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# X700 Specifications

- Wingspan: 27.25 in
- Weight: 750g
- Recommended Battery: 2100 3S Lipo
- Max Flight Time: 15 Minutes
- Flight Controller: Speedybee F405 Wing
- GPS Included
- Optional FPV Camera

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# Included in Kit

- Corrugated Plastic Airframe
- Motor with mount and Collet
- 2x Propellers with spacers
- 30A ESC
- 6 Channel Radio
- 6 Channel Receiver
- USB Cable
- 3S Lipo Charger
- GPS Module
- 2X Servos
- Speedybee F405 Wing FC
- 1 Roll of Black Duct Tape
- 5x Bamboo Skewers
- 5X Zip Ties
- Hardware Kit

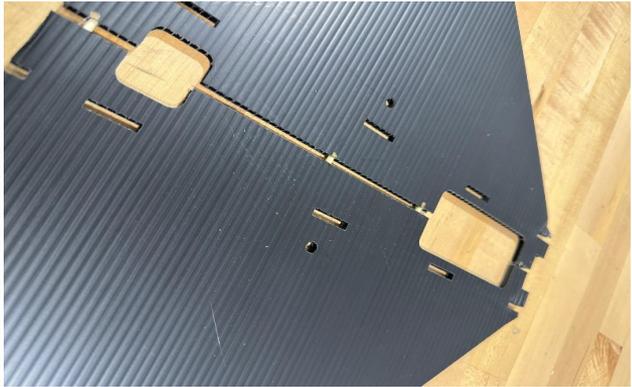


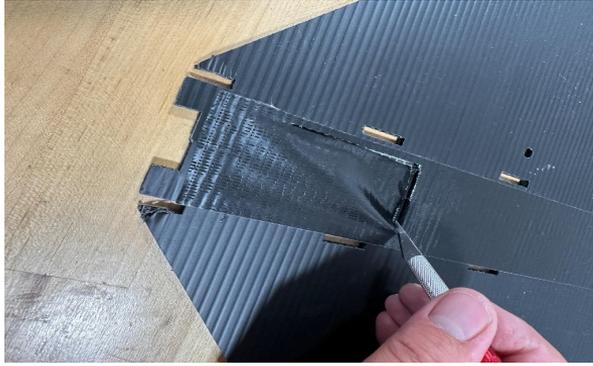
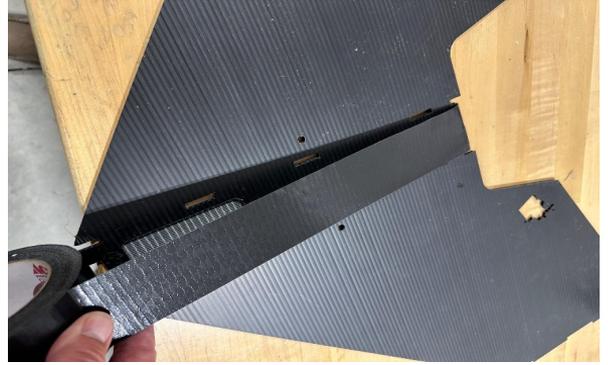
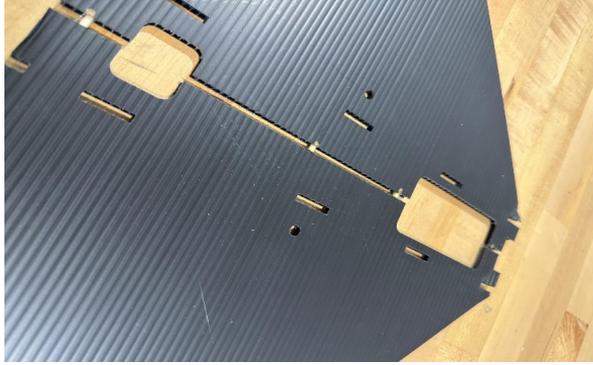
# Not Included but Required

- Tools
  - Hot glue gun + glue
  - Hobby Knife
  - Box Blade Knife
  - 24 inch + Straight-edge
  - Ruler
  - Paint pen
  - Soldering Iron + solder
  - Servo Tester
  - Diagonal cutters
  - Lighter
- Flight Battery
- FPV camera and goggles (optional)

# Step 1 - Glue Wing Halves Together

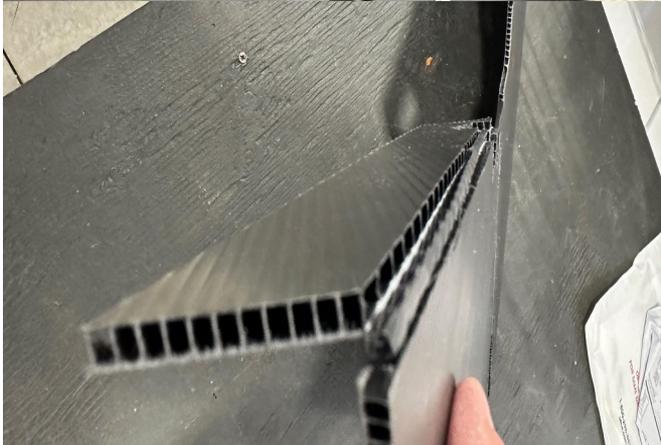
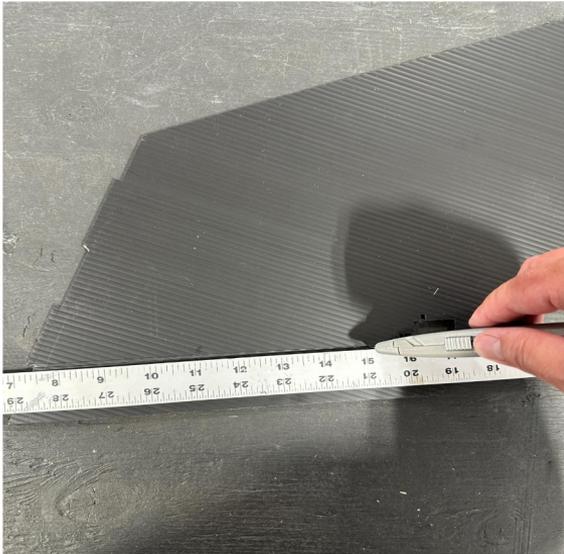
1. Cut one bamboo skewer to 3.5 inches and mark middle.
2. Mark middle of 3 full length bamboo skewers.
3. While applying glue, insert bamboo skewers into wing half flutes to middle mark as shown.
4. Mark corresponding flutes on opposite wing using a paint pen.
5. Lining up skewers to the marked flutes and while applying glue, insert skewers into other wing half and apply glue to the joint between wing halves. Ensure that the leading and trailing edges of the wing line up.
6. Place the wing on a flat surface and allow glue to dry.
7. Run tape over top and bottom of seam between wing halves
8. Using the hobby knife, cut out tape from center cutouts in wing.





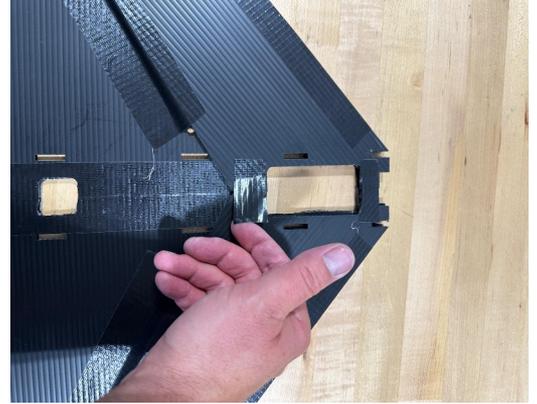
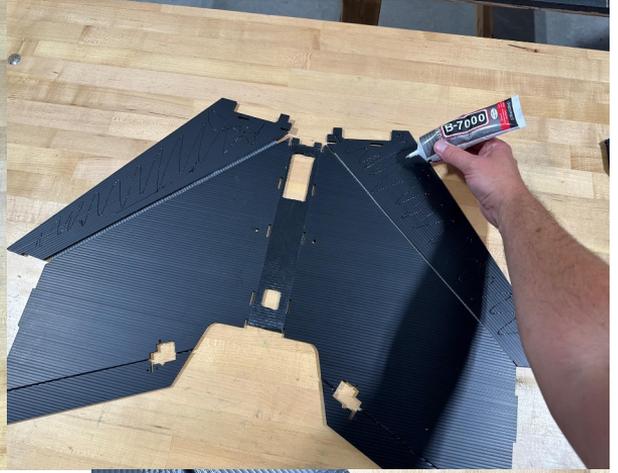
## Step 2 - Cut Elevon Hinges

1. On the right wing, line straight edge with the forward edge of elevon at tip and the notch at center of servo horn cutout at the other.
2. Cut a partial depth line along straight edge using box blade. Cut only through the top layer of plastic.
3. Cut a parallel partial depth line approximately  $\frac{1}{8}$  inch in front of the previous cut.
4. Fold elevon 180 degrees back and slice the core material out along the hinge using the box knife.
5. Bend the elevon the other direction to ensure at least 45 degrees of travel. If not, remove more core material.
6. If you accidentally slice through the bottom layer, use some duct tape to support the hinge.
7. Repeat steps 1-6 on the left wing.



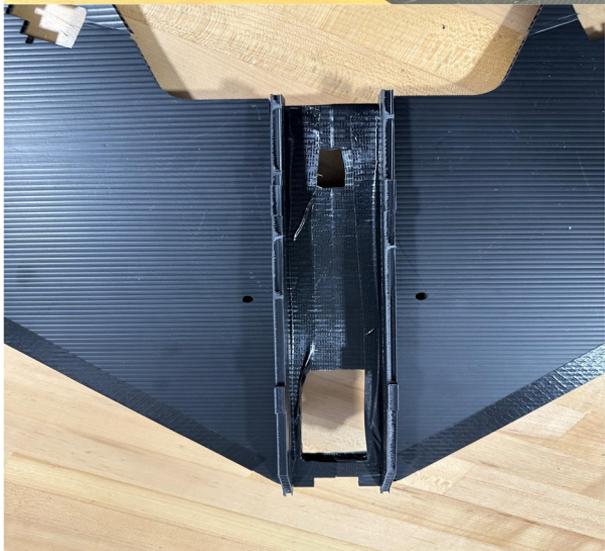
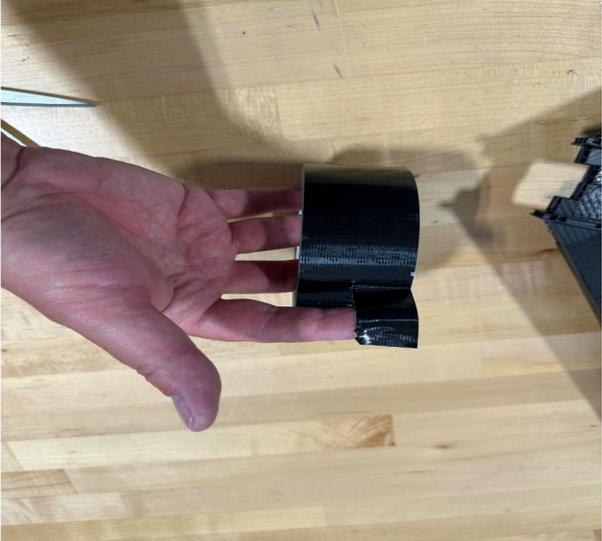
## Step 3 - Install the Wing Stiffeners

1. Lay wing stiffeners in position on wing and run duct tape along the leading edges as shown. Approximately,  $\frac{1}{2}$  inch should be adhered to the stiffener.
2. Roll tape around leading edge to adhere to wing half.
3. Open up stiffener and apply a layer of glue on it.
4. Fold the stiffener down and allow glue to dry.
5. Run another strip of tape along the trailing edge of the stiffener as shown.
6. Add two pieces of tape to the bridge areas as shown.



## Step 5 - Install the Fuselage Sides

1. Tear duct tape in half to separate roughly 1 inch strips for attaching fuselage sides.
2. Slide one fuselage side onto the wing from the front side. Ensure that tabs in the side engage with the holes in the wing.
3. Apply 1-inch strips of duct tape on the inside corners. On the top and bottom of the wing. Ensure that the fuselage side remains perpendicular to the wing at all times.
4. Repeat steps 1-3 for the other fuselage side. When finished, ensure that both sides are perpendicular to the wing and top and bottom align as shown.



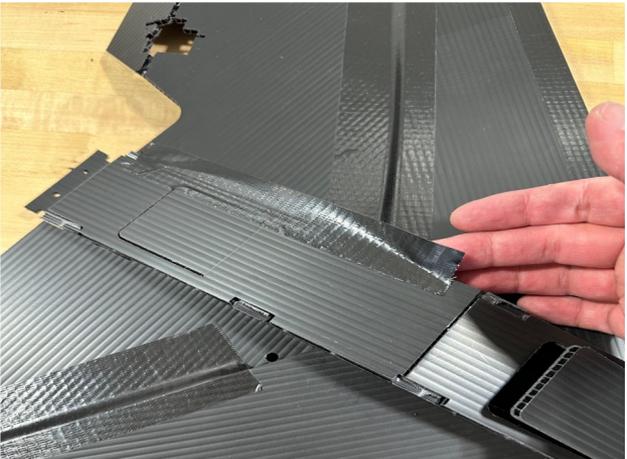
## Step 6 - Install the Fuselage Cover

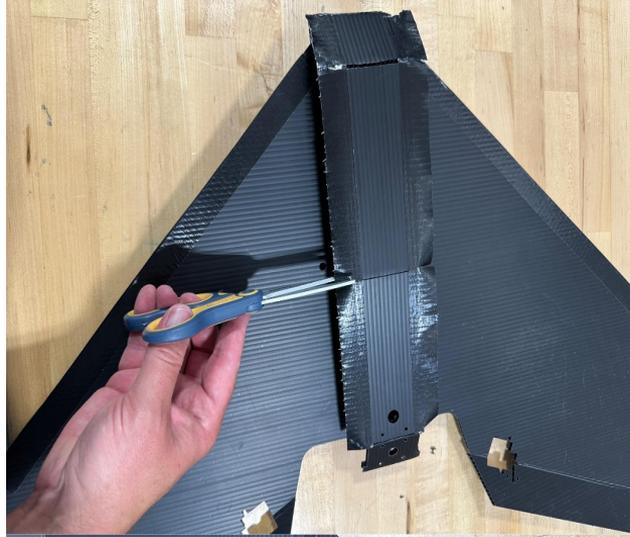
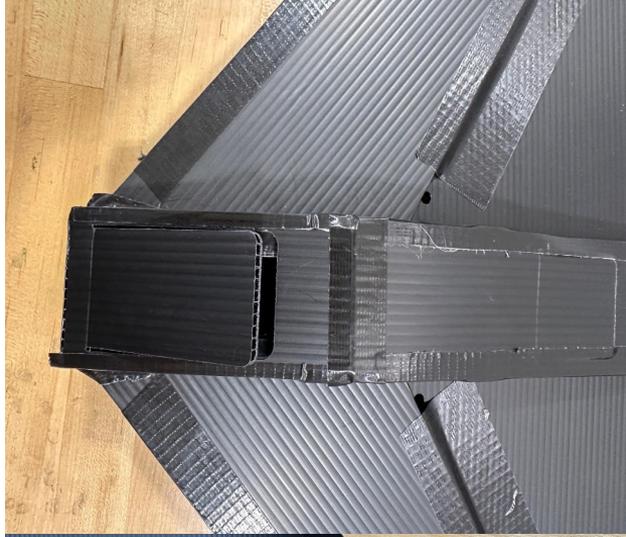
1. Using the hobby knife or box blade with a straight edge, cut half-depth lines as indicated in red on the “SIDE A” image. These are the bend lines for the fuselage cover as it wraps around the fuselage sides.
2. Bend the fuselage cover opposite the cut lines to break the joints.
3. Flip the fuselage cover over and make two cuts as indicated on “SIDE B”. These are the hinges for the two hatches.
4. Starting at the aircraft nose, wrap the fuselage cover around the fuselage sides, engaging the tabs and placing 1-inch strips of tape along the joint as you go.
5. After tape is securing entire joint on top and bottom of fuselage, place tape over all fold lines.

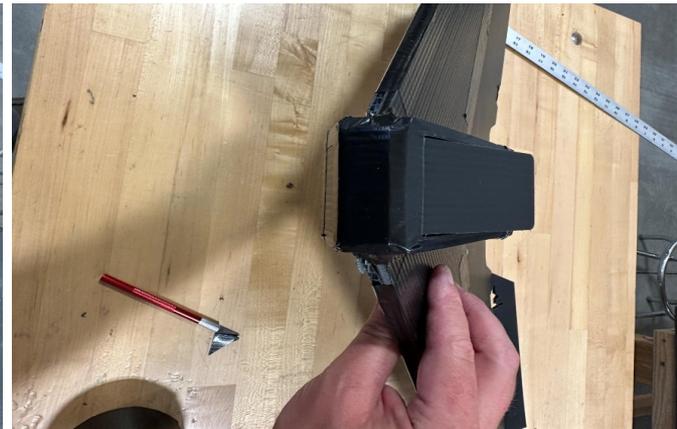
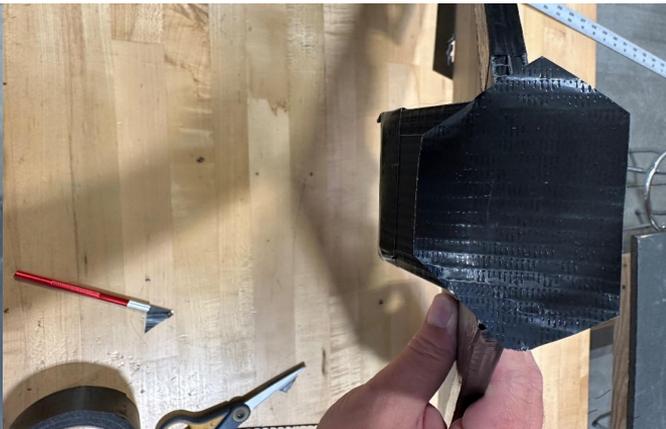
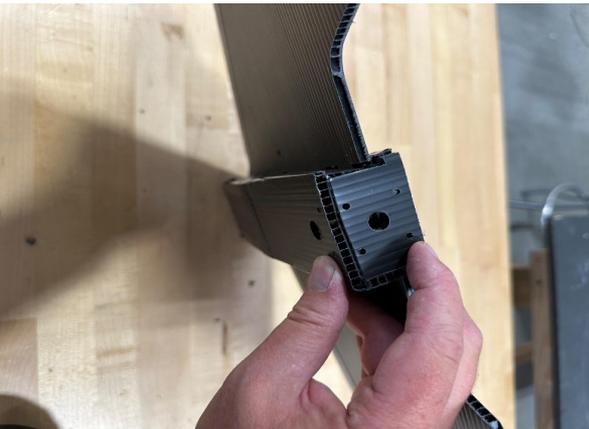
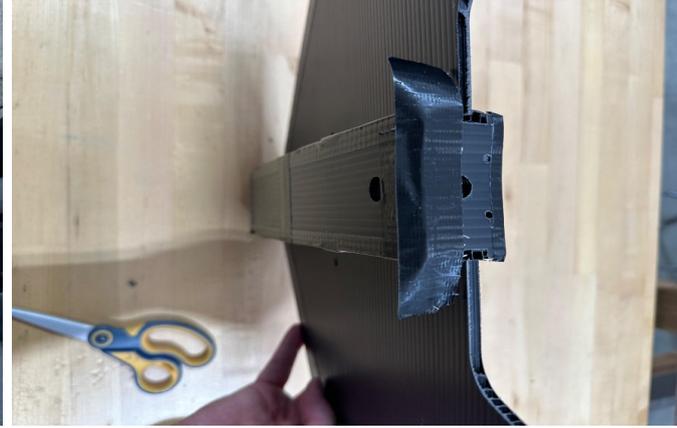
SIDE A



SIDE B

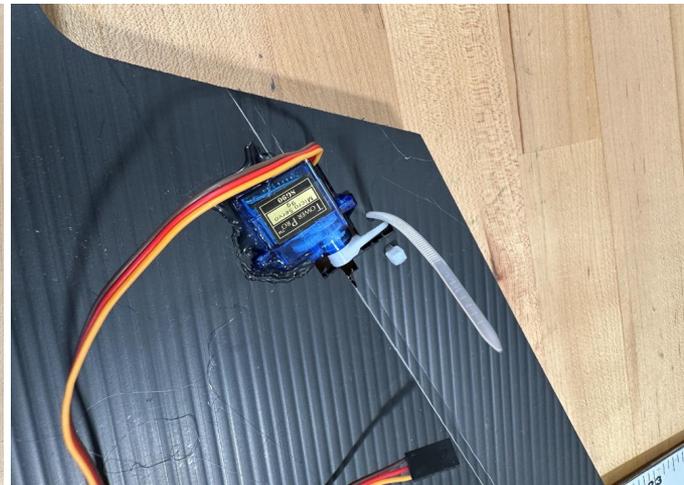
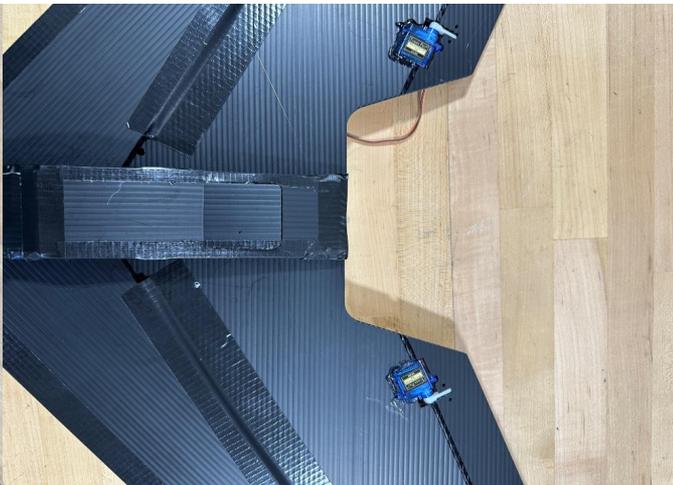
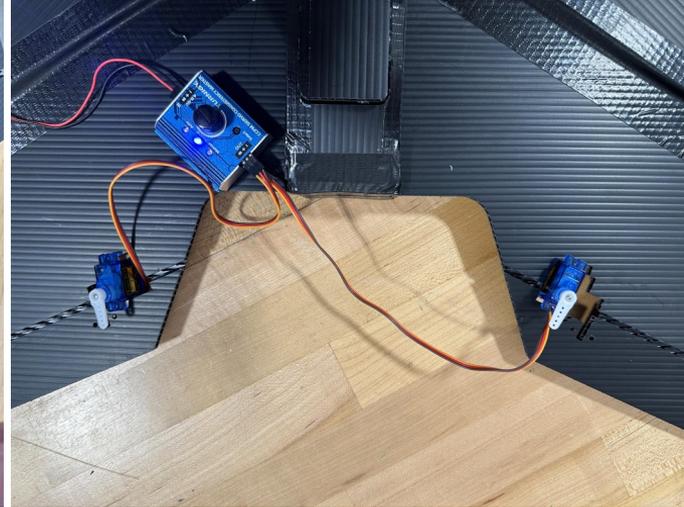
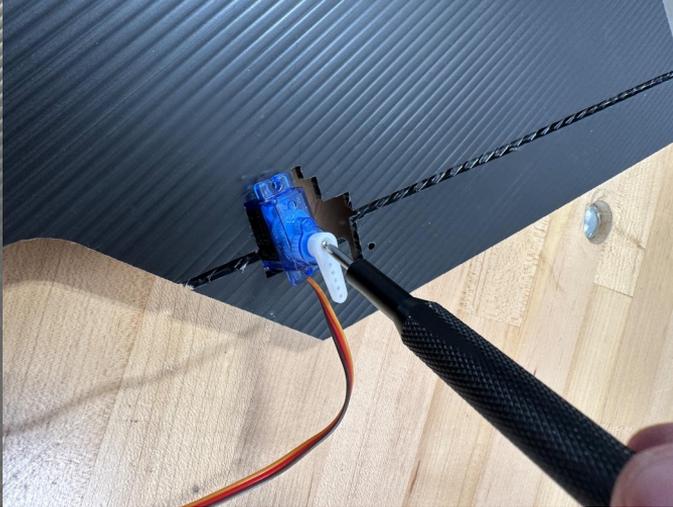
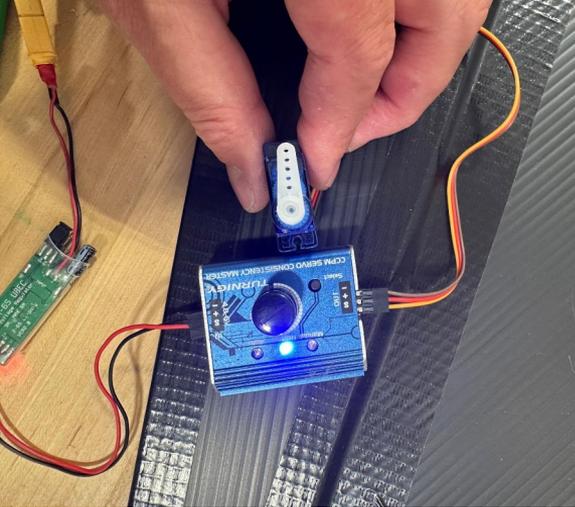


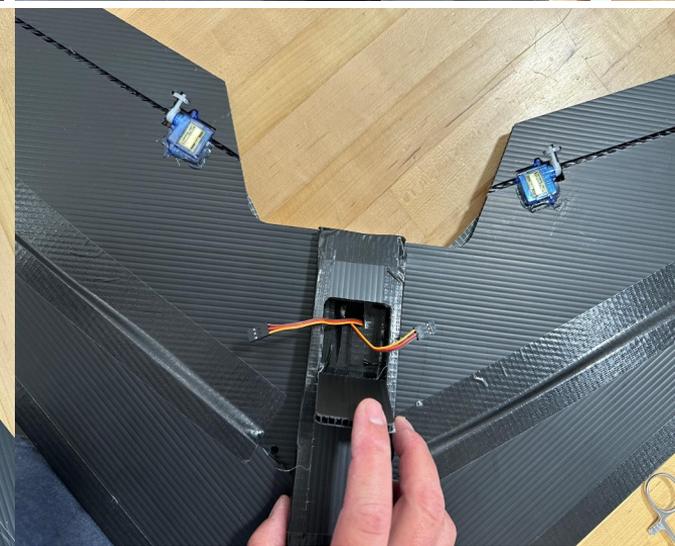
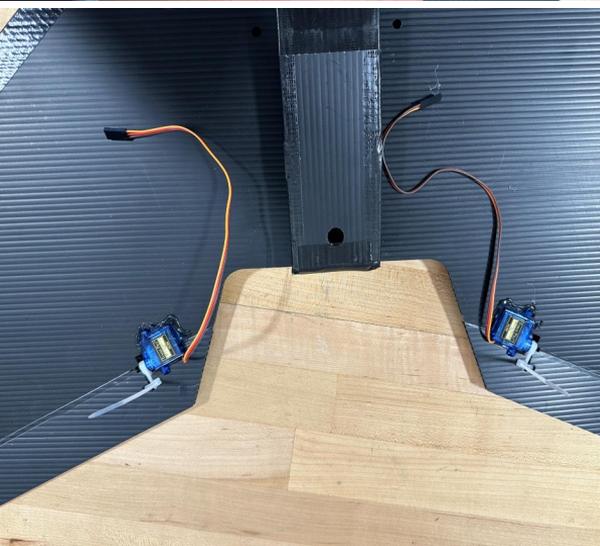
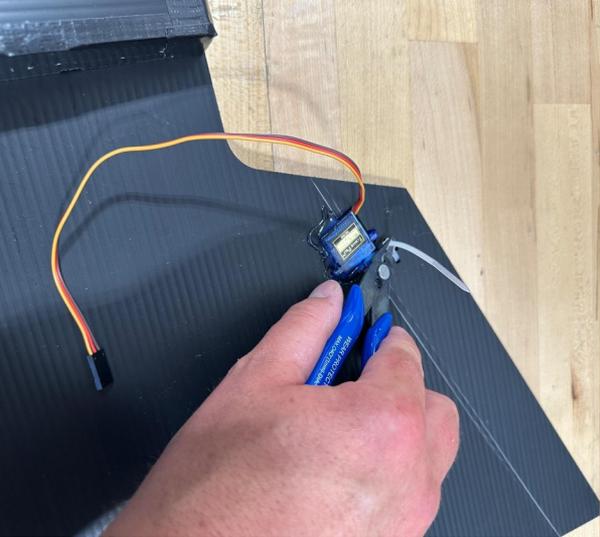




## Step 6 - Install Servos

1. Center servos using a servo tester set to mid position and install middle-sized servo horn as shown with arm facing away from servo. Note left and right servo horns are mirrored.
2. Install servo horn set screw.
3. Place servos in wing cutouts as shown with wires running below wing.
4. While holding the servo flat with the wing, apply a bead of glue halfway around the servo. Gluing it only to the wing and not the elevon. Hold the servo until the glue sets.
5. Run a zip tie through the holes around the servo horn in the elevon and secure.
6. Cut the zip tie tails using diagonal cutters.
7. Cut through any tape in the servo wire slot in the fuselage using the hobby knife and then insert the servo wire connector through the slot as shown.
8. Place tape over the servo wires as shown.
9. Feed the servo wires through the cutout inside the fuselage and through the top hatch as shown.





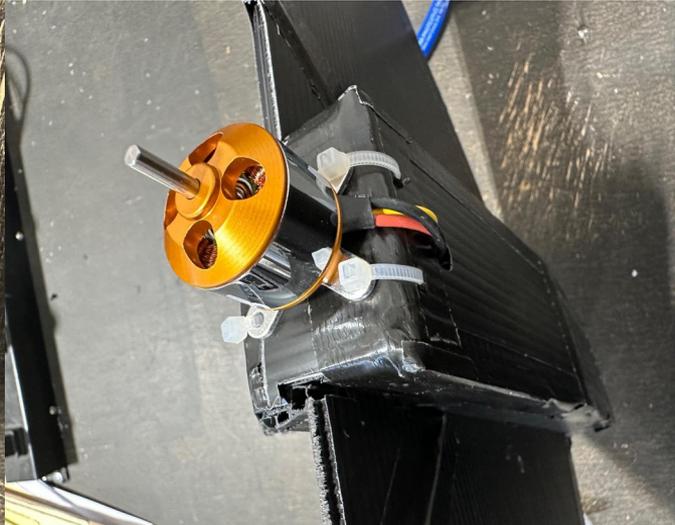
## Step 7 - Install Winglets

1. Snap winglet on wing tip as shown.
2. While holding the winglet perpendicular to wing, apply a fillet of glue all the way around the joint on top and bottom of the wing as shown. Note, do not glue elevon to winglet.
3. Hold winglet in place until glue dries.



## Step 8 - Install Motor

1. Install motor backing plate with four screws as shown.
2. Run four zip ties through holes in fuselage and backing plate as shown to secure motor to motor mount.
3. Secure zip ties and cut tails as shown.
4. Run motor wires into hole in bottom of fuselage as shown and through slot on inside of fuselage.

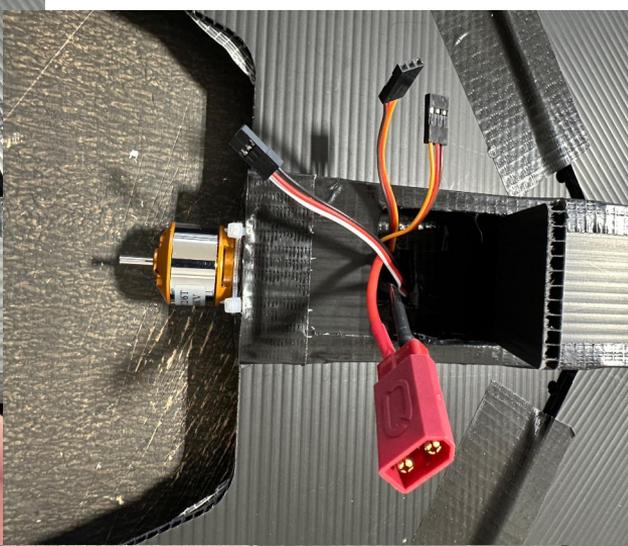
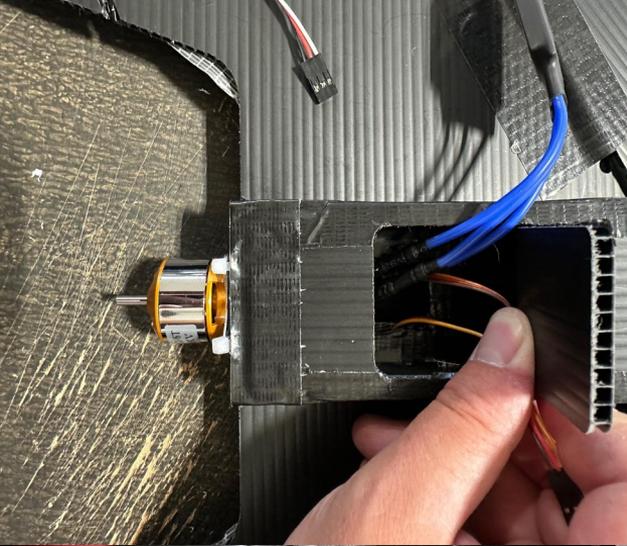


## Step 9 - ESC, Hatches, and Prop

1. Connect ESC to 3 motor wire connectors and insert ESC into slot in fuselage as shown.
2. ESC should sit in bottom compartment of fuselage with all connectors running through slot in fuselage.
3. Add hatch tape as shown to both hatches. Fold the edge of the tape on the battery hatch to act as a tab for peeling the tape for repeated battery removal/installation.

NOTE - DO NOT INSTALL PROP UNTIL YOU ARE READY FOR FLIGHT

4. Install plastic prop ring into prop hub as shown. Note the size selected from the ring tree.
5. Push prop collet on motor shaft and then install prop over threads. Note the direction the lettering on the prop. It should face forward.
6. Install the prop collet spinner and tighten

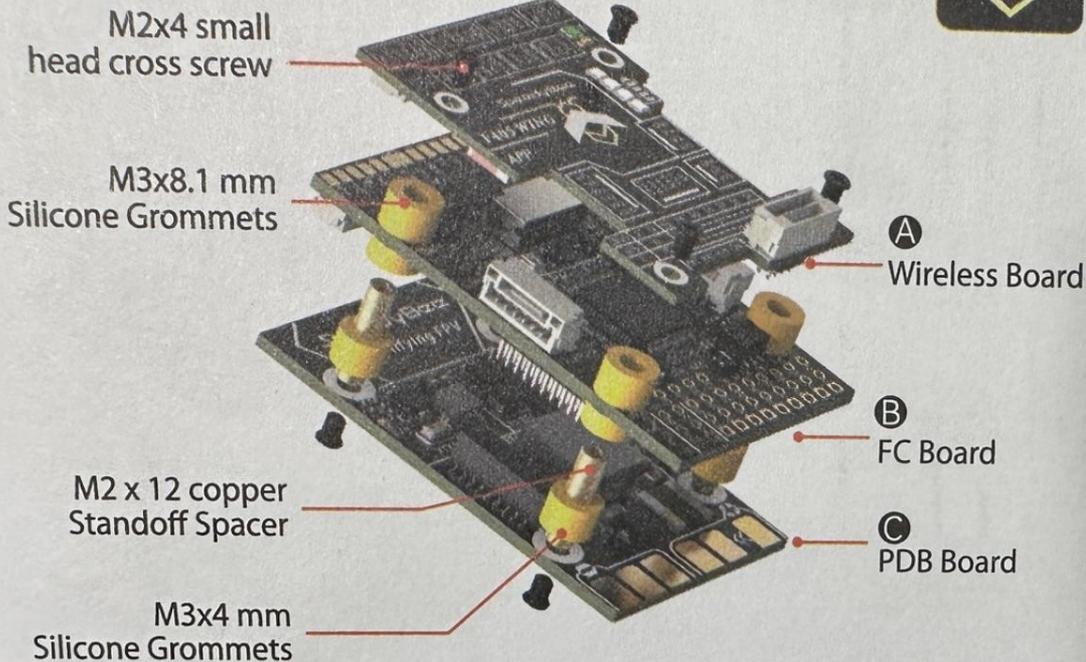


# Step 10 - Install Flight Controller

1. Solder right angle header pins on PCB as shown.
2. If voltage and power readings in flight are desired, solder XT60 connectors and wire to power PCB as shown. Otherwise, leave out.
3. Stack Controller as shown in figure and install screws. Make sure to align small connectors when placing layers together.
4. Make GPS harness by soldering 6-wire harnesses together as shown. Cut heat shrink in two and place over wire before soldering.
5. Heat the tubing with a lighter to shrink into place.
6. Flip the blue and white wire positions on the GPS connector by using the hobby knife to release the contacts as shown.
7. Connect the USB board and receiver's SBUS to the flight controller with included harnesses as shown.
8. Secure flight controller inside fuselage with double-sided tape or hot glue. Arrow on flight controller should face forward.
9. Tuck all wires into fuselage and tape over hatches.
10. Install GPS on top of wing with double-sided tape or hot glue as shown.

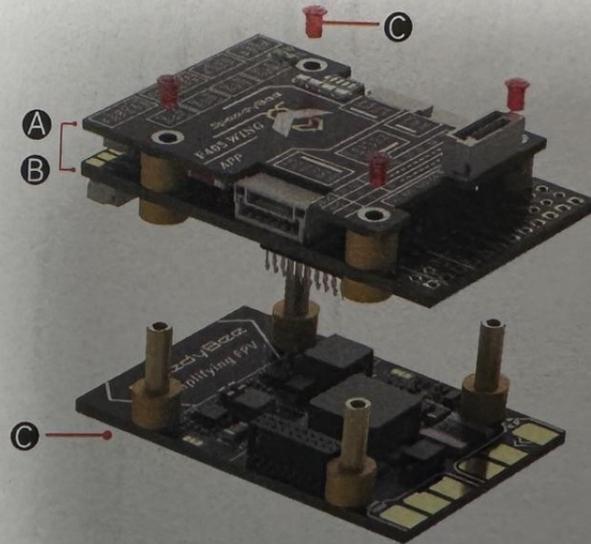
# Assembly Instructions

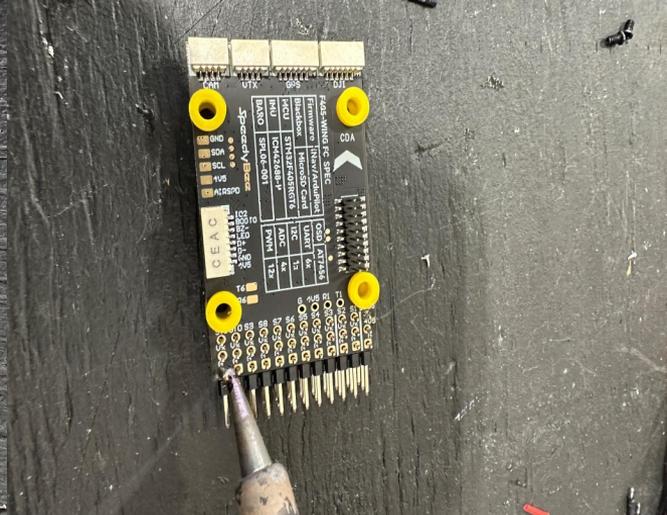
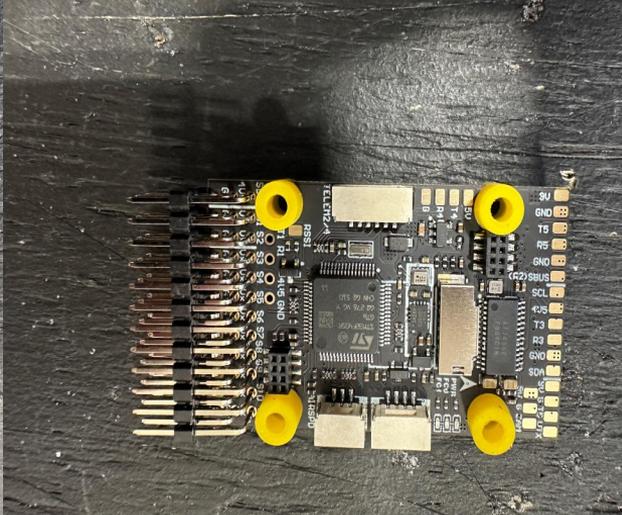
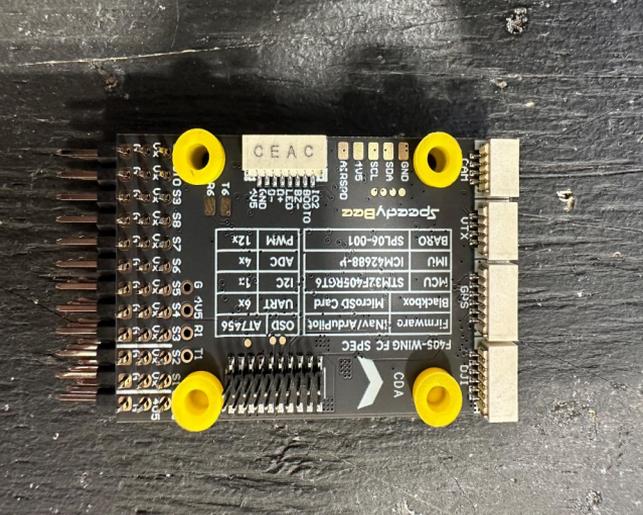
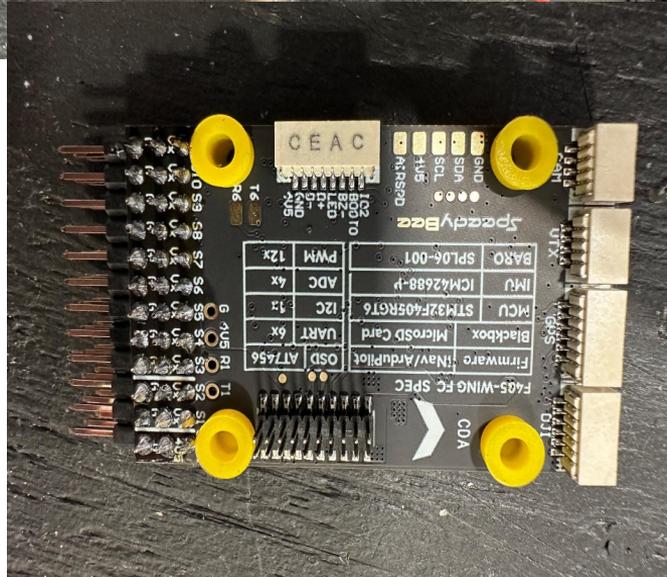
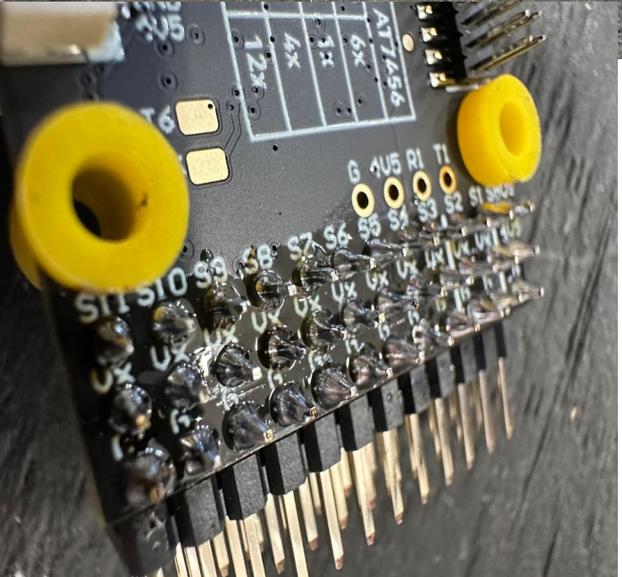
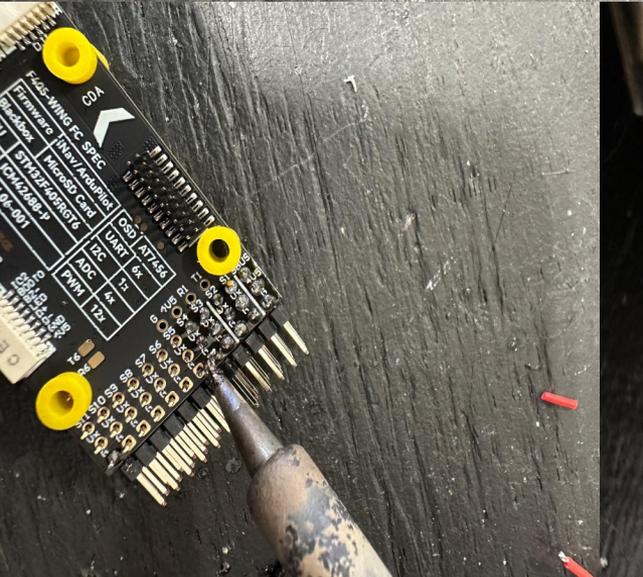
The direction of the arrow is the machine head

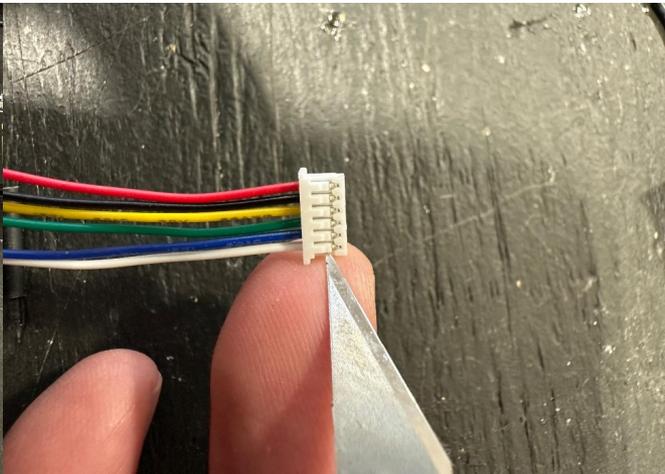
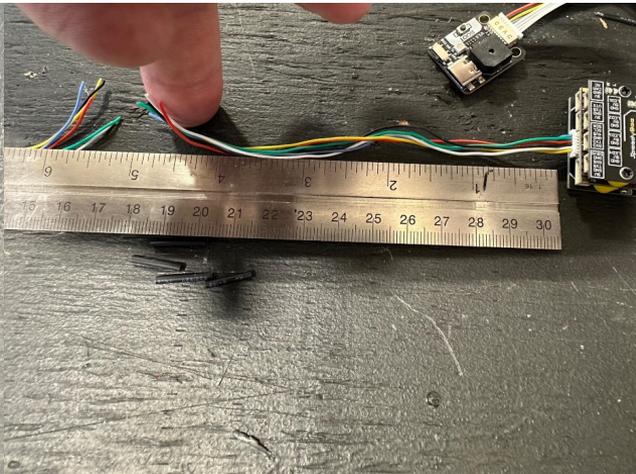
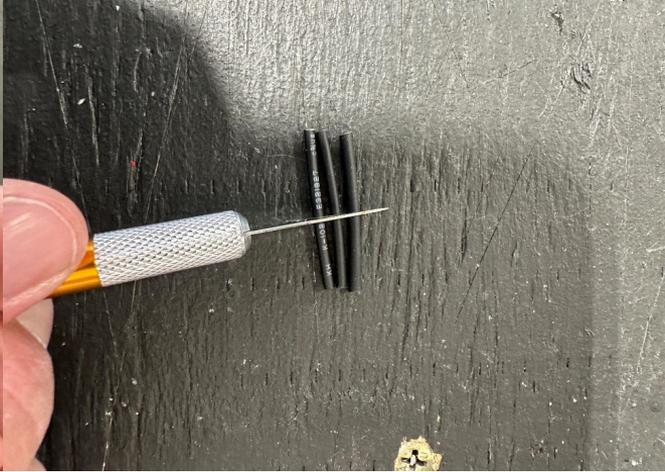
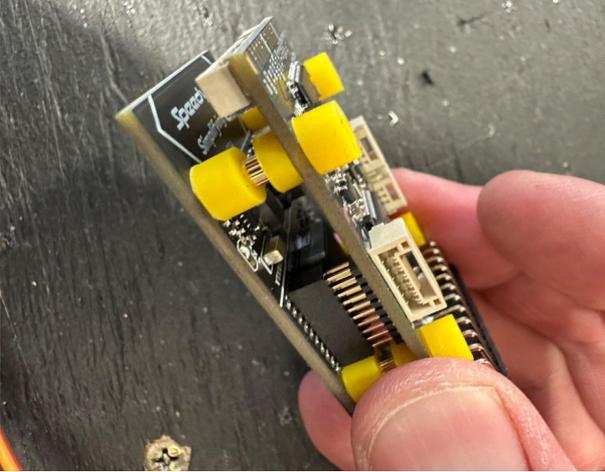
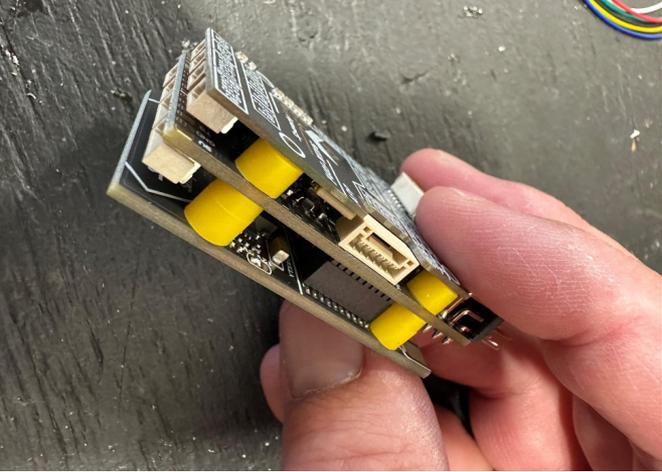


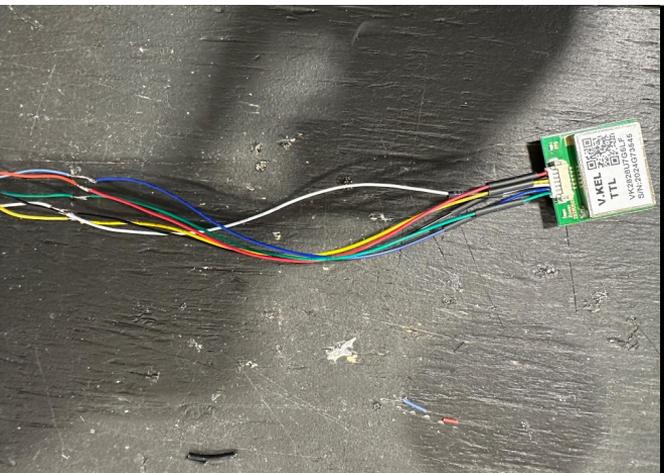
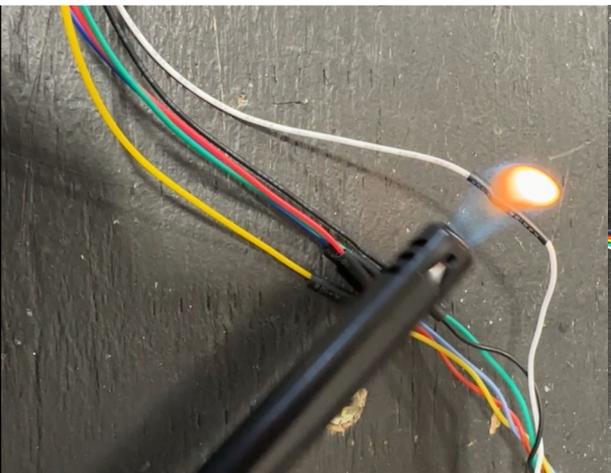
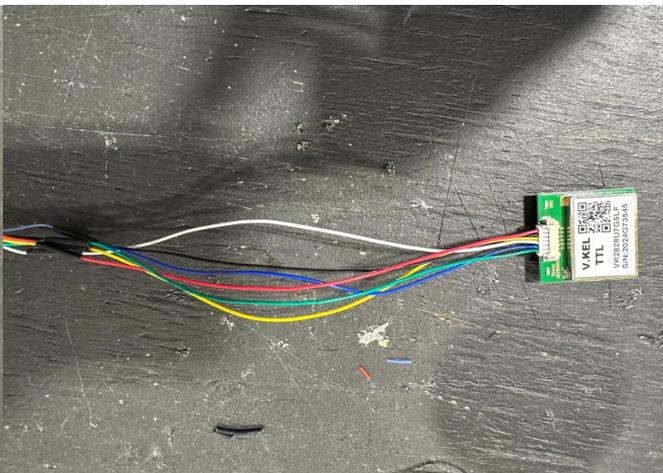
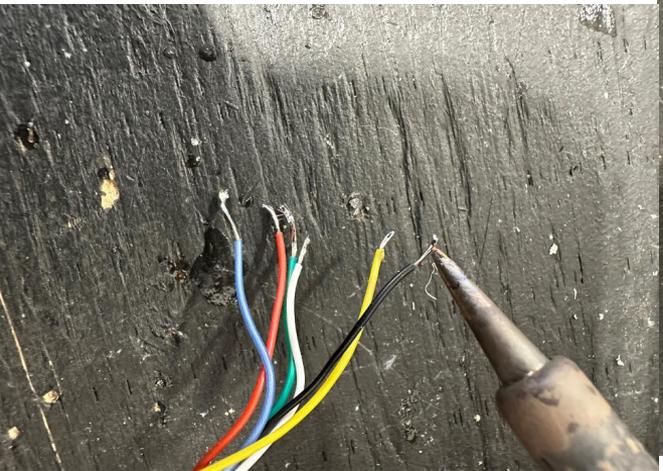
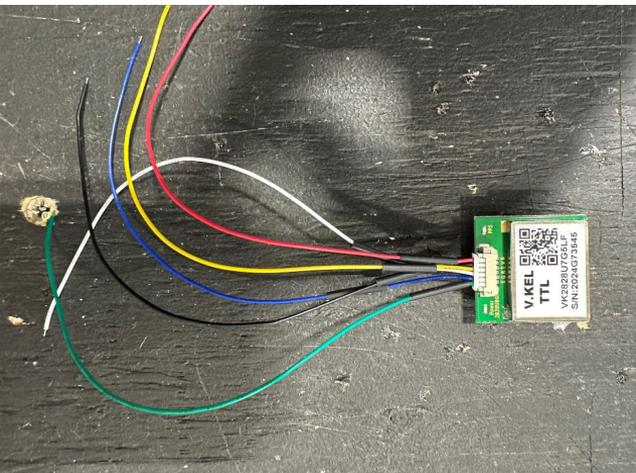
## Assembly order

1. Align the pin headers between boards **A** and **B** then press the two boards together tightly.
2. Install both boards **A** and **B** onto board **C**, and tighten the screws.

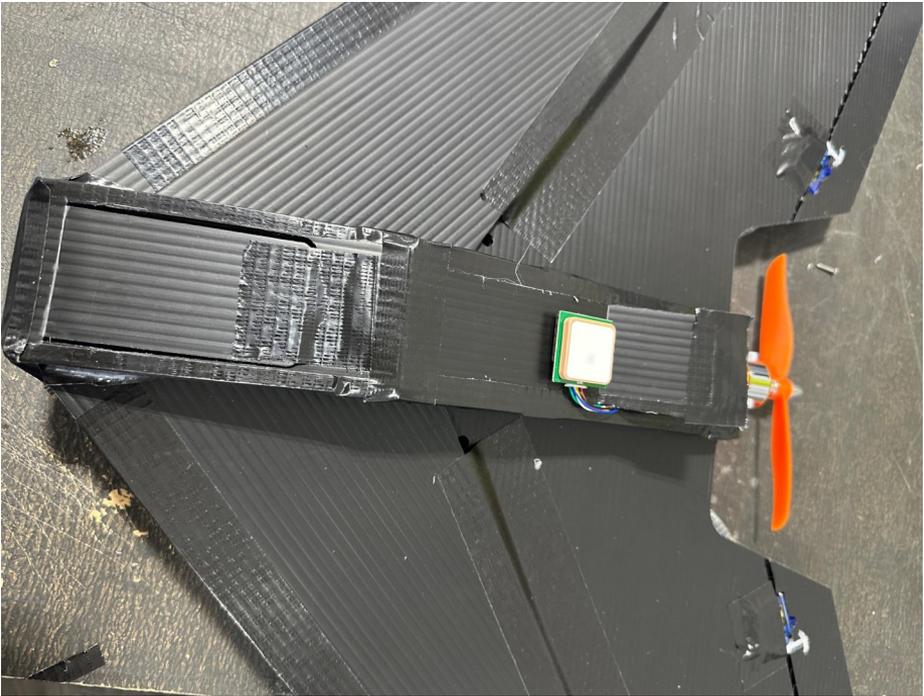
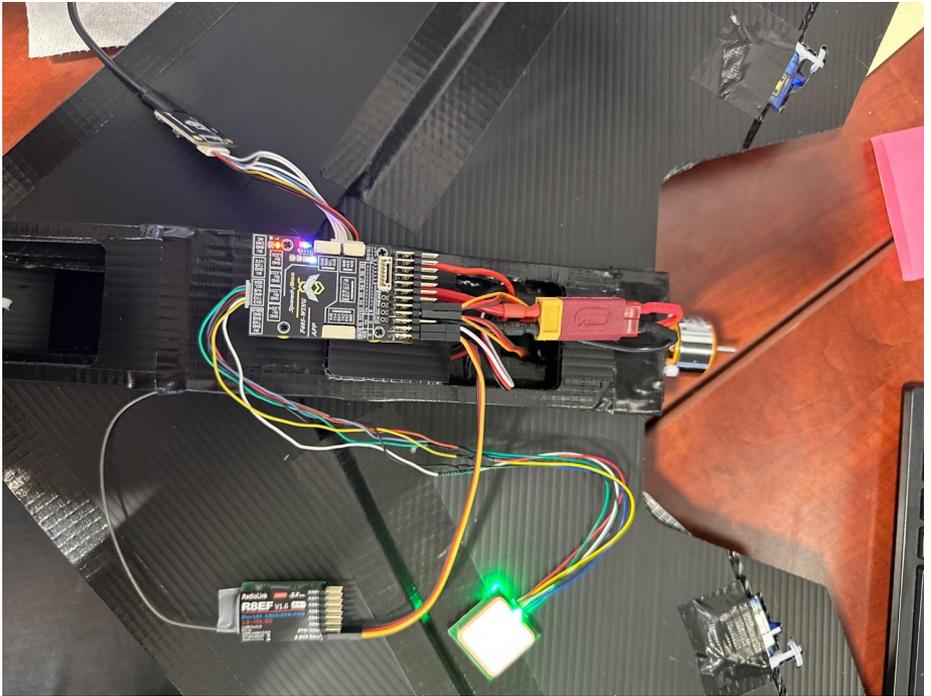








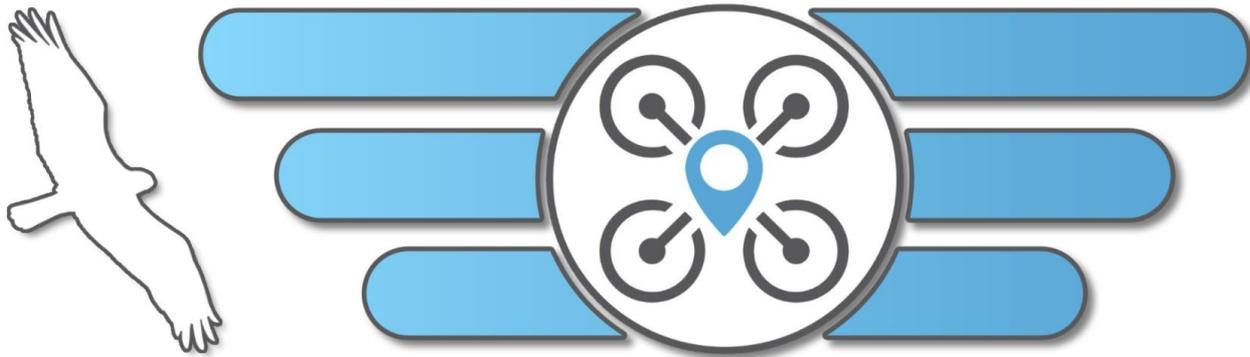




# Step 11 - Load flight controller code and configure

1. Install iNav configurator on Mac or PC <https://github.com/iNavFlight/inav-configurator/releases>
2. Setup and configure flight controller following this guide.  
<https://www.youtube.com/watch?v=S-OgcqWoGIY>

**INAV Configurator 8.0.1** Latest



## Step 12 - Flight

1. Check that drone balances on two holes in wing. Add weight or shift components as necessary to properly balance vehicle.
2. Install propeller (if not already performed).
3. Find a large suitable field to test fly with no trees, power lines or other obstructions.
4. Make sure that wind is no greater than 15 mph
5. Turn on transmitter and Install battery in drone.
6. After making sure iNav is setup and configured correctly for autolaunch, test flight controls for proper direction of movement.
7. Place drone in Nav mode. When ready, throw aircraft straight and level into the wind.
8. Vehicle should automatically engage the motor and climb. Pitch and roll the aircraft with the right stick on the controller.
9. When ready, return aircraft to field for a landing.

