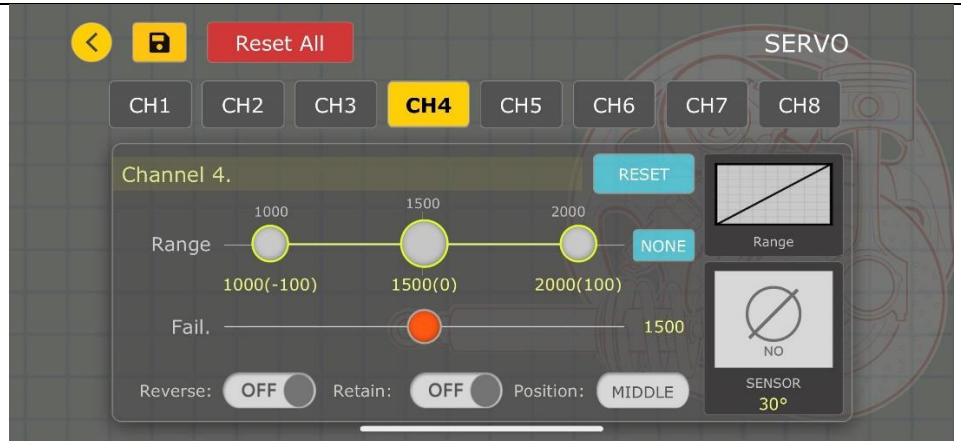
9	Attach two sets of motor mount (M1, M2, M3, M4, M5, and M6) to the lower wing. M1, M2, and M3 are for left motor mount. M4, M5, and M6 are for right motor mount. Please be aware of that M2 (in the middle) is a little bit shorter than M1 and M3. So is M5 to M4 and M6. You just need to drop a litter bit of glue along the contact area, insert them to the lower wing, and hold them tight for 30-40 seconds until the glue is dry.	
10	Stick upper wing to the part completed at Step 9. You just need to drop a litter bit of glue along the contact area, put it on the part competed at Step 9, and hold them tight for 30-40 seconds until the glue is dry.	

11	Use glue to stick left and right DC motors on the motor mounts. Then, use tape to hold them tight.	
12	Plug motors on Li-Gyro flight controller according to the figure shown on the right-hand side.	

IV. V7RC APP installation

1	Install V7RC APP (the links listed at the end of this chapter). Enter the control UI page of V7RC APP, and click gear icon to enter control center.	
2	In control center, set parameters according to the following information: NETWORK: WIFI IP: 192.168.4.1 Port: 6188 CONTROL: TANK (Note: please click “Save” button when IP and Port have been filled)	

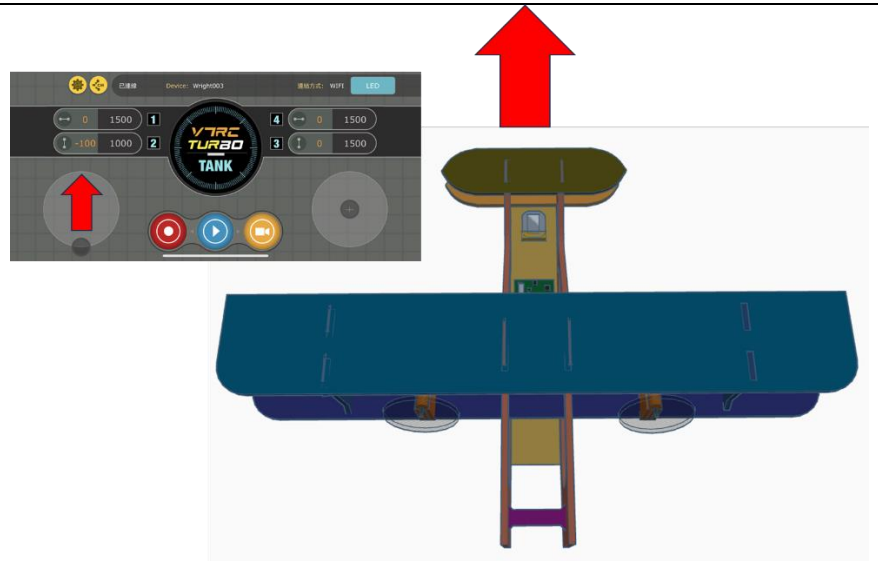
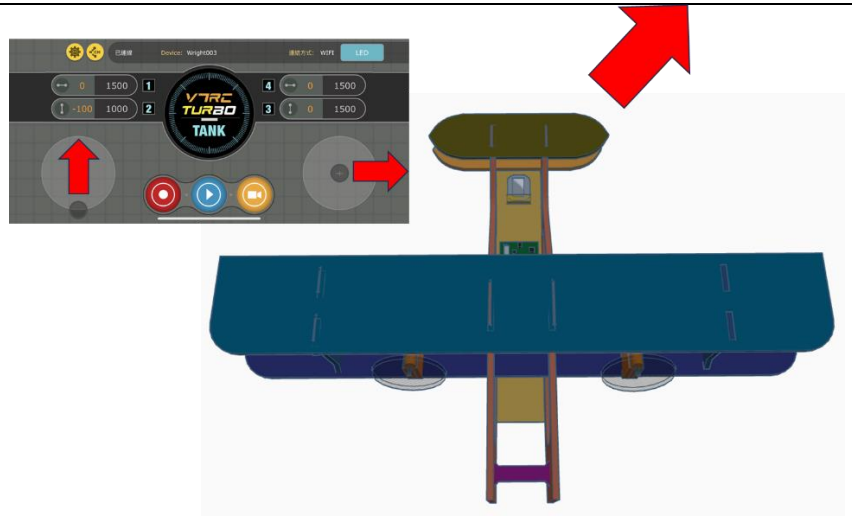
3	Click DEVICE to enter Wi-Fi configuration page. Search SSID for name with initial of “Wright”, like Wright001. Click connect and fill password (which is the same as SSID). If there is a warning popped up to indicate that there is not internal for the Wi-Fi connection, please ignore it and click confirm directly to keep Wi-Fi connection to Li-Gyro.	
4	Scroll down to find SERVO and click SETUP to enter SERVO configuration page. First, select tab “CH2”. Set Retain as ON and Position as LOW.	

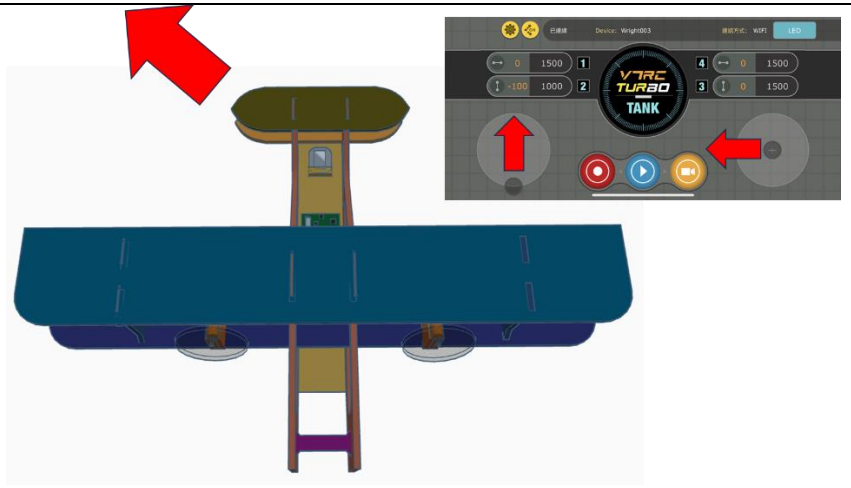
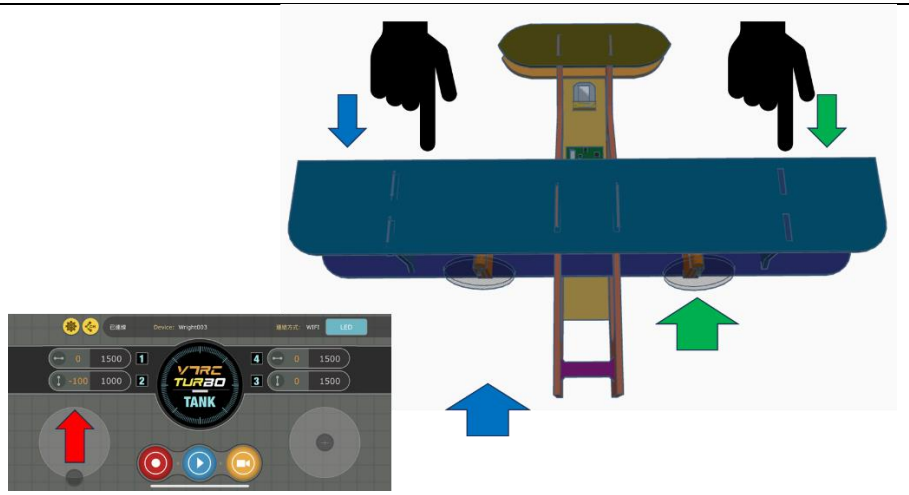
5	Then, selection tab “CH4”. Set Retain as OFF and Position as MIDDLE.	
6	Return back to control UI page and enjoy the fly.	

V7RC APP link:

- Android: https://play.google.com/store/apps/details?id=com.v7idea.v7rcliteandroidsdkversion&hl=zh_TW&gl=US
- iOS: https://apps.apple.com/tw/app/v7rc/id1390983964

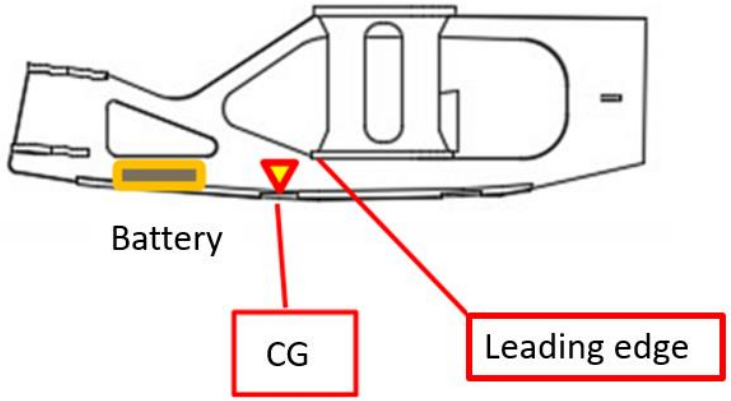
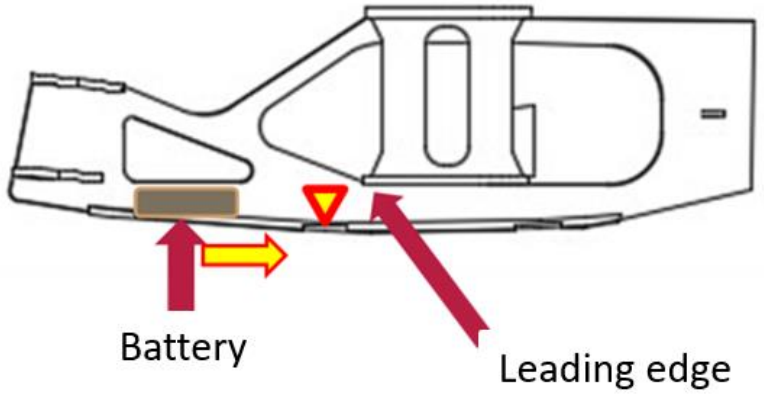
V. Functionality test

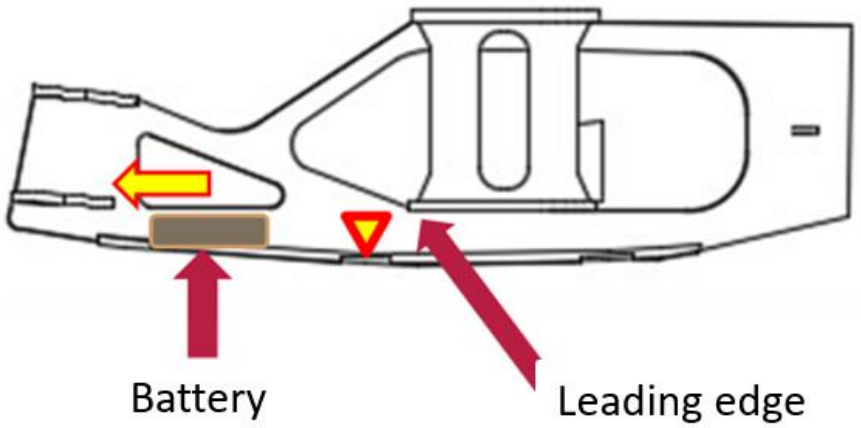
1	Throttle test: put Wright Flyer on the ground. Push throttle up and check if Wright Flyer is moving straight forward, as the red arrow shows.	
2	Right turn test: put Wright Flyer on the ground. Push throttle up and push aileron to the right. Ensure that Wright Flyer is turning right, as the red arrow shows.	

3	Left turn test: put Wright Flyer on the ground. Push throttle up and push aileron to the left. Ensure that Wright Flyer is turning left, as the red arrow shows.	
4	Gyro test: ➢ Preamble: put Wright Flyer on the ground. Push throttle up to make DC motors turning but do not have enough power to make Wright Flyer moving. ➢ Compensation test for bias to the right: use your finger to push the leading edge of the right wing and observe if the rotation speed of the right motor increases to pull Wright Flyer back to the center (as the green arrow shows). ➢ Compensation test for bias to the left: use your finger to push the leading edge of the left wing and observe if the rotation speed	

	of the left motor increases to pull Wright Flyer back to the center (as the blue arrow shows).	

VI. Tuning

1	Before flying the plane, you need to adjust the location of the battery to locate CG (Center of Gravity) at the right position, which is about 1cm in front of leading edge of the wing.	
2	Do launching and landing test to see if the aircraft can glide well. If the plan flies toward ground, it indicates that the CG is too close to the front. Then, the battery should be move backward.	

3	If the plane ascends too quickly, it indicates that the CG is too close to the back. Therefore, the battery should be moved forward.	
4	Find an open area to practice launching and landing. Do not fly too high for your first trials. Moreover, do not fly an aircraft when it is windy.