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SECTION 01

BILL OF MATERIAL

QUANTITY	PART DESCRIPTION
1	Main Base Plate (2.5mm CF)
1	Upper Fuselage Plate – mini FPV cam (1.5mm CF)
1	Upper Fuselage Plate – RunCam Owl FPV cam (2.5mm CF)
4	Plastic Spacer (Black plastic M3 hole x 7mm OD x 2mm long)
4	Hex Standoff 'Male – Female' (Black plastic M3 thread x 6mm long)
4	Phillips Head Screw (Black plastic M3 thread x 6mm long)
4	Phillips Head Screw (Black plastic M3 thread x 10mm long)
4	Nut (Black plastic M3 thread)
4	Washer (M3 Hole x silver aluminum)
2	Washer (M2.5 Hole x steel)
1	VTX Antenna Mount (Black 3D Printed TPU)
1	RX Antenna Mount (Black 3D Printed TPU)
1	Mini Cam Mount Base (Black 3D Printed TPU)
1	Mini Cam Mount Top (Black Injection molded plastic)
1	Mini Cam Mount Hardware Set (Includes various screws and nuts)
2	Antenna Tube (Black Plastic)
4	Frame Standoff (M3 x 23mm long x knurled silver aluminum)
8	Socket Head Screw (M3 x 10mm long x silver 7075 aluminum)
6	M2.5 X 4.5mm OD x 3mm Long Spacer (Aluminum)
1	Velcro Lipo Strap – Catalyst Machineworks

SECTION 02

REQUIRED TOOLS

QUANTITY	TOOL DESCRIPTION
1	File
1	1.5mm allen driver or allen wrench
1	2mm allen driver or allen wrench
1	5.5mm socket driver
1	Small phillips head screw driver
1	Needle Nose Pliers
1	Loctite
3	Adult beverage of choice or apple juice if you are under 21

SECTION 3

ASSEMBLY PROCESS

STEP 1

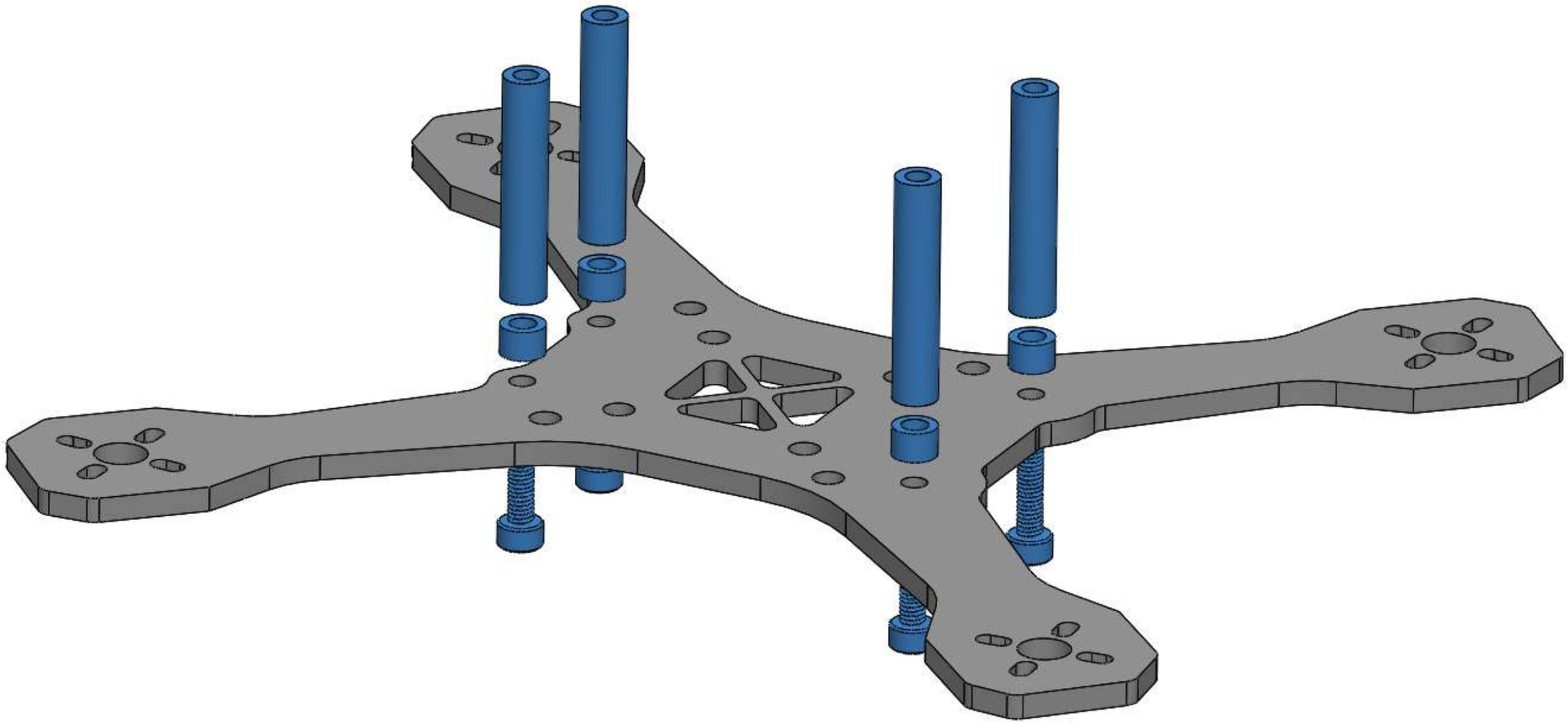
Parts Required:

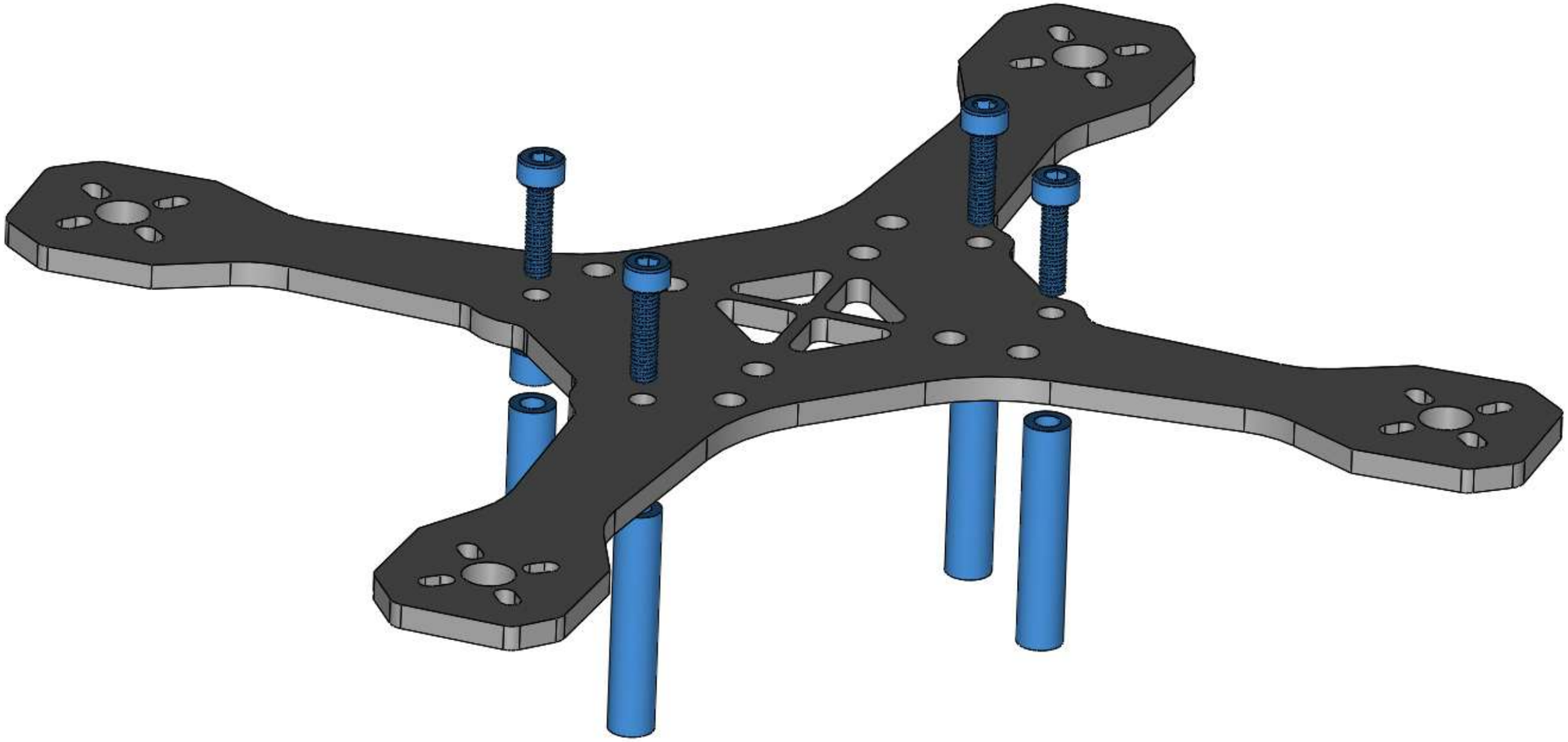
Quantity	*Part Description*
1	Main Base Plate (2.5mm CF)
4	Socket Head Screw (M3 x 10mm long x silver 7075 aluminum)
4	Frame Standoff (M3 x 23mm long x knurled silver aluminum)
4	M2.5 X 4.5mm OD x 3mm Long Spacer (Aluminum)

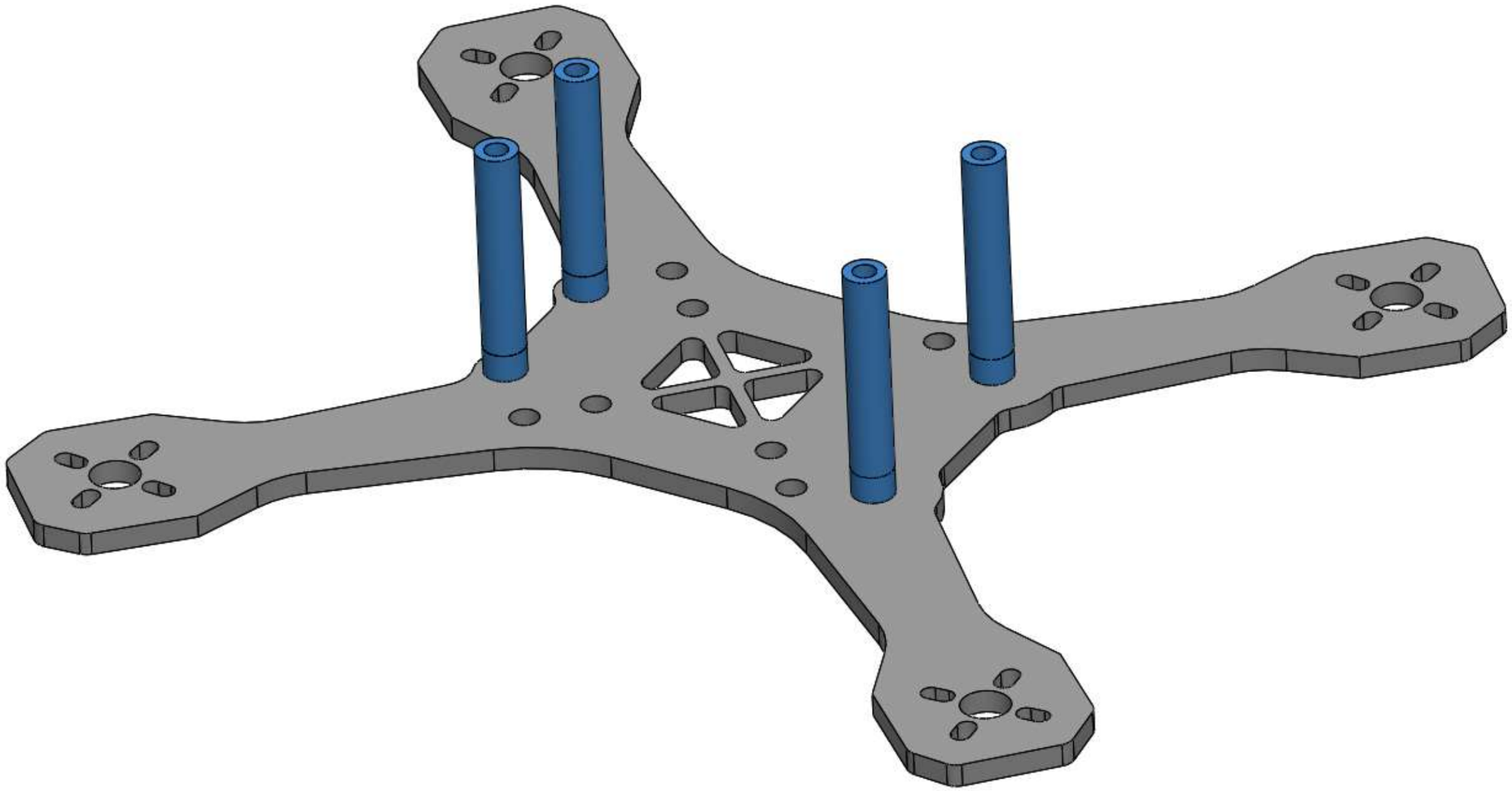
Assembly Process:

Warning – Please be aware this assembly manual covers steps related to frame construction itself. We do not cover every step related to electronics install. You must have a basic understanding of how to properly install and setup FPV quad electronics prior to assembling your SuperLight 3". If you are new to FPV racing quads and need help we have other resources available to *you.*

Position the main base plate as shown. Install the screws into the standoffs with the spacers in place. The standoffs are knurled which will allow you to simply grip them with your hands while you torque the screws. You only need to get them 'hand tight' at this point. You can go back later once the assembly is complete to apply final torque on the screws.







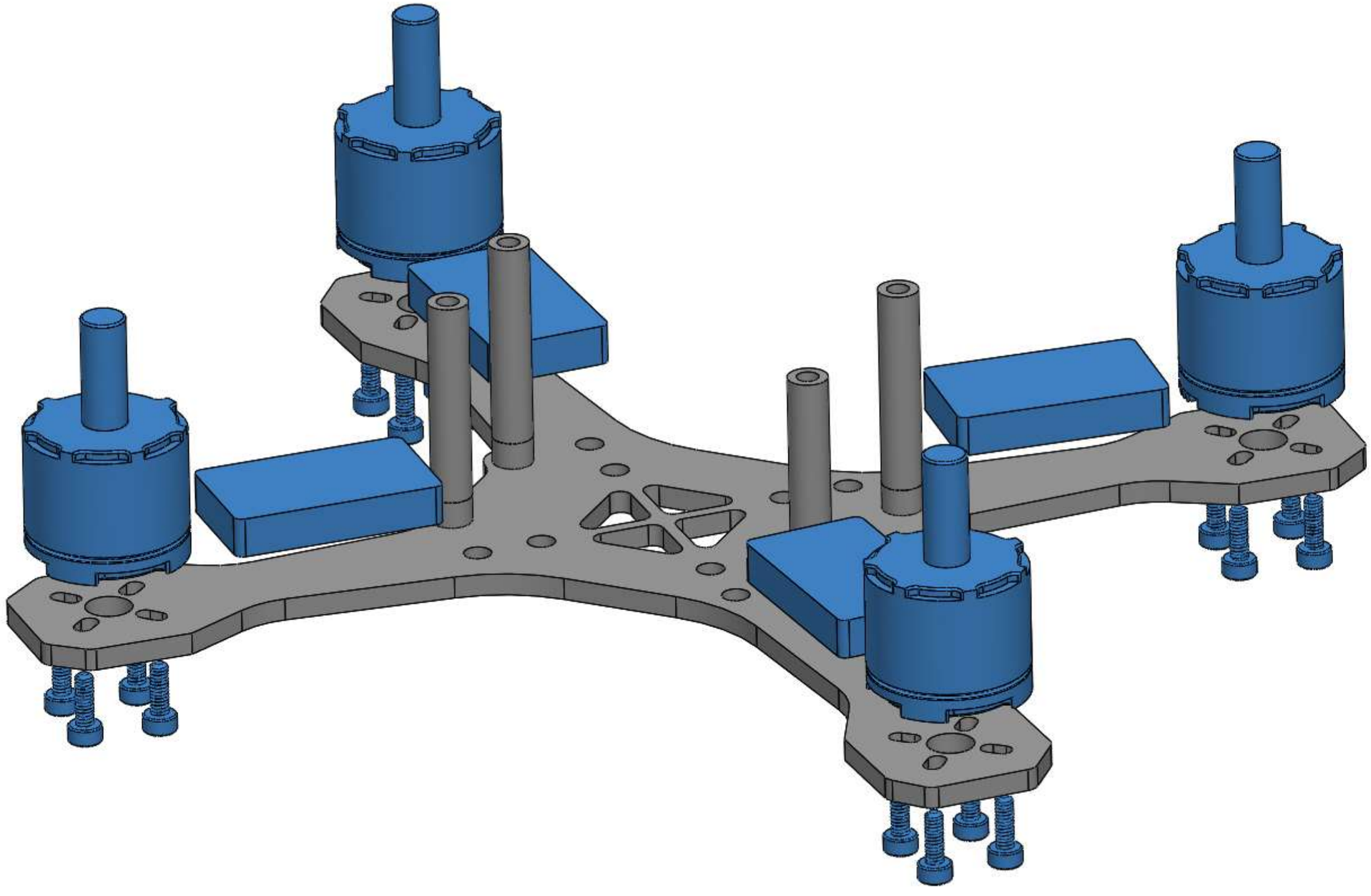
STEP 2

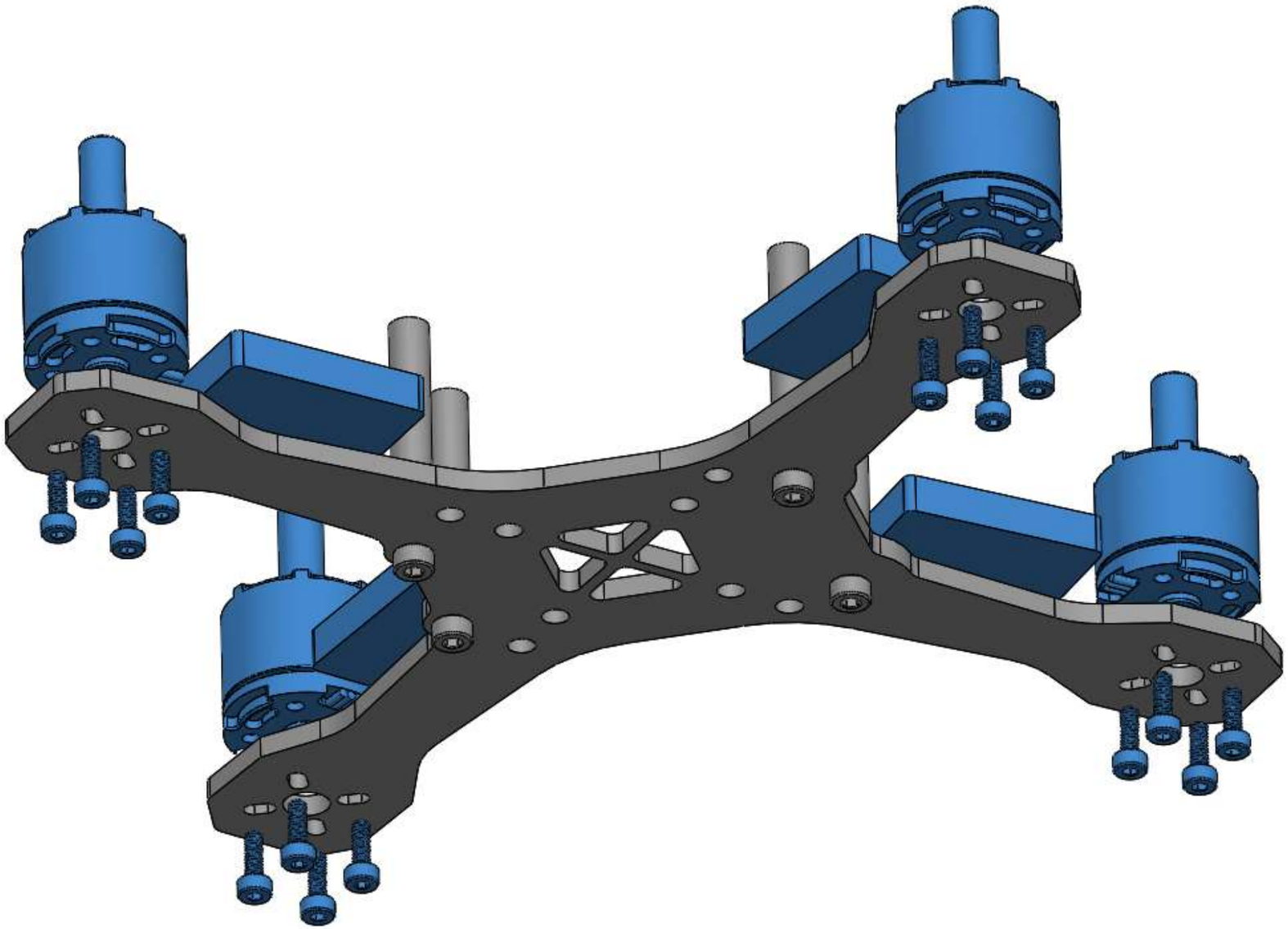
Parts Required:

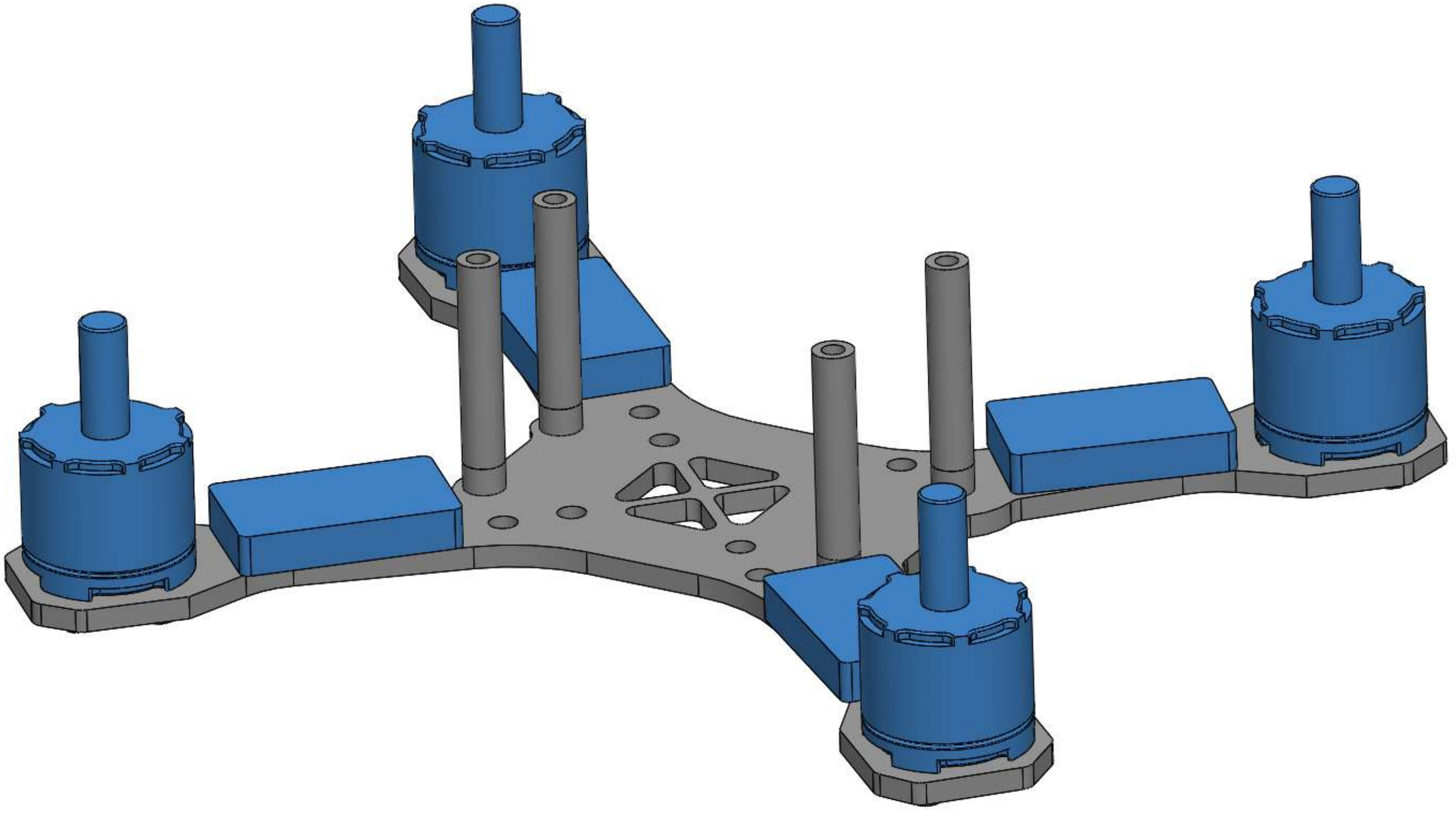
Quantity	*Part Description*
4	Brushless Motor (Sold Separately)
4	Electronic Speed Controller (Sold Separately)
16	Motor Screws (Included with Motor)

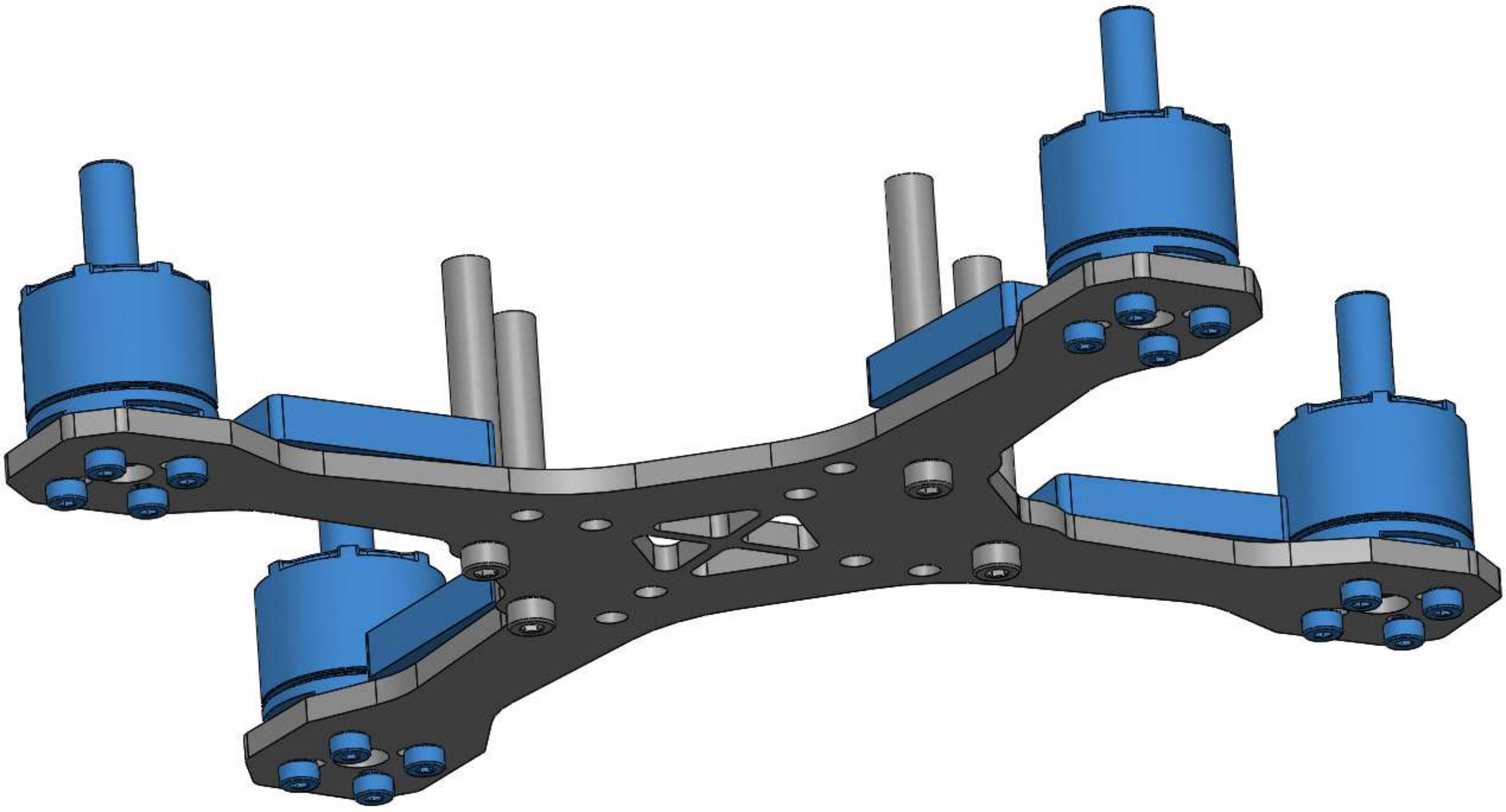
Assembly Process:

A 3" FPV racer has very little room for electronics by nature. For this reason you must pay close attention to where components are placed and how wires are routed. Take your time and plan things out instead of just diving in and immediately soldering / cutting. The largest size ESC that will fit is a 20AMP with maximum length of 24mm. Remove the outer shrink tubing from the ESC where needed, desolder the wires, then flip the wires 180 degrees and resolder. Position the ESC/motor set on the arm to determine correct wire length from motor to ESC pads. **IMPORTANT -** Use vinyl tape over the corner of the ESC board prior to laying the motor wires down. This will provide protection for the motor wires from shorting against the sharp corner of the ESC board. **IMPORTANT -** Make sure the ESC tabs are not touching frame standoffs! Use some double sided stick tape to hold the ESC on the arm. Then either wrap the ESC to the arm with vinyl tape or shrink tubing.









20AWG
TORNADO

BrotherHobby

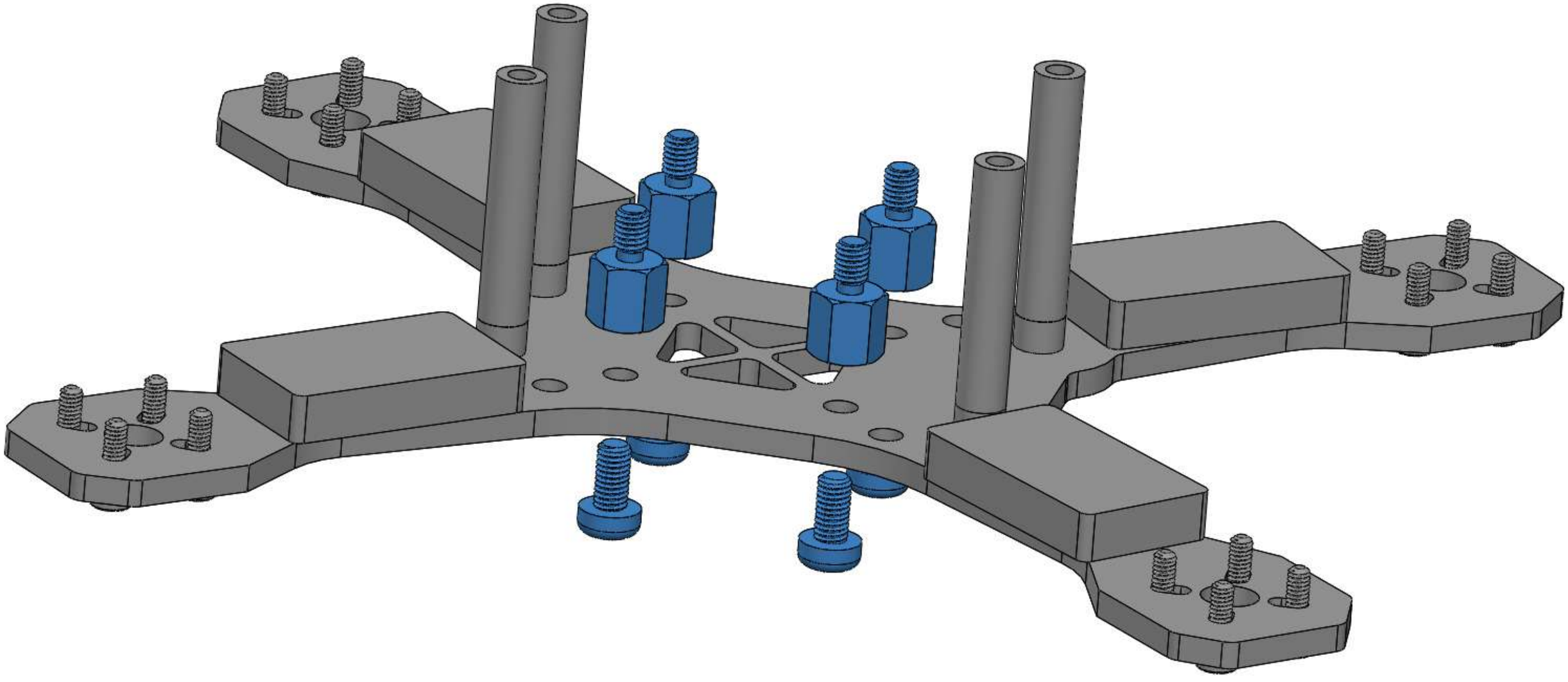
STEP 3 (Flight Controller Build Option 1)

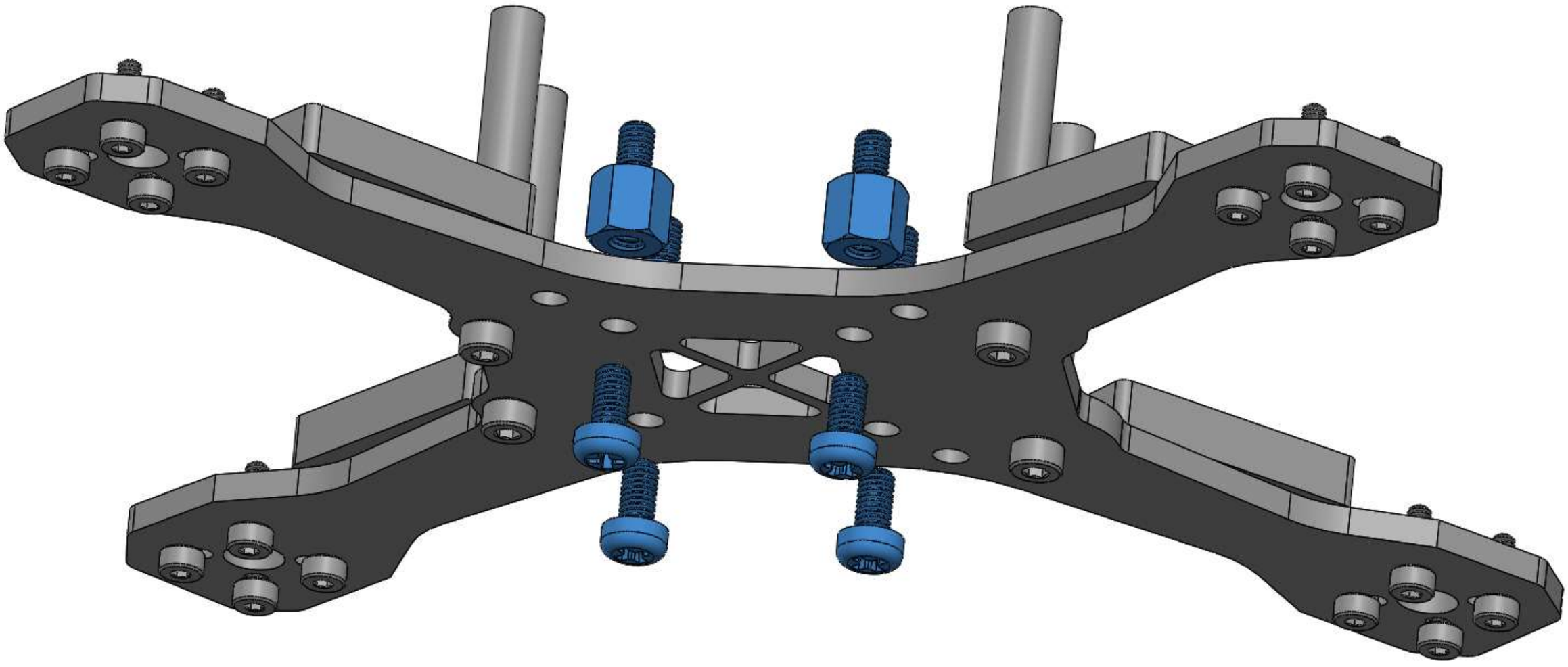
Parts Required:

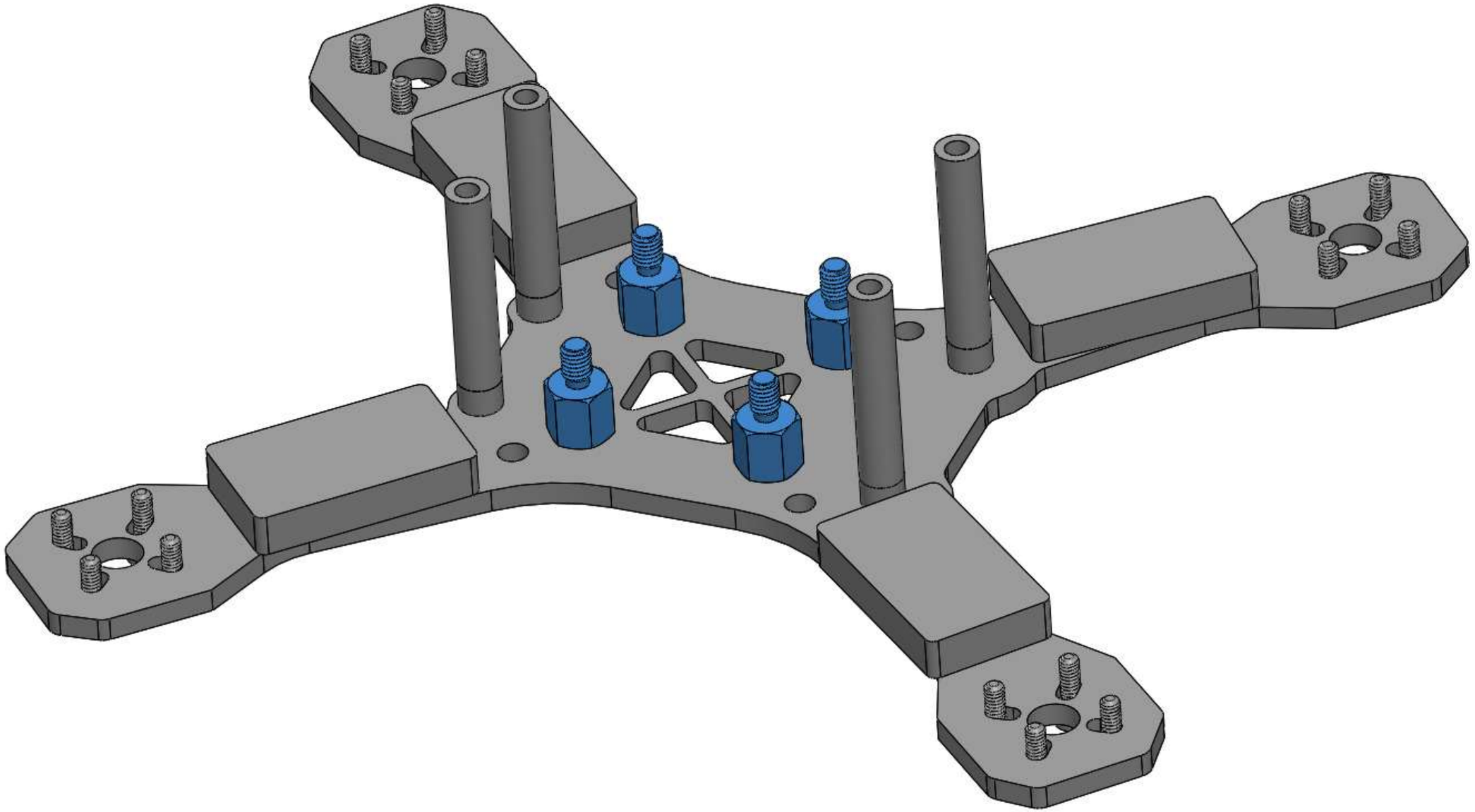
Quantity	*Part Description*
4	Phillips Head Screw (Black plastic M3 thread x 6mm long)
4	Hex Standoff 'Male – Female' (Black plastic M3 thread x 6mm long)
4	Nut (Black plastic M3 thread)
1	20mm x 20mm Sized Flight Controller (Sold Separately)
1	VTX Antenna Mount (Black 3D Printed TPU)
1	VTX / 90 degree SMA (Sold Separately)

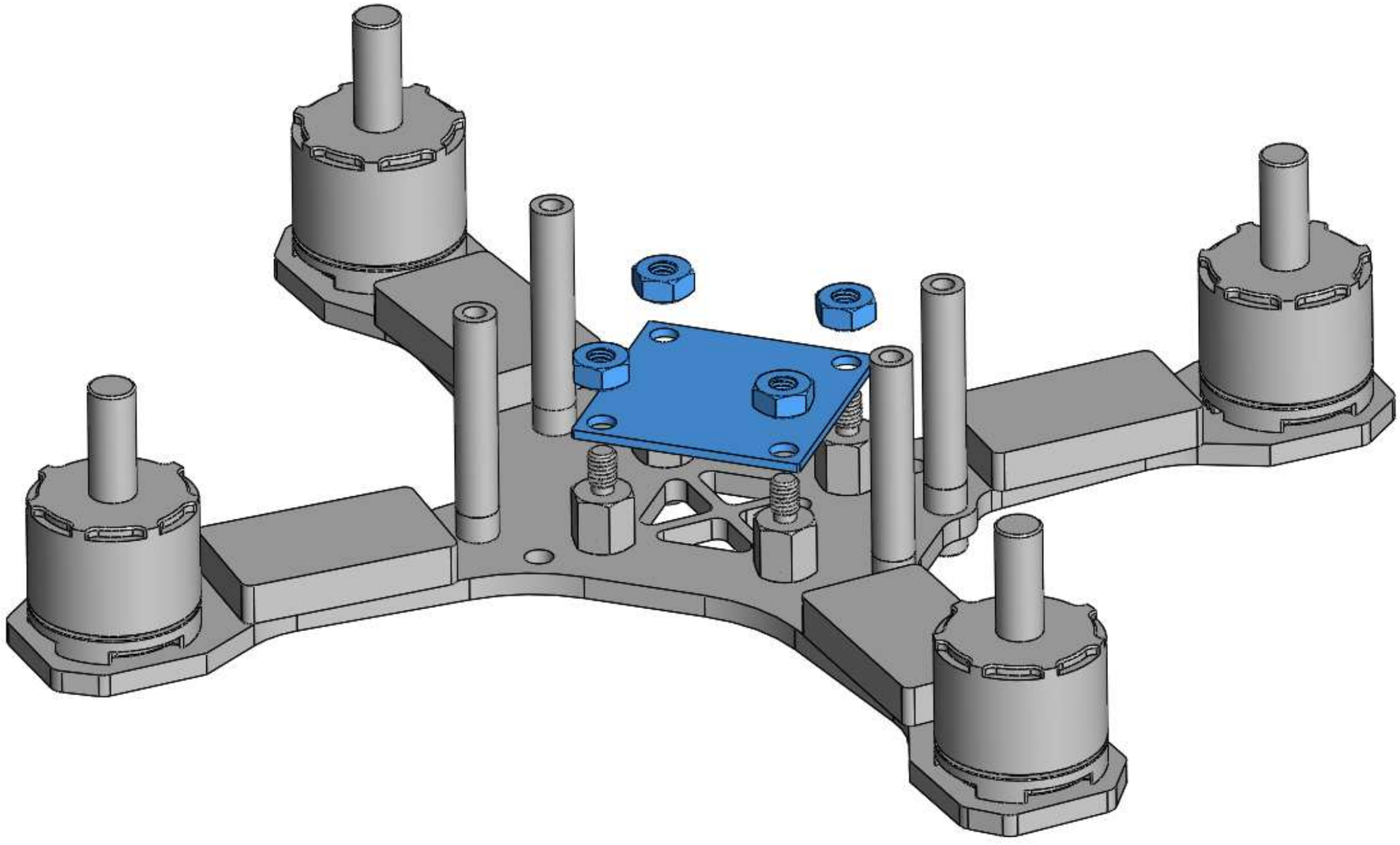
Assembly Process:

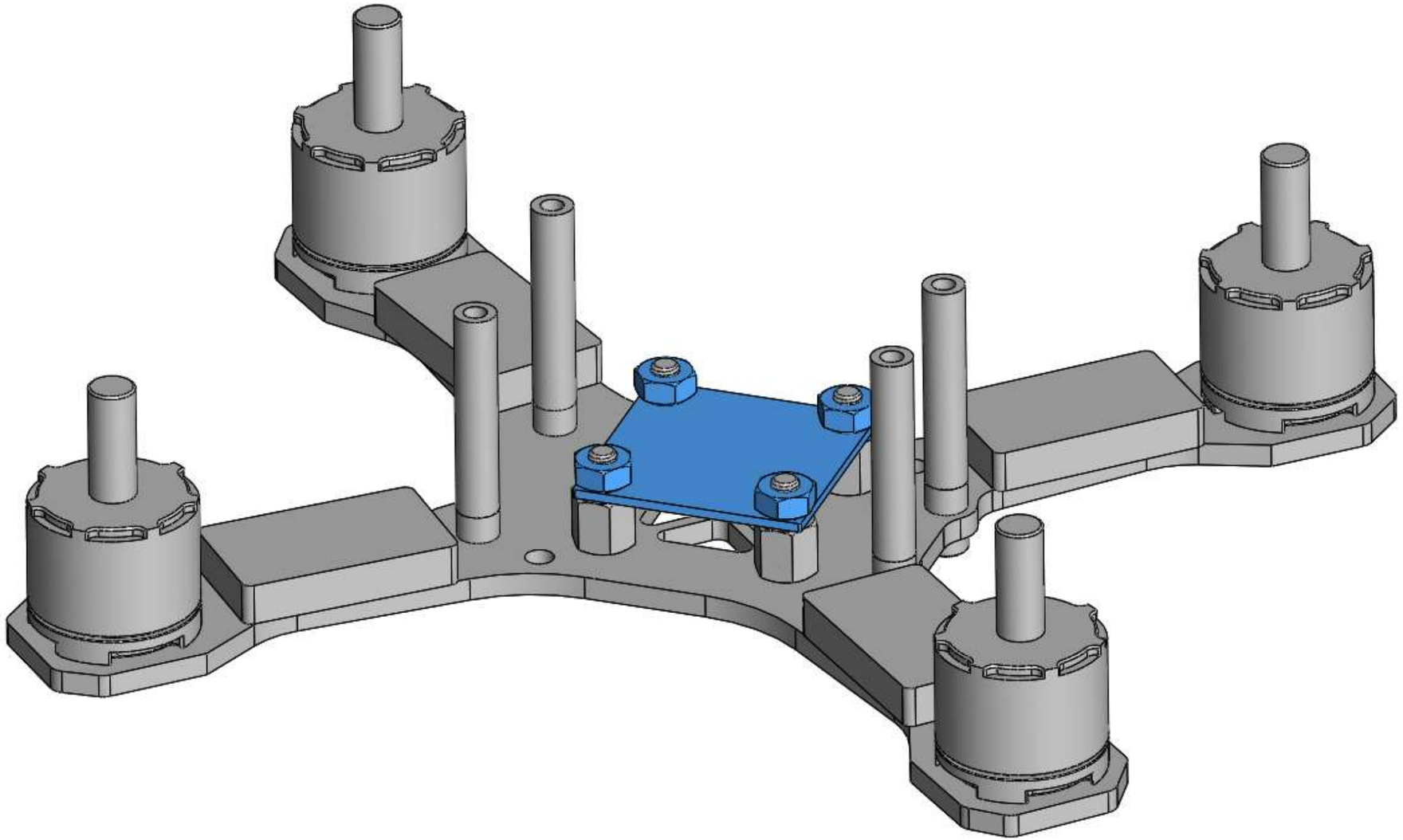
Two types of flight controllers fit this craft. The first option described here is a micro FC / PDB combo with 20mm x 20mm M3 mounting holes, such as the Furious FPV Piko BLX. Of course any FC / PDB combo in this size can be mounted up. If you are installing a more 'standard' FC and separate PDB please skip ahead to the next section titled *"STEP 3 (Flight Controller Build Option 2)"*. Solder all necessary preliminary electrical wiring to the FC/PDB then install as shown using the included hardware. Make sure screws and nuts are tight into the standoffs, however do not over torque. Keep in mind these fasteners are nylon which is a soft material. The PDB's main lipo pigtail should exit the rear of the craft. Run a small zip tie around each rear standoff and then around each pigtail wire. Do not over tighten the zip ties. They only need to be snug. This is an important stress relief for the pigtail. File down the edge of the carbon fiber on the main base plate which comes into contact with the lipo pigtail wires. An FC of this size is VERY SMALL. Take your time in soldering it! A rushed soldering job runs the risk of ruining the board. Install the 90 degree VTX SMA into the VTX Antenna Mount as shown and press it onto the two rear standoffs. Make sure the SMA is close, but not pressing against the FC. Mount the VTX to the top of the FC using silicone double sided stick tape. Cut down the nylon screws as needed.

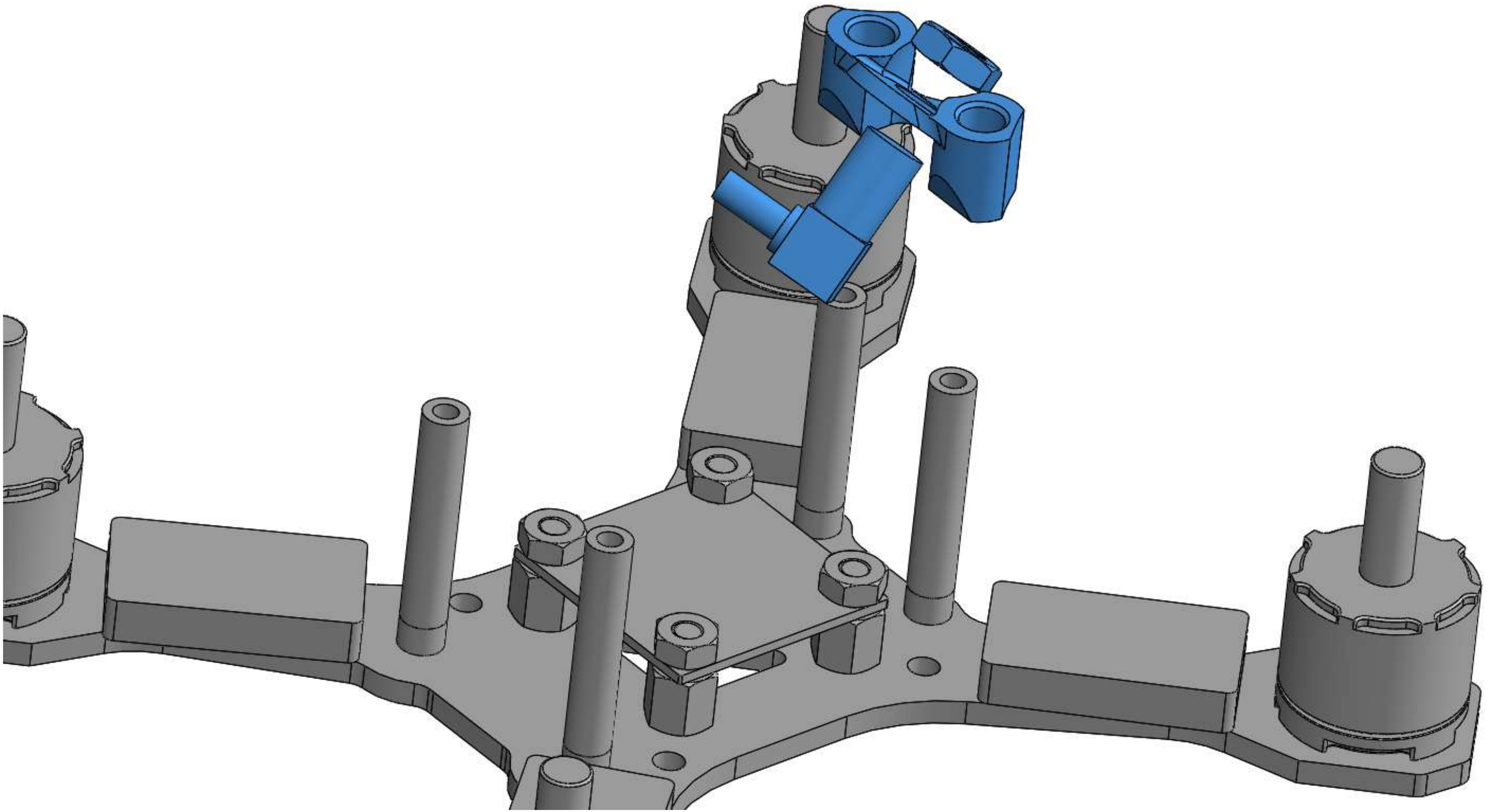


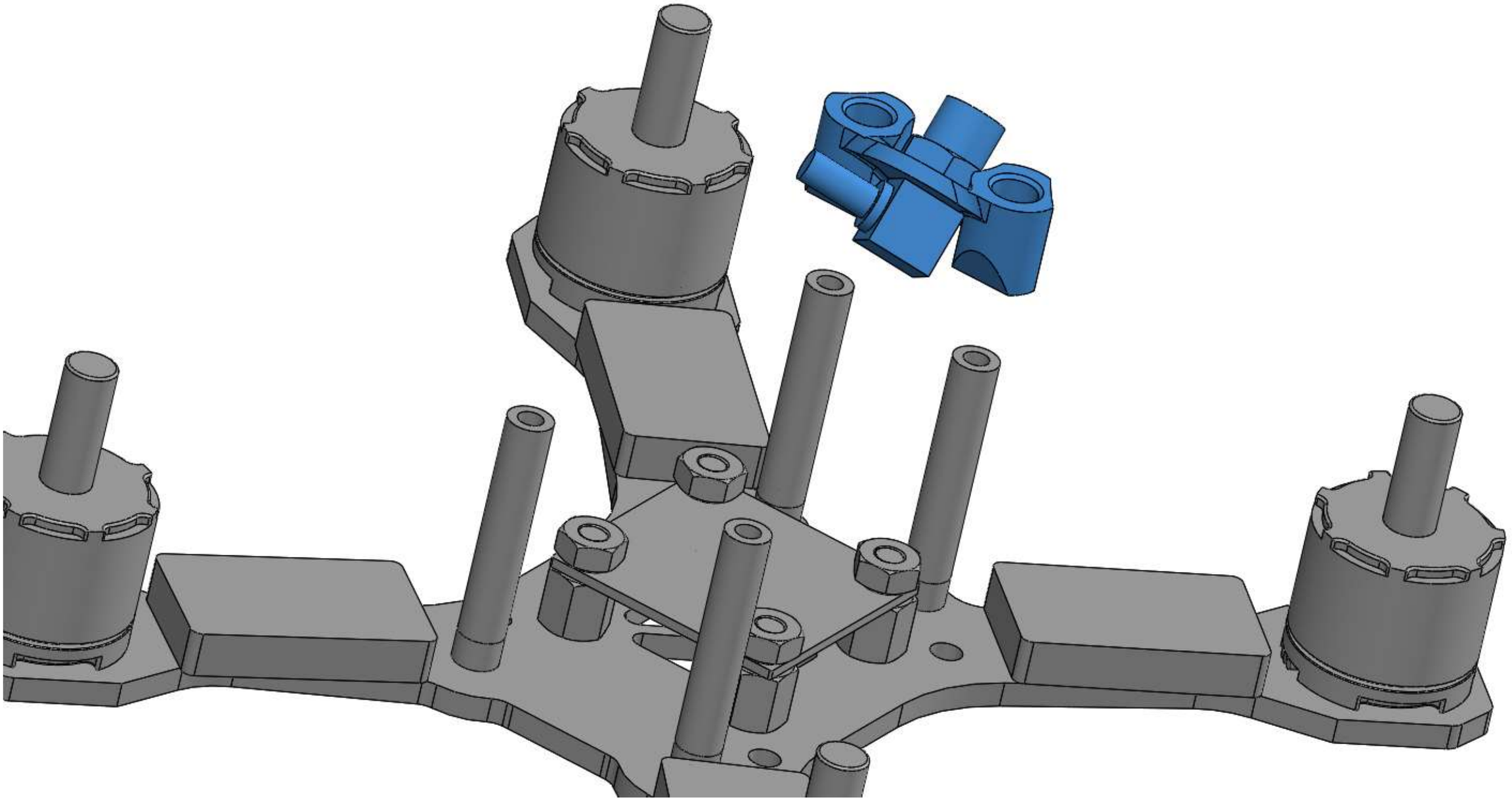


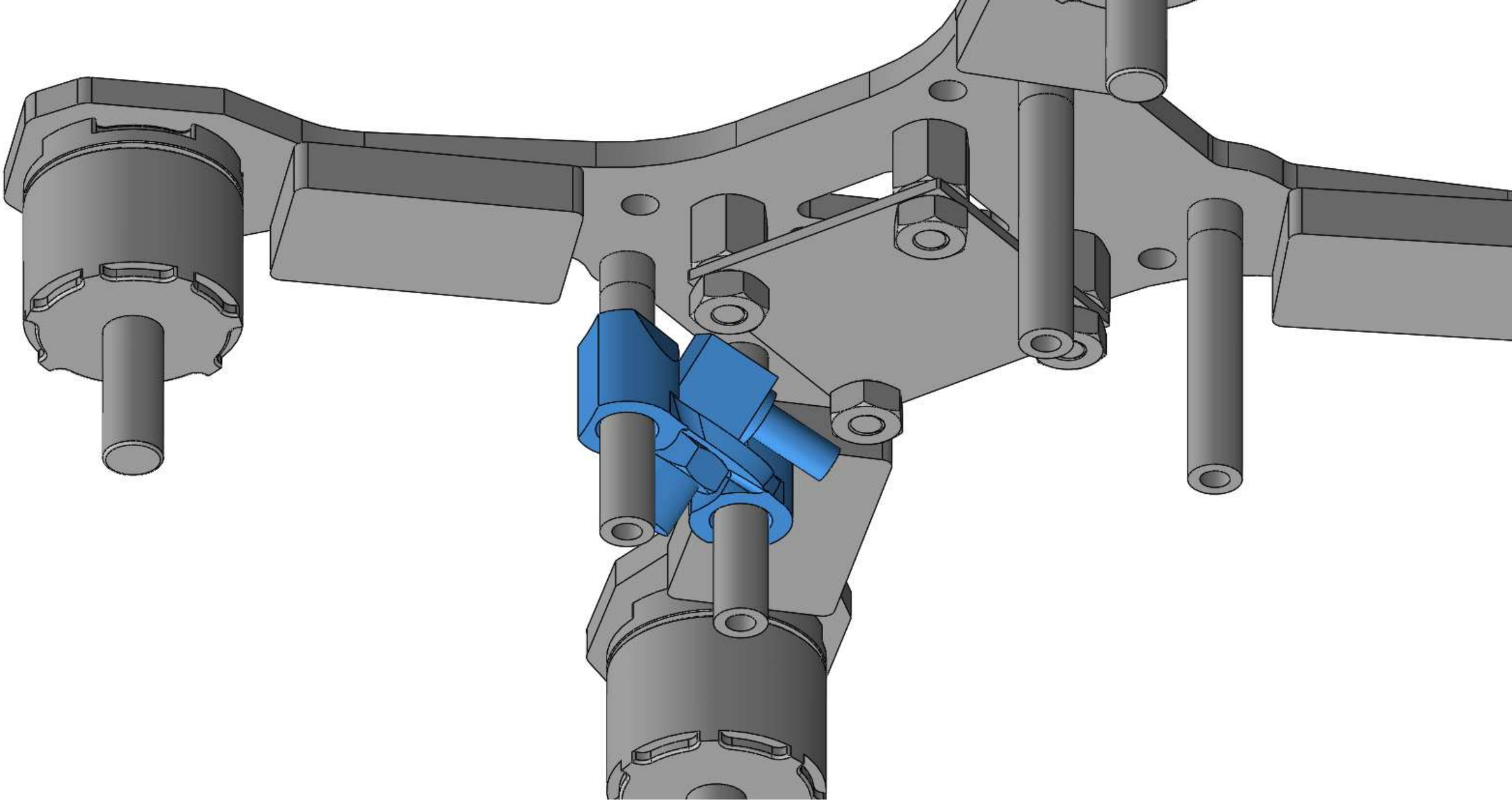


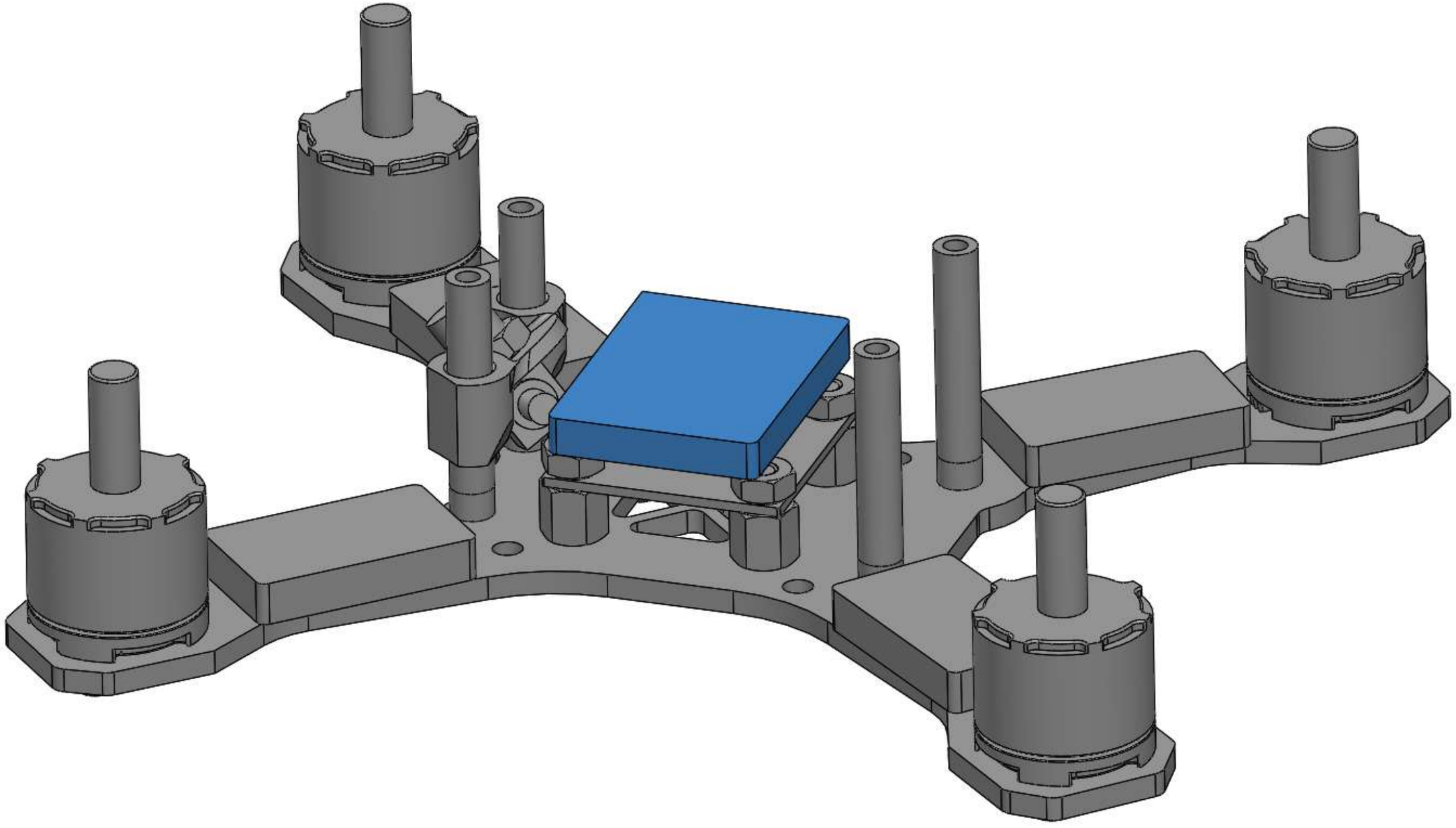












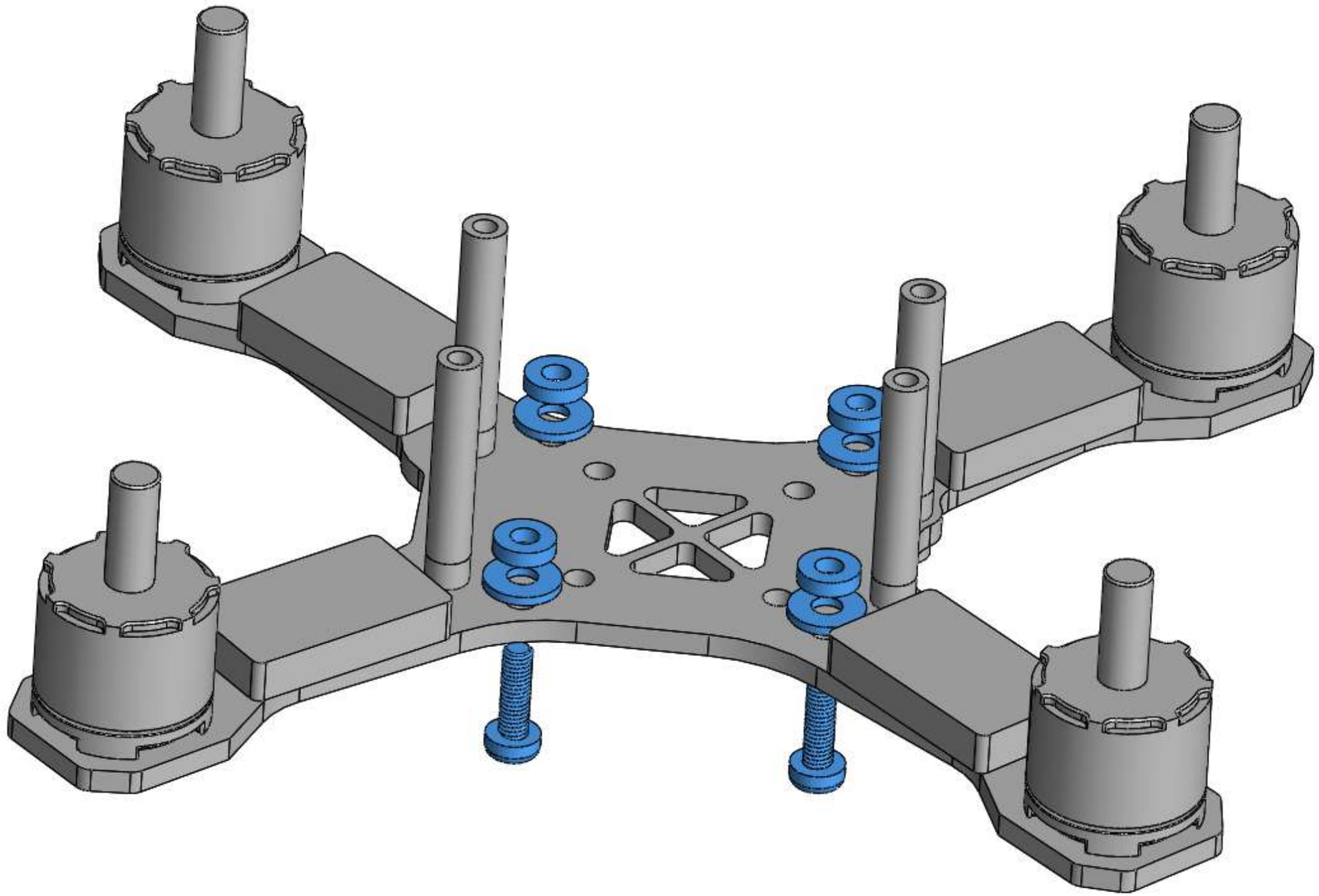
STEP 3 (Flight Controller Build Option 2)

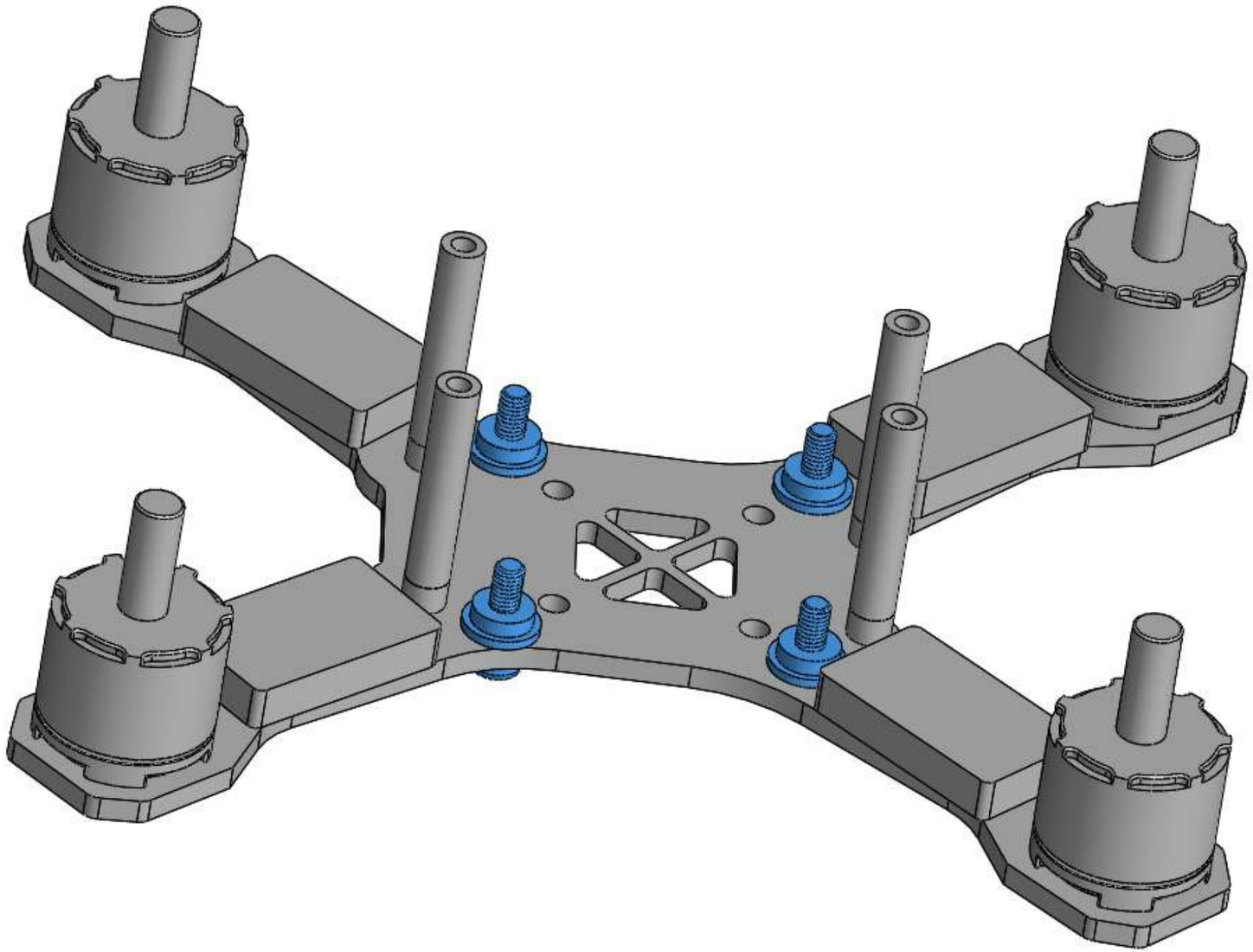
Parts Required:

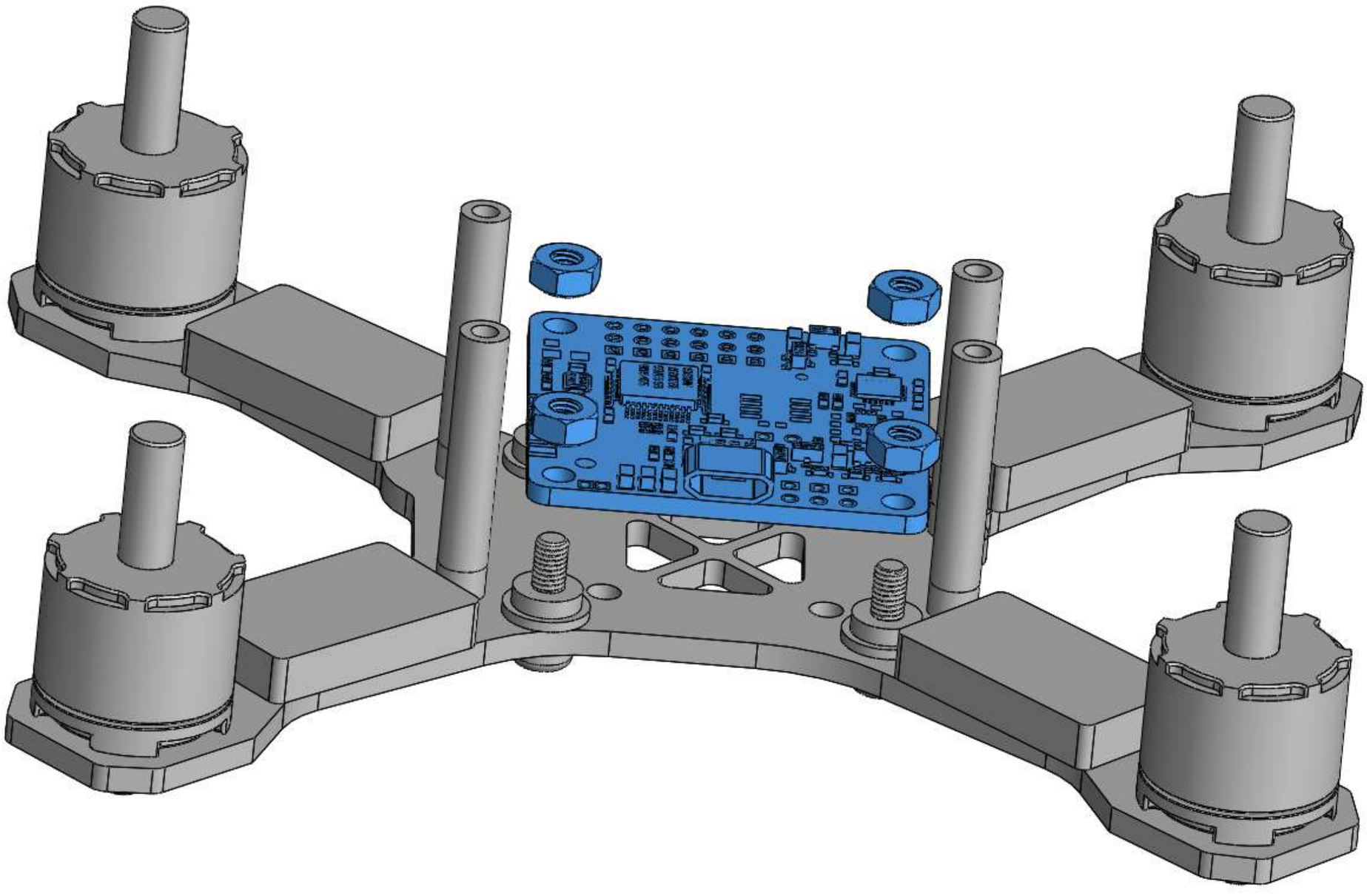
Quantity	*Part Description*
4	Phillips Head Screw (Black plastic M3 thread x 10mm long)
4	Nut (Black plastic M3 thread)
4	Plastic Spacer (Black plastic M3 hole x 7mm OD x 2mm long)
4	Washer (M3 Hole x silver aluminum)
1	30.5mm x 30.5mm Standard Sized Flight Controller (Sold Separately)
1	Matek mini PDB (Sold Separately)
1	VTX Antenna Mount (Black 3D Printed TPU)
1	VTX / 90 degree SMA (Sold Separately)

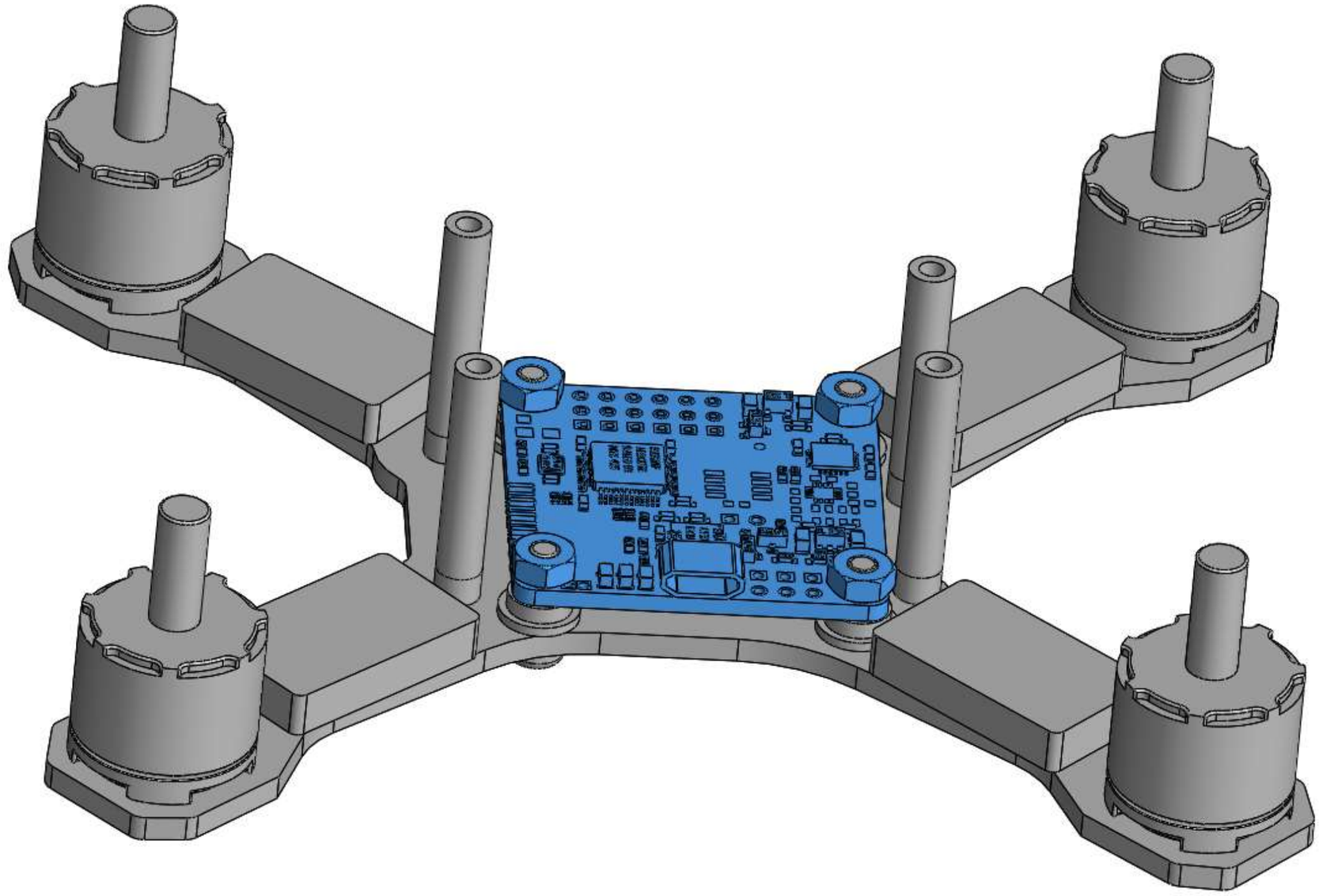
Assembly Process:

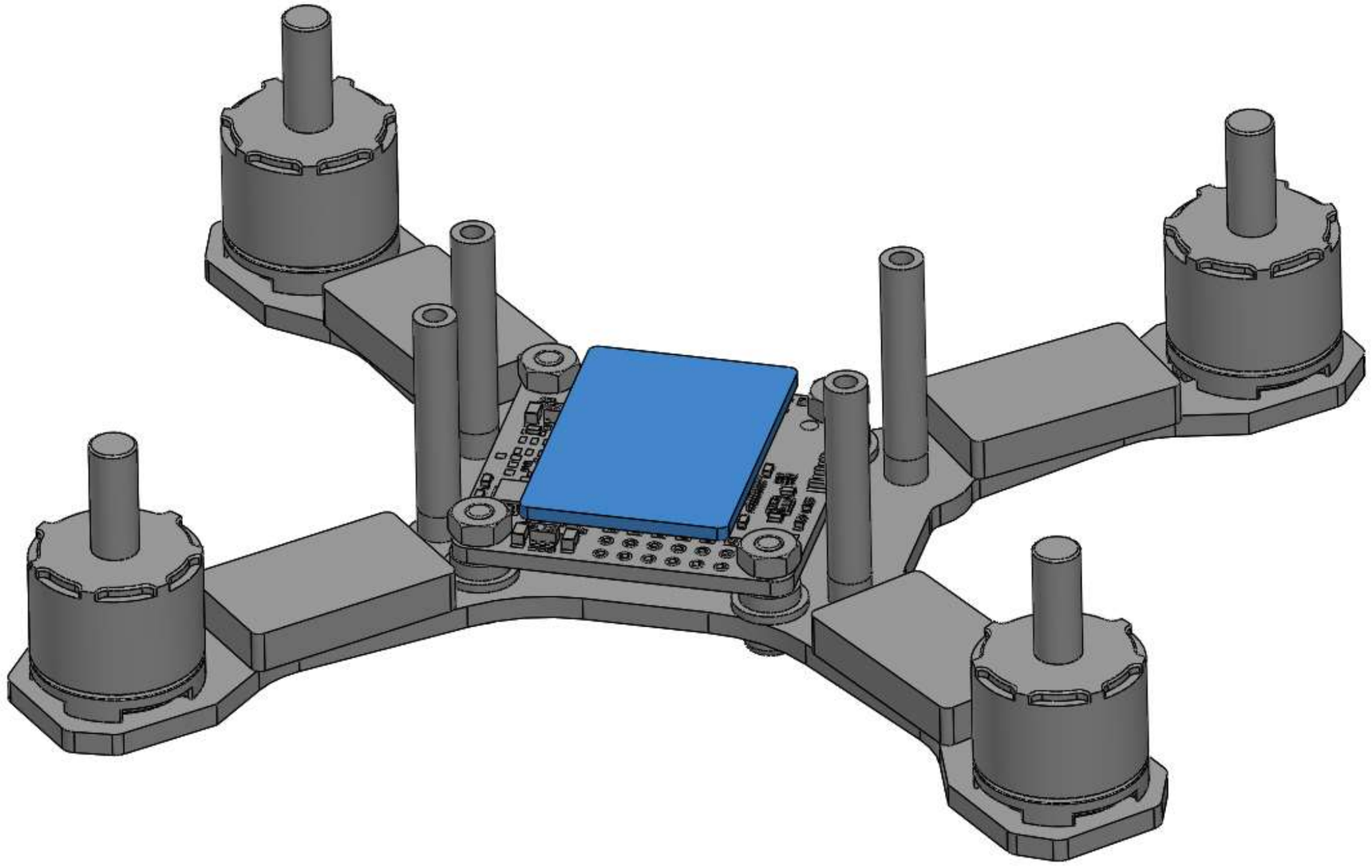
By design, only the Matek mini PDB will fit if you intend to use a 'standard sized' FC. A standard PDB will fit if you add longer spacers/screws under the standoffs but you must source these on your own. Solder all necessary preliminary electrical wiring to the FC then install as shown using the included hardware. The PDB mounts on top of the FC! This method is not typical in most FPV drone builds but works perfectly in the SuperLight 3". Affix the PDB to the FC top using silicone double sided stick tape. You will need multiple layers between the two boards. Solder all motor wiring to the PDB at this point. The PDB's lipo pigtail should exit the rear of the craft. Run a small zip tie around each rear standoff and then around each pigtail wire. Do not over tighten the zip ties. They only need to be snug. File down the edge of the carbon fiber on the main base plate which resides close to the lipo pigtail wires. Install the 90 degree VTX SMA into the VTX Antenna Mount as shown and press it onto the two rear standoffs. Make sure the SMA is close, but not pressing against the FC. Mount the VTX to the top of the PDB using silicone double sided stick tape.

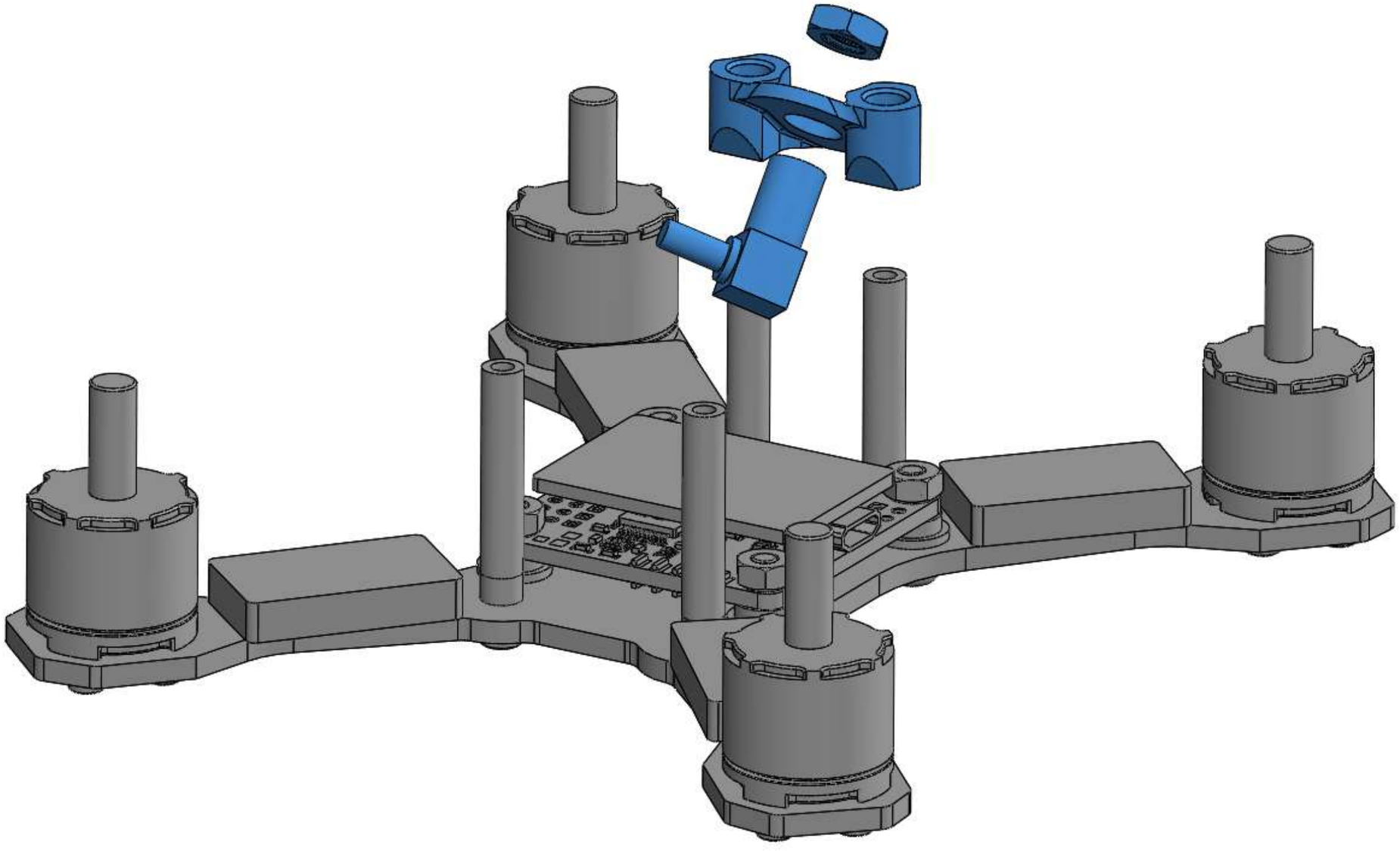


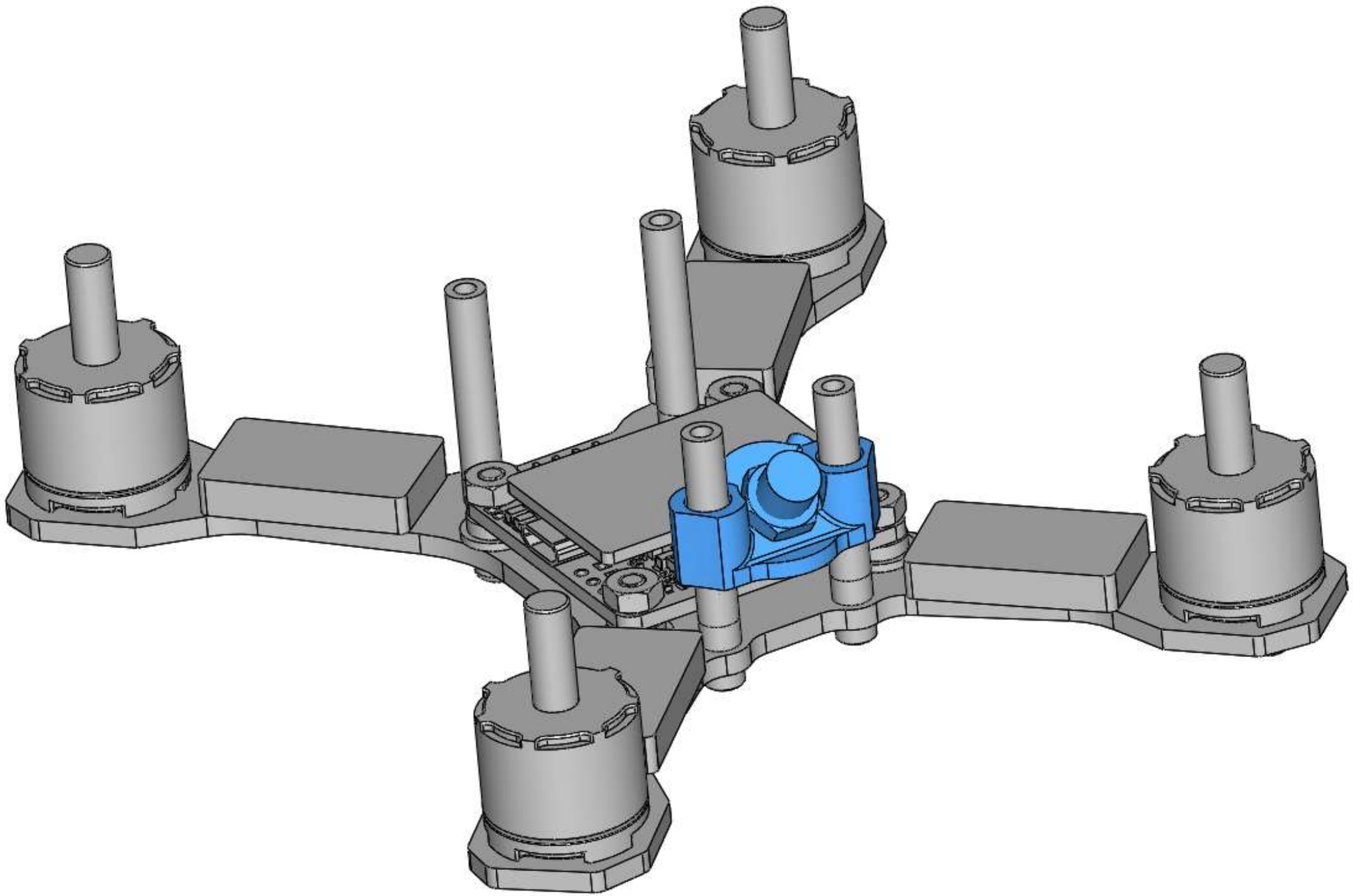


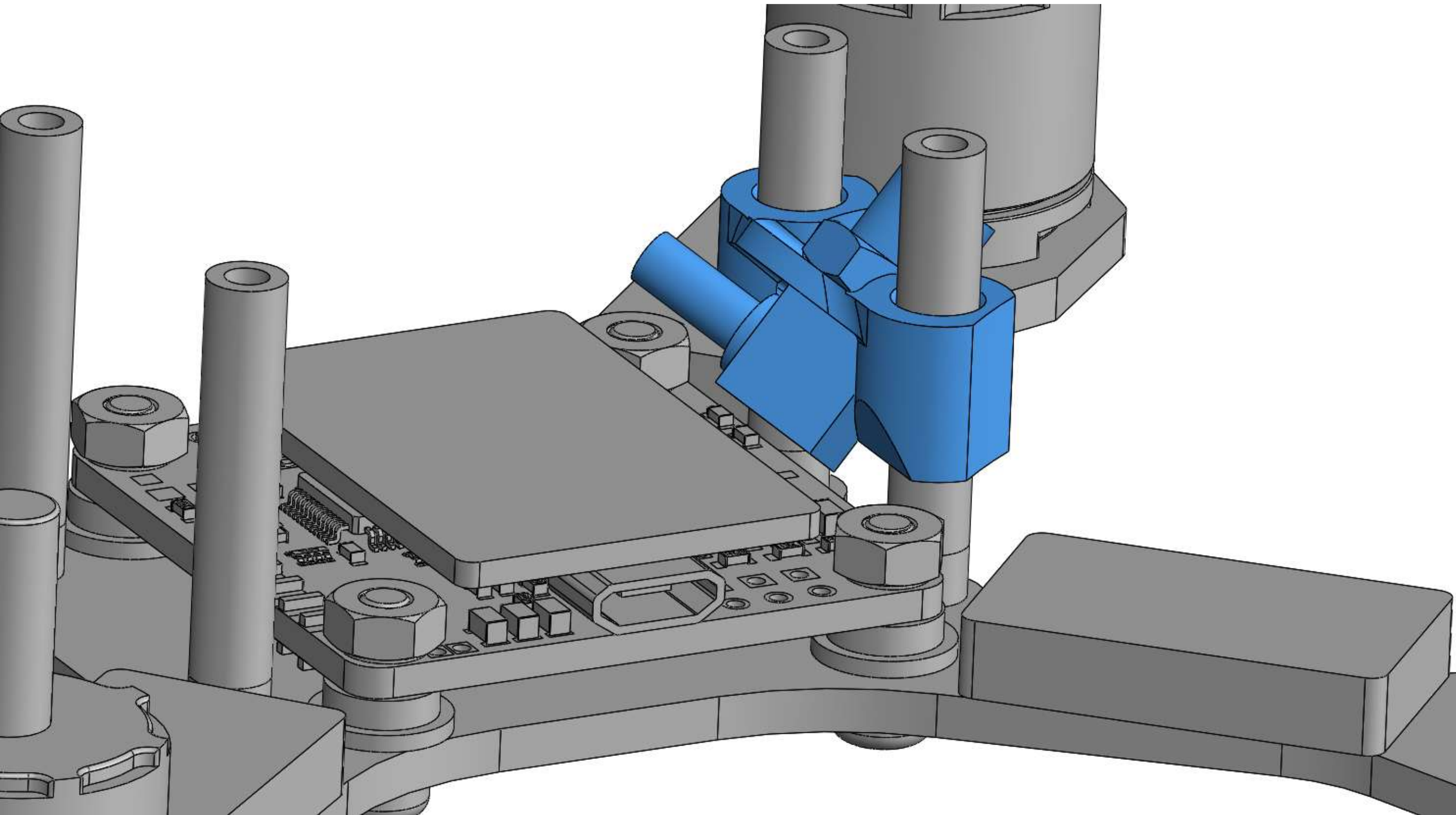


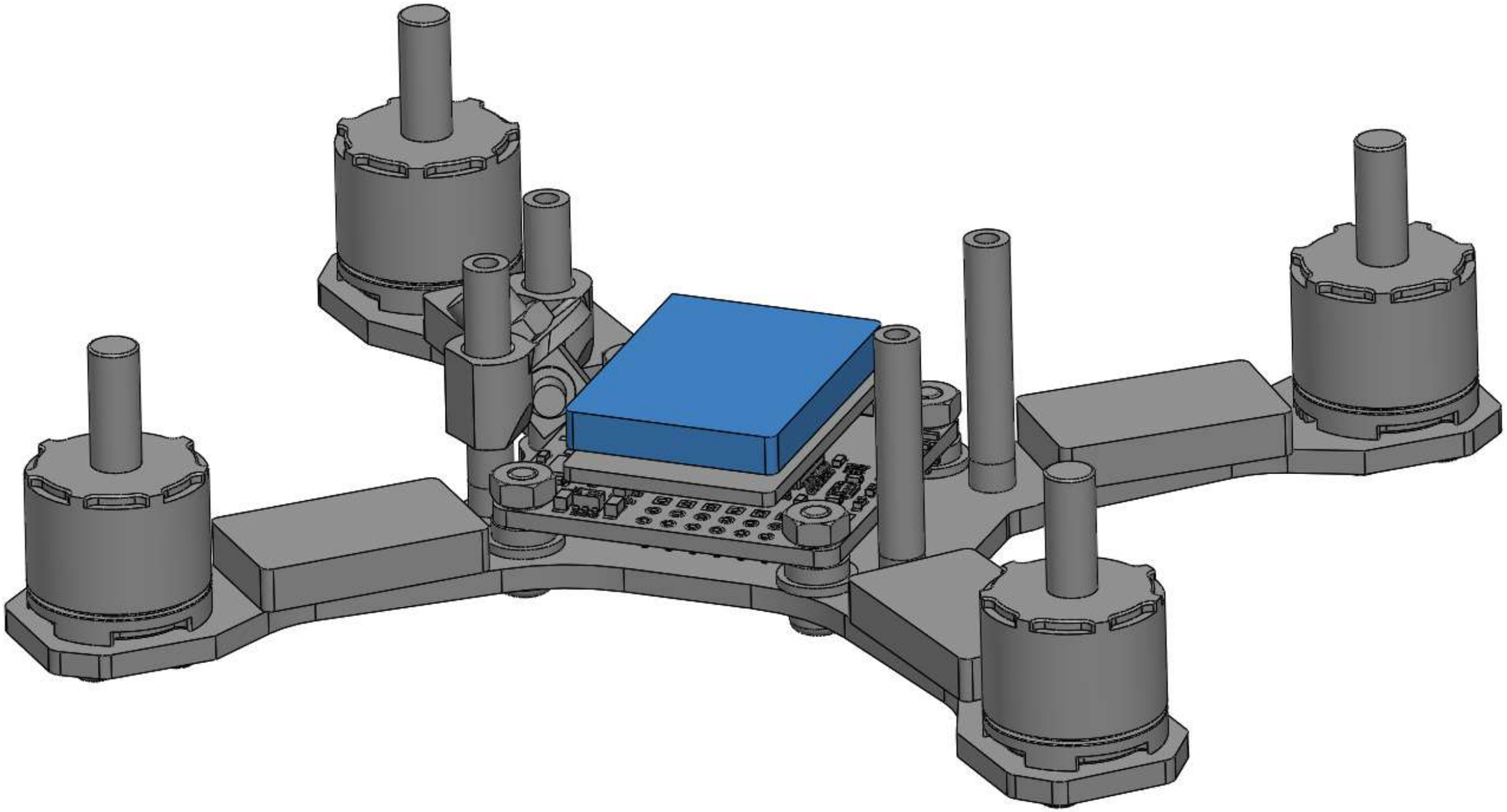












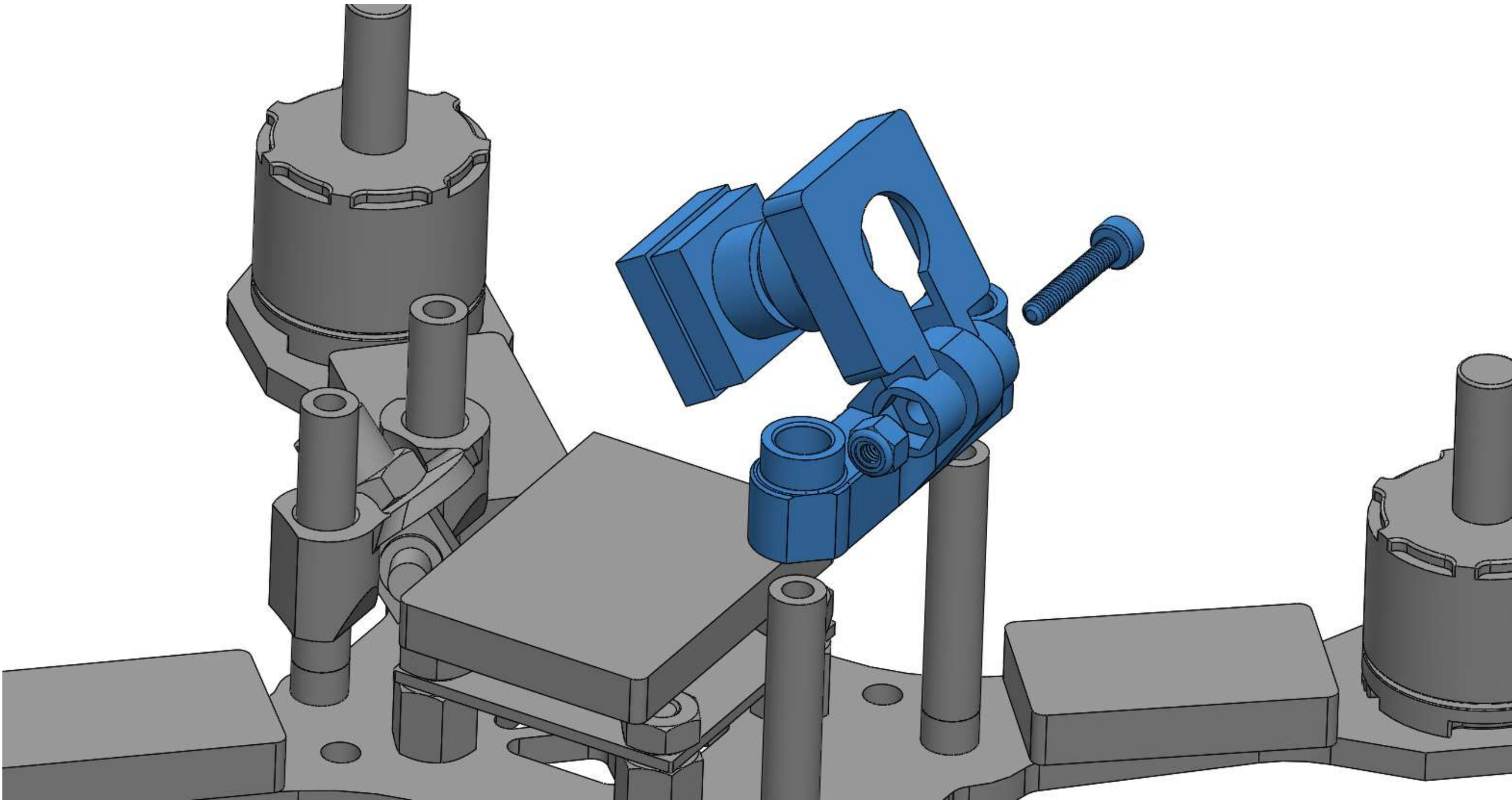
STEP 4

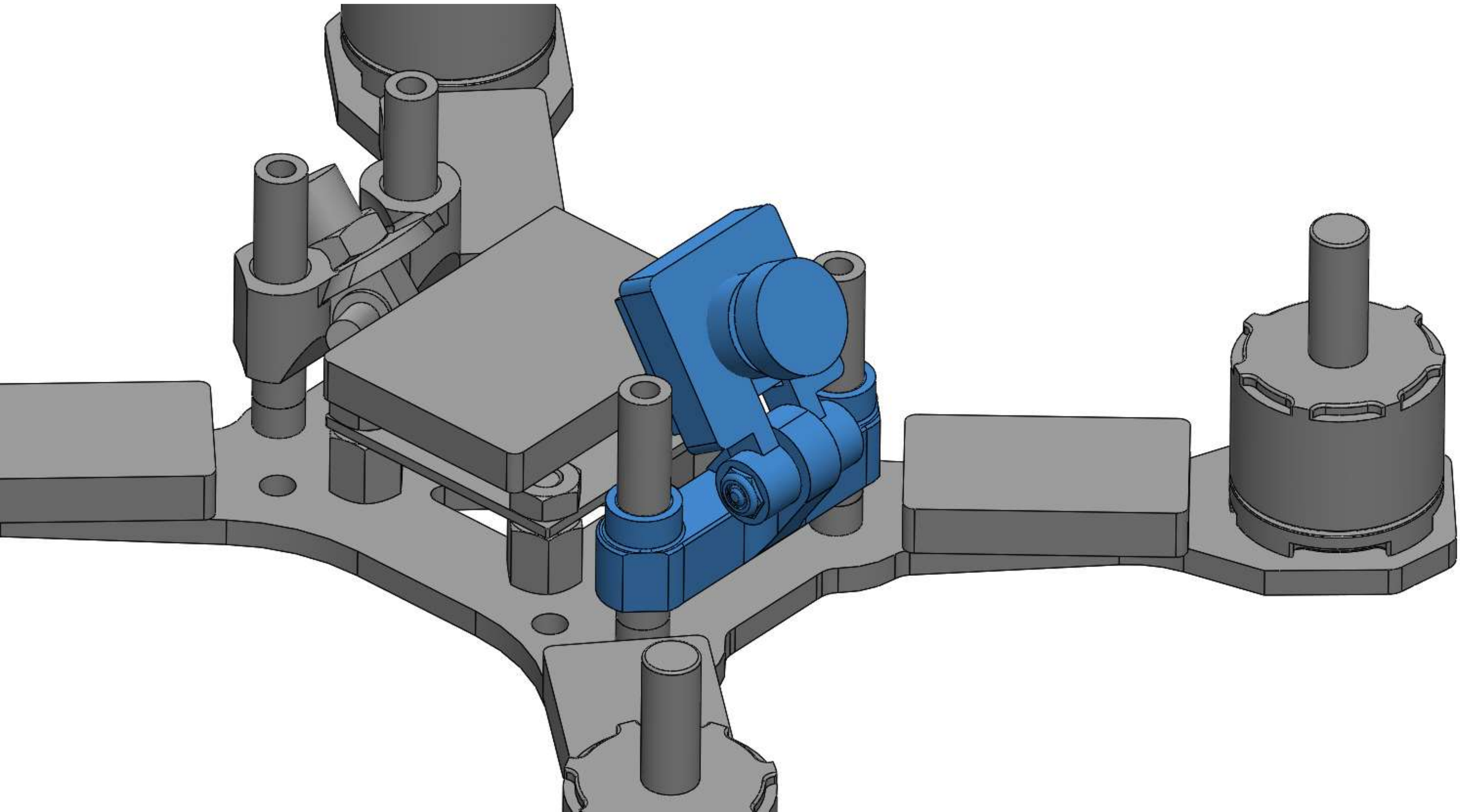
Parts Required:

Quantity	*Part Description*
1	Mini Cam Mount Base (Black 3D Printed TPU)
1	Mini FPV CMOS Camera (Sold Separately)
1	Mini Cam Mount Top (Black Injection molded plastic)
1	M2 Camera Mounting Screw (Located in “Mini Cam Mount Hardware Set Bag”)
1	M2 Camera Mounting Nut (Located in “Mini Cam Mount Hardware Set Bag”)

Assembly Process:

Insert the camera into the camera mount as shown. Use the included fasteners to join it to the camera mount base. Press the assembly down over the two front frame standoffs leaving around 3mm to 4mm of distance from the bottom of the mount to the frame. After assembly is complete you can adjust the height of the camera to your liking and fine tune lens position.





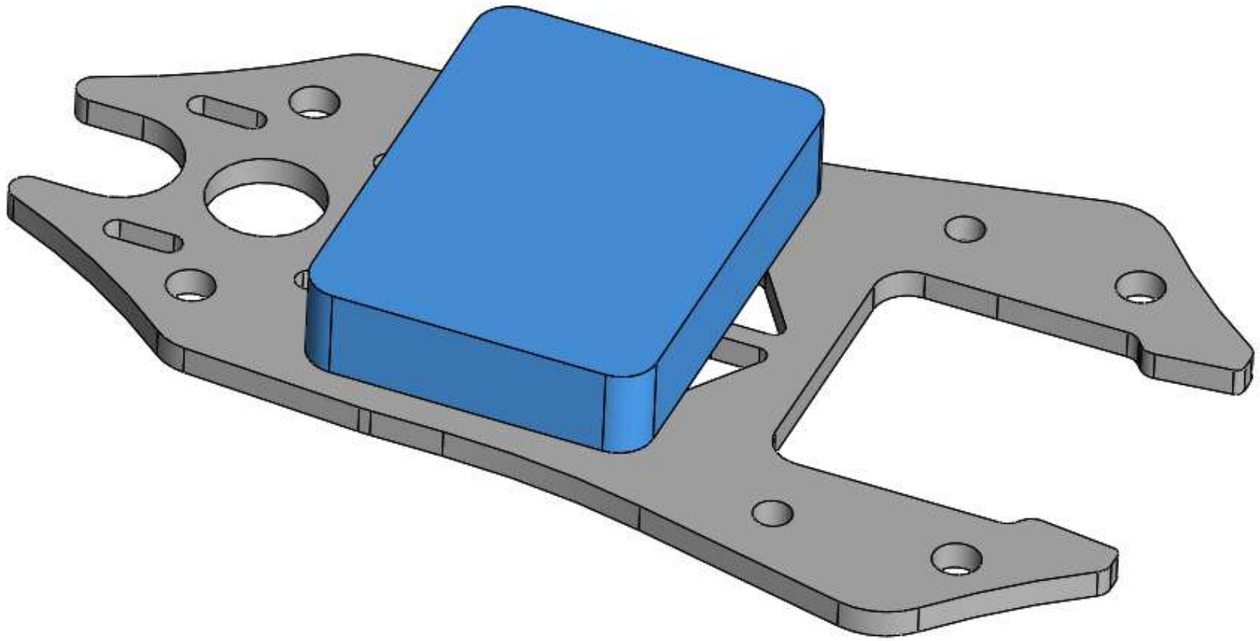
STEP 5

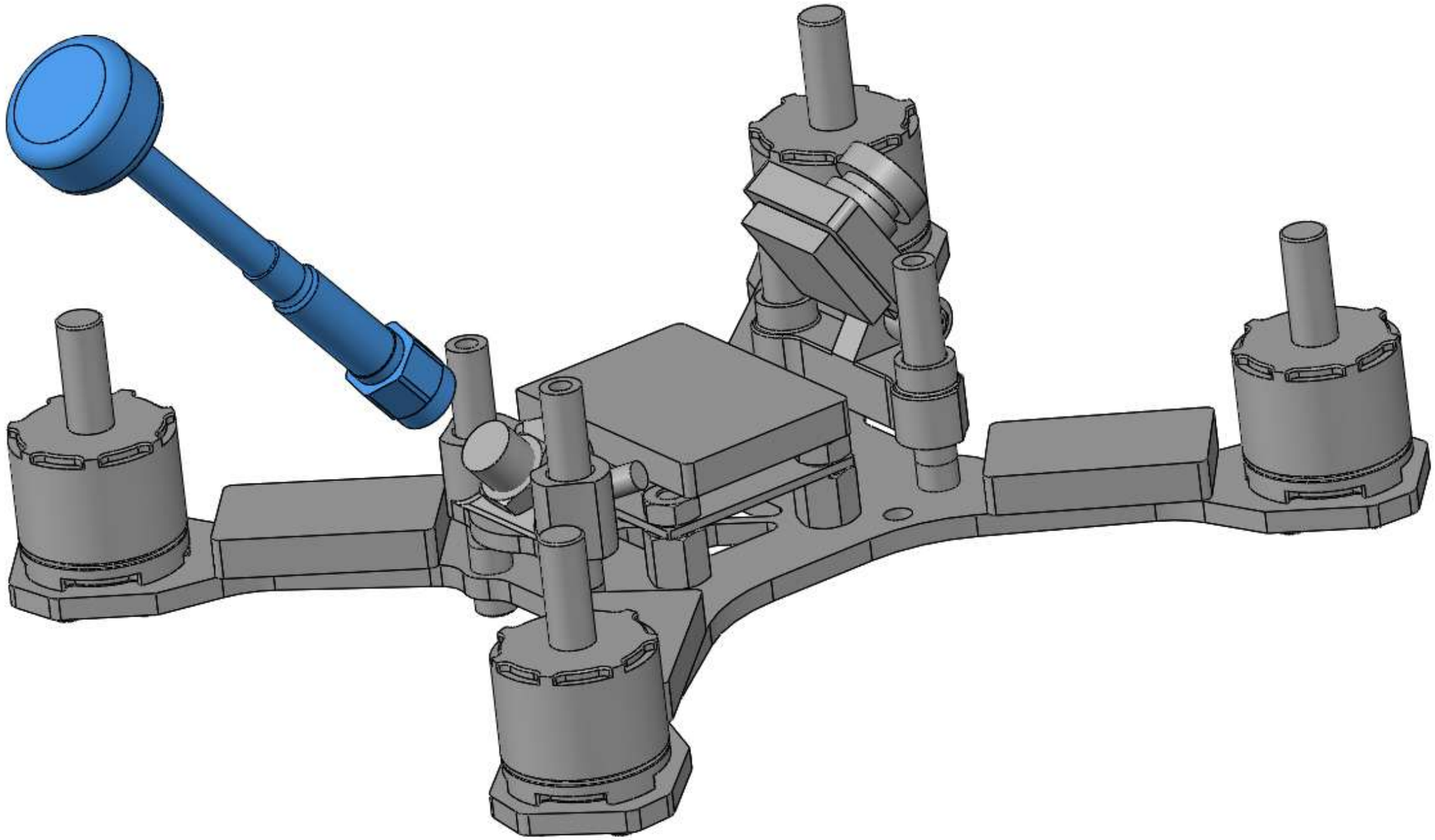
Parts Required:

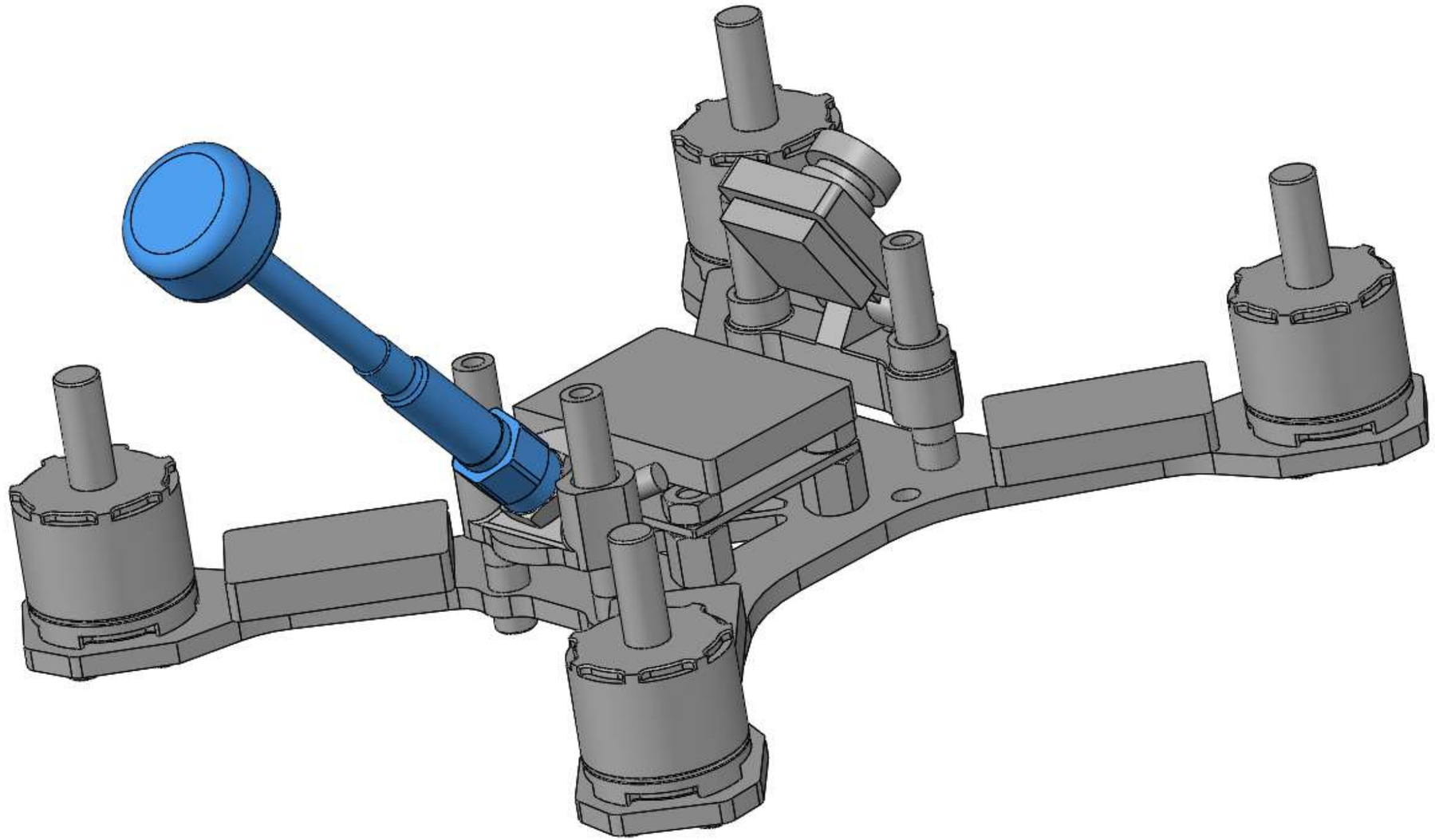
Quantity	*Part Description*
1	RC Receiver (Sold Separately)
1	FPV Antenna (Sold Separately)
1	Upper Fuselage Plate – mini FPV cam (1.5mm CF)
2	Socket Head Screw (M3 x 10mm long x silver 7075 aluminum)
1	Small Zip Tie (Sold Separately)

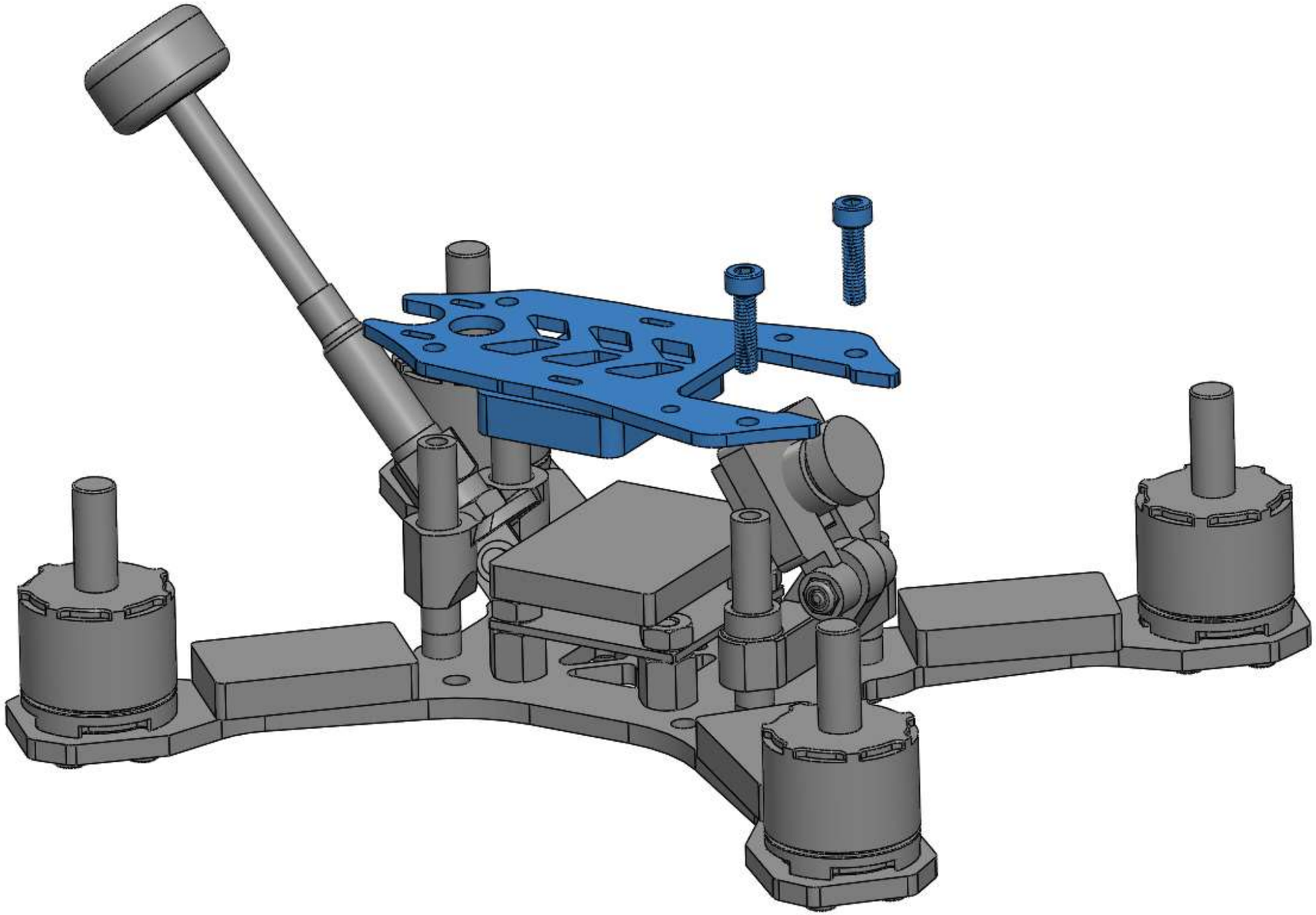
Assembly Process:

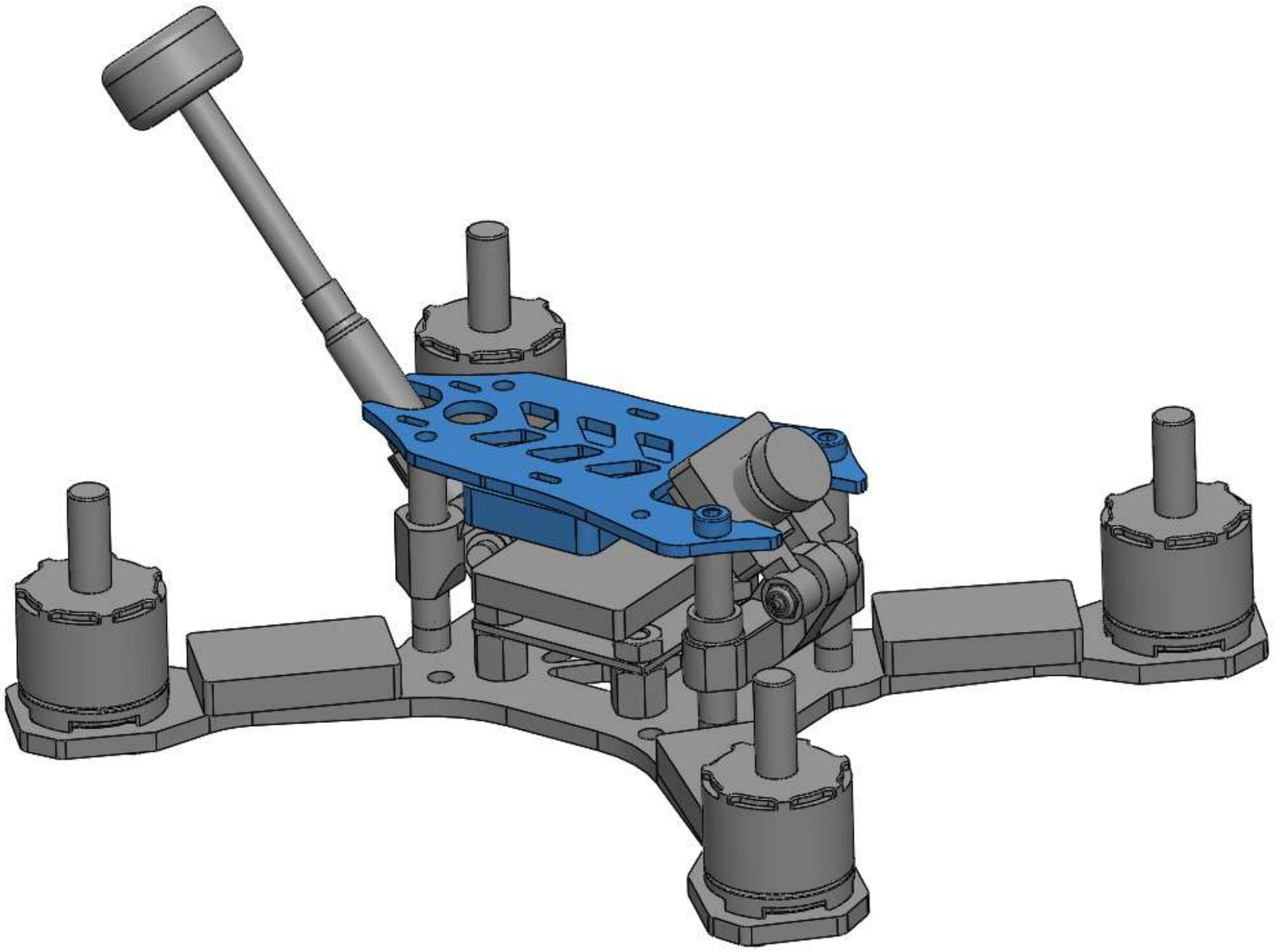
Affix the receiver to the underside of the Upper Fuselage Plate using double sided stick tape. Route the receiver's antenna up through the large single hole in the rear of the plate. Install the FPV antenna down into the SMA connector threads. Install the Upper Fuselage Plate assembly onto the craft using the two screws. Run a zip tie through the two slots in the rear of the plate and around the FPV antenna. Make sure this zip tie is pulled tight.











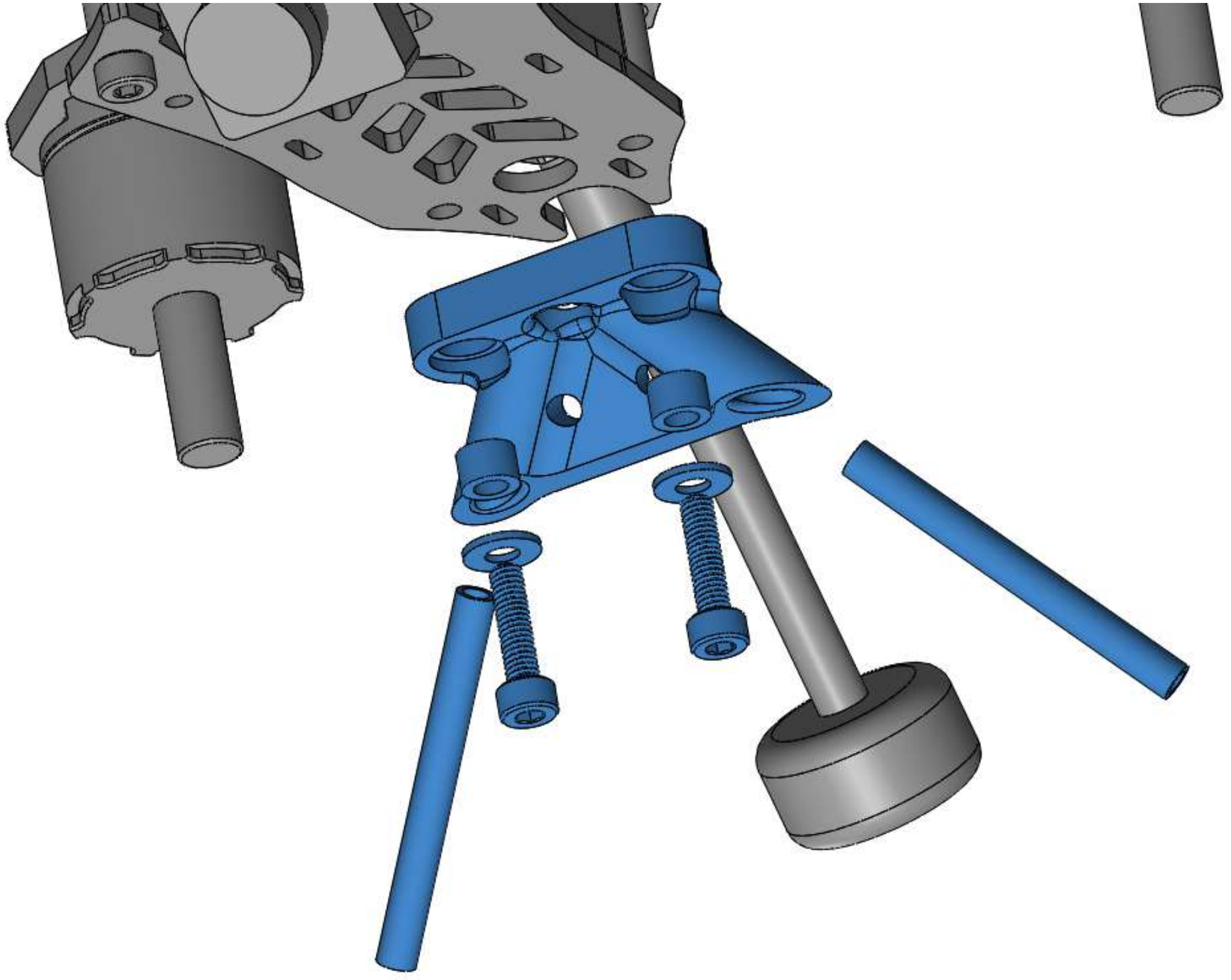
STEP 6

Parts Required:

Quantity	*Part Description*
1	RX Antenna Mount (Black 3D Printed TPU)
2	Antenna Tube (Black Plastic)
2	Socket Head Screw (M3 x 10mm long x silver 7075 aluminum)
2	Washer (M2.5 Hole x steel)
2	M2.5 X 4.5mm OD x 3mm Long Spacer (Aluminum)
1	Small Zip Tie (Sold Separately)

Assembly Process:

Thread the receiver's wires up through the antenna tubes / antenna mount as shown. Press the aluminum spacers into the two bores in the antenna mount. Use the included fasteners as shown the join the assembly to the craft. Run a zip tie through the two small holes in the mount and around the FPV antenna.



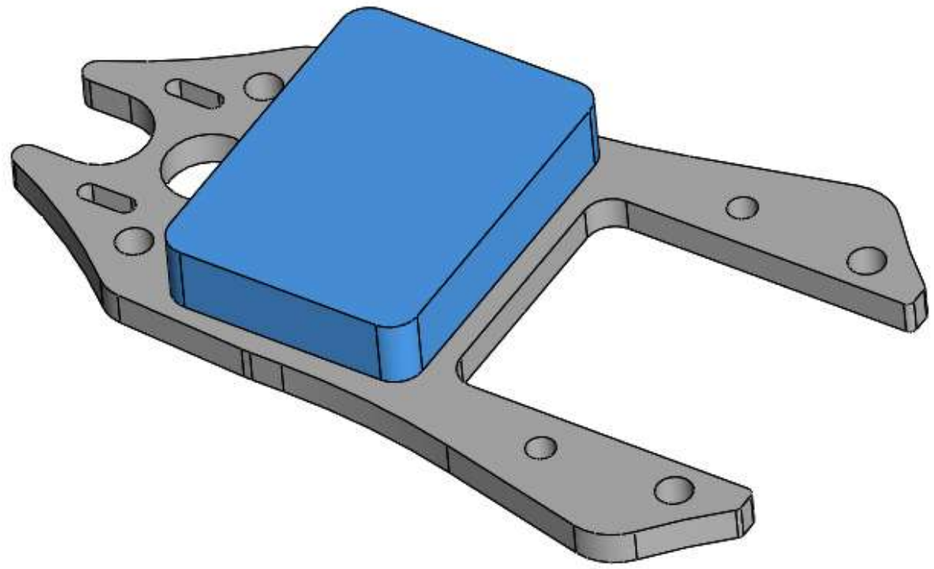
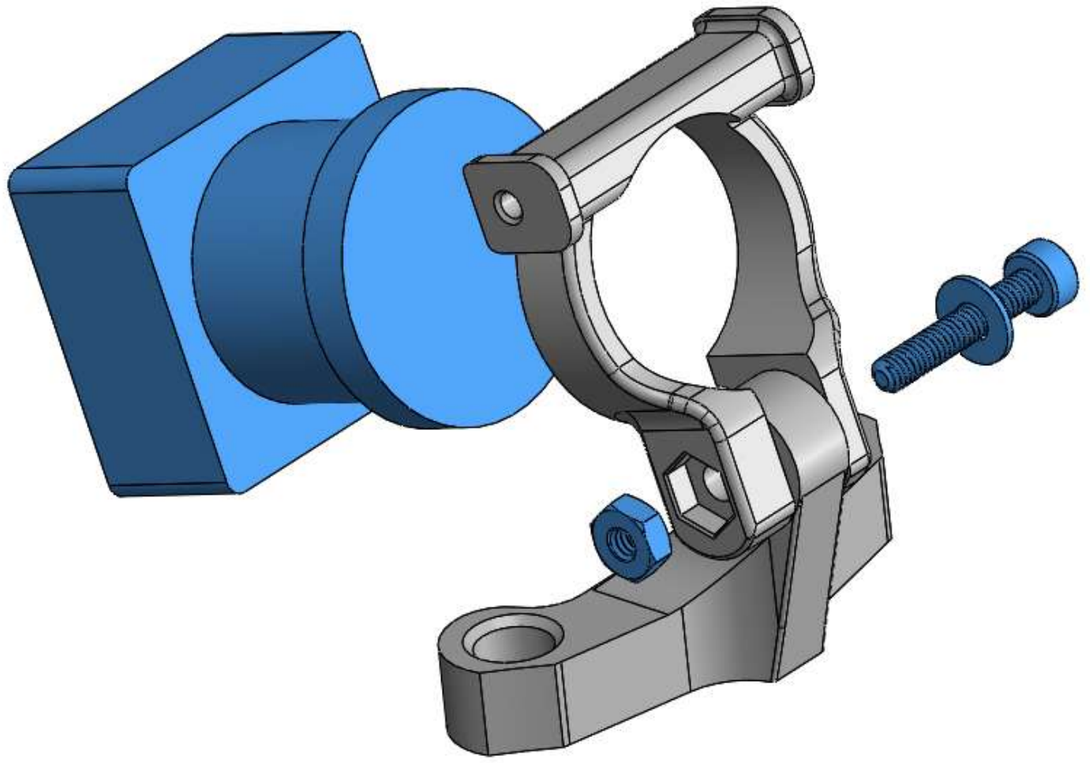
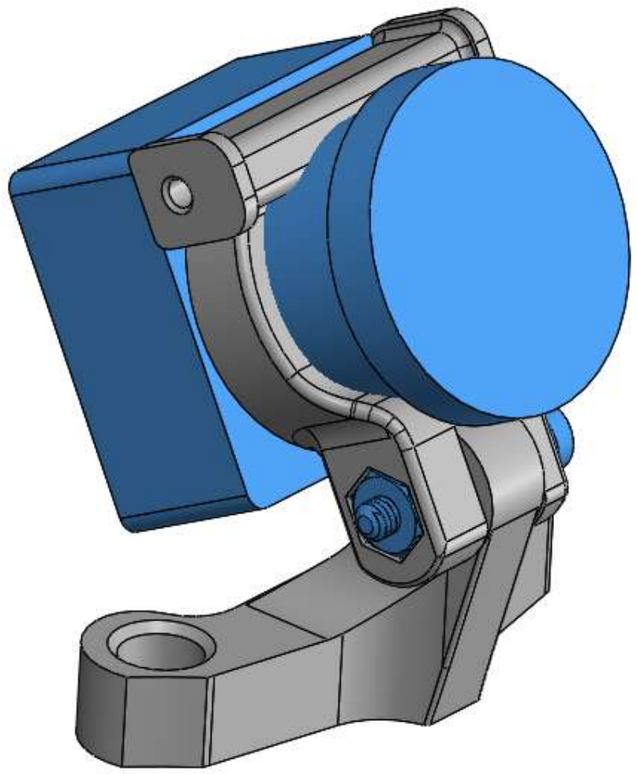
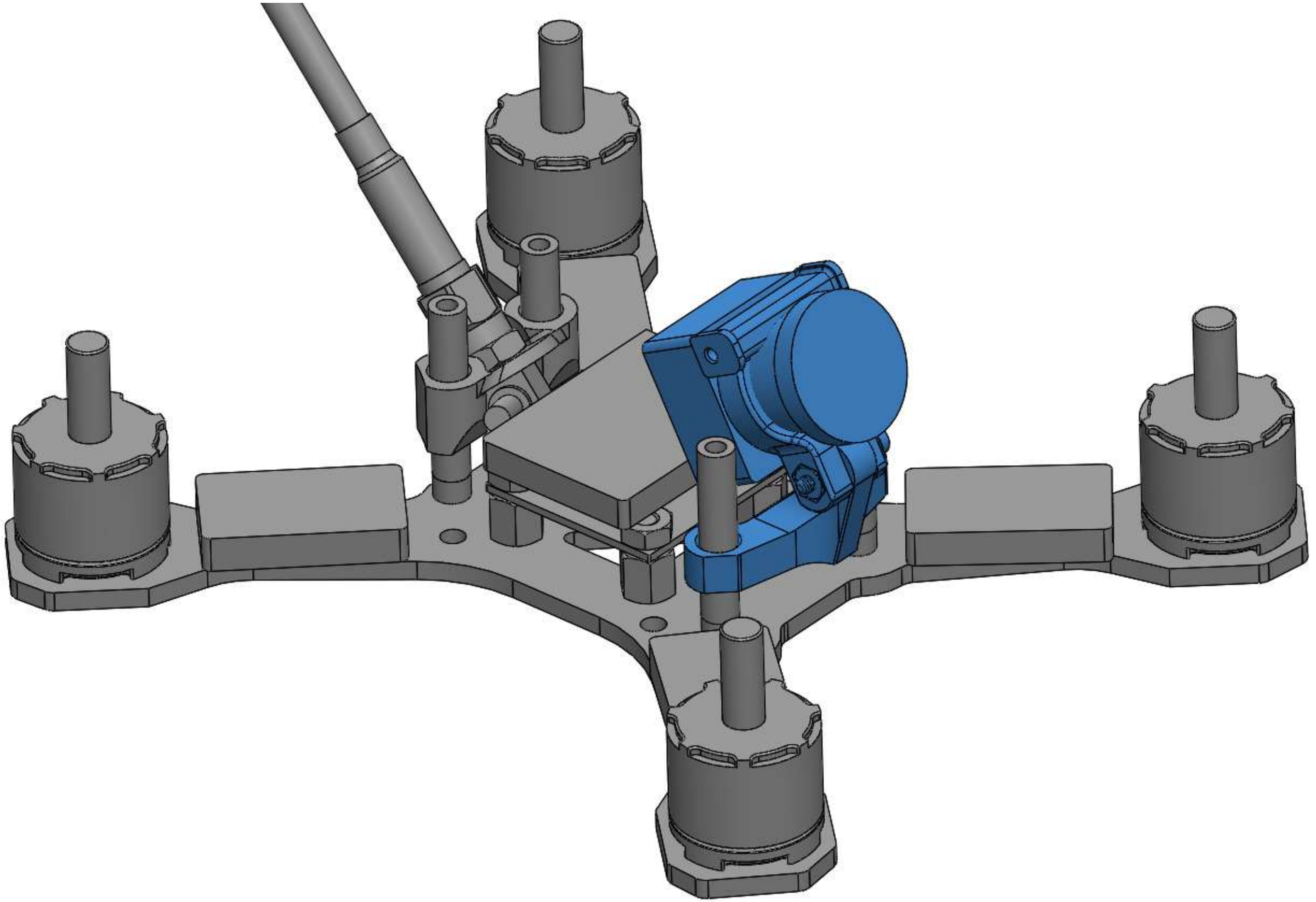
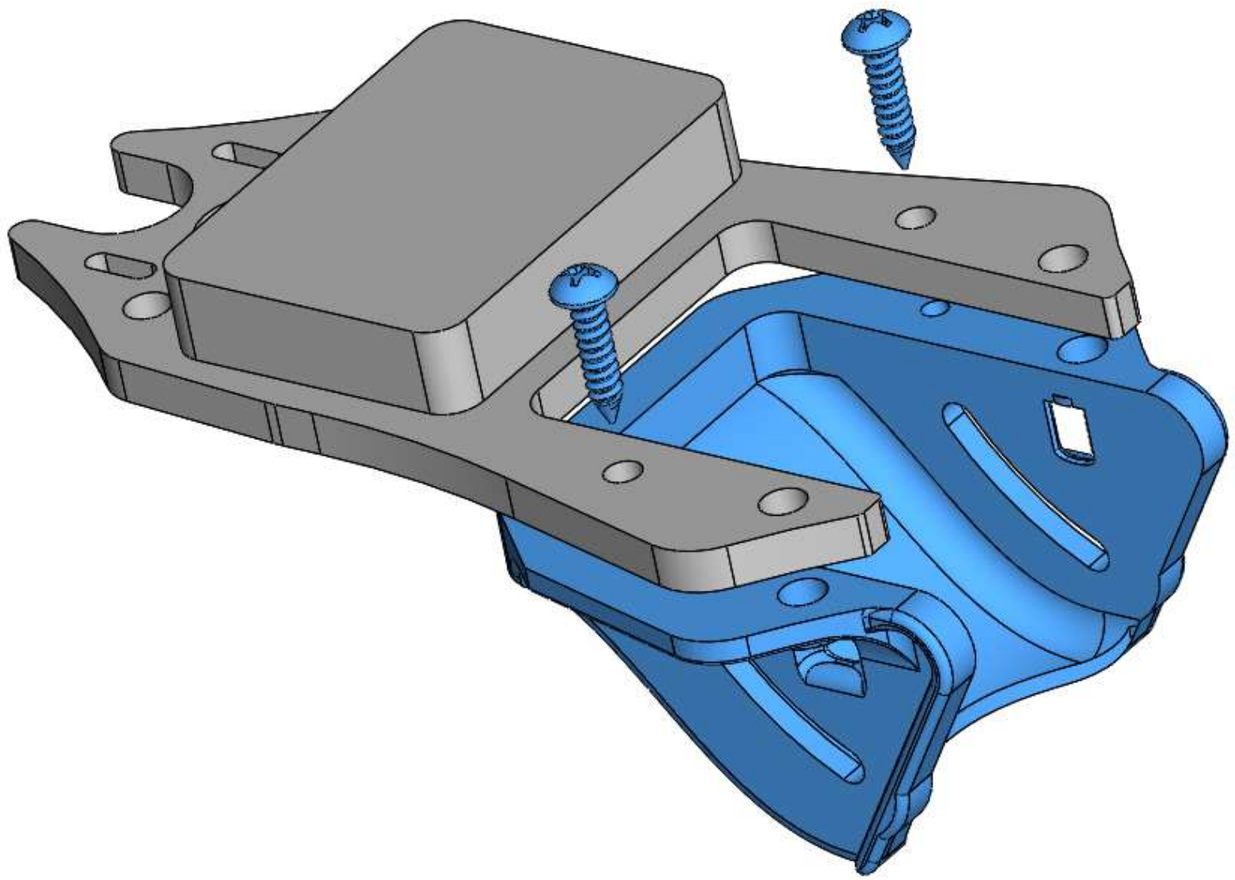
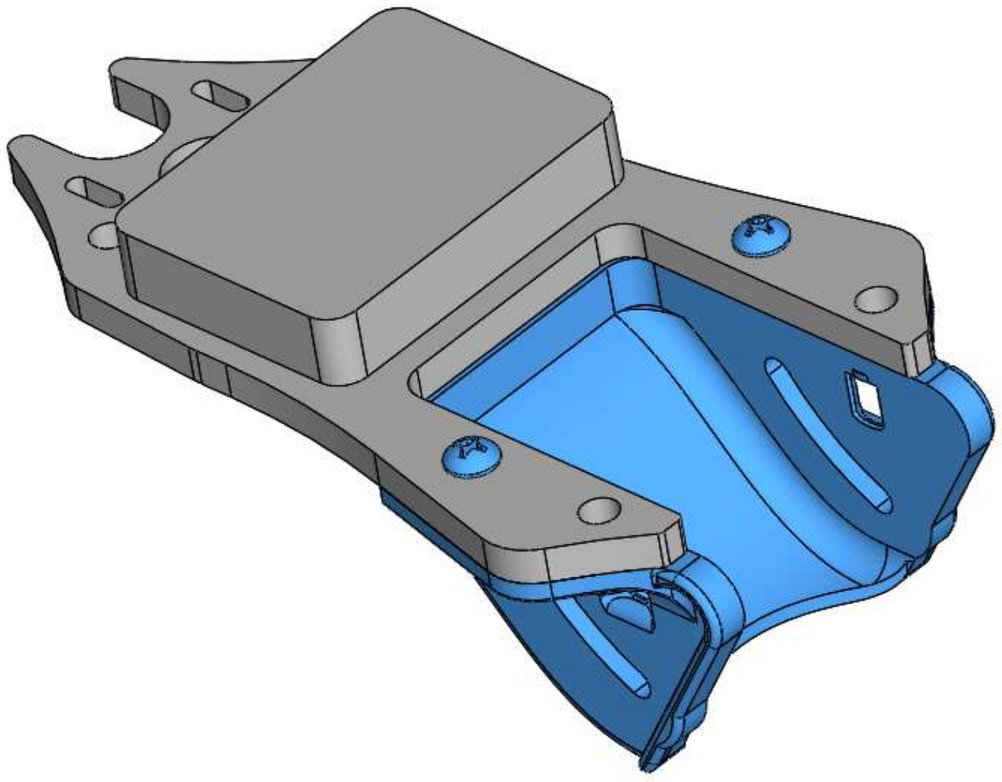
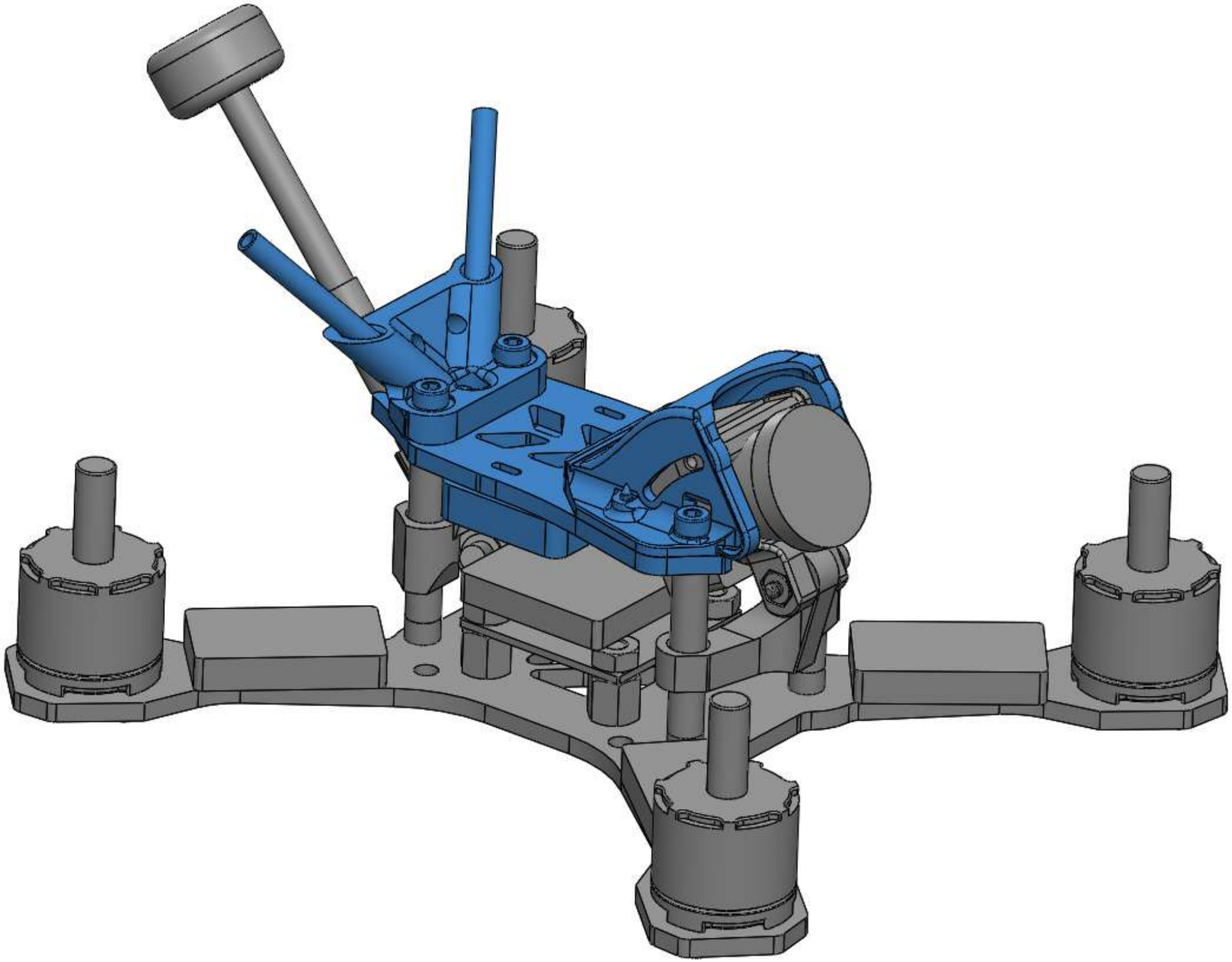
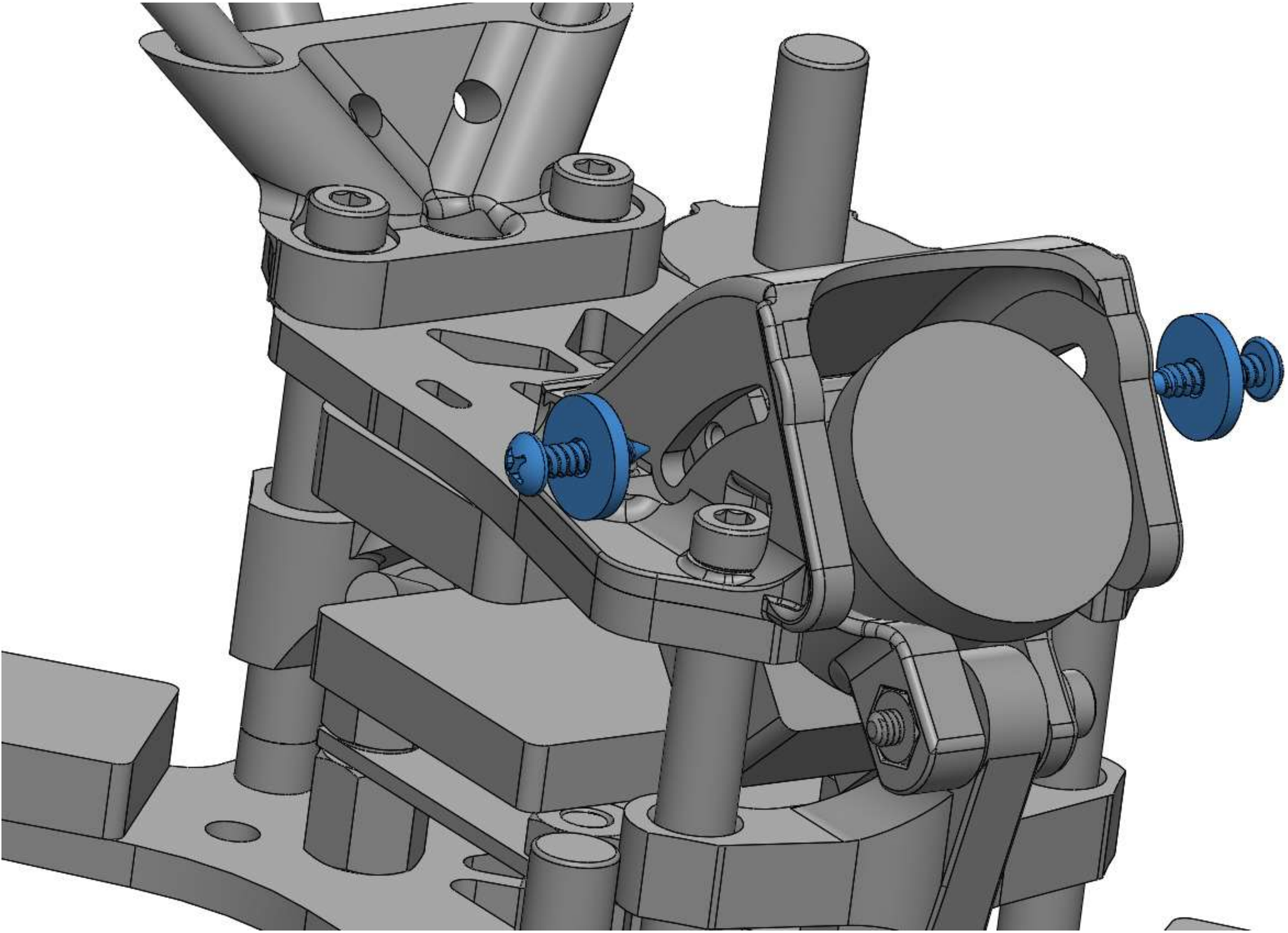
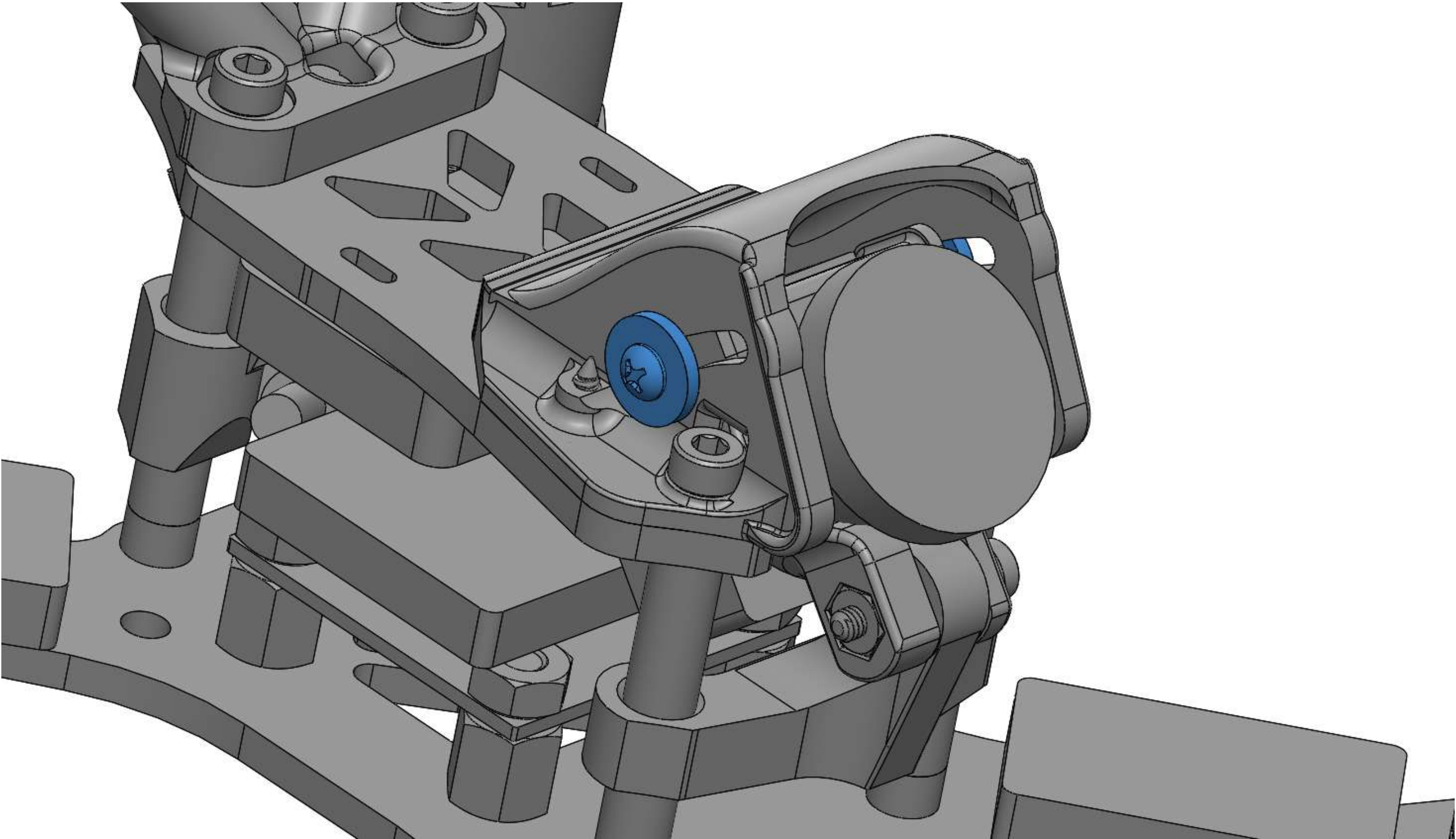
SECTION 4

OPTIONAL RUNCAM OWL UPGRADE

STEP 1 (Runcam Owl Upgrade)

Parts Required:

Quantity	*Part Description*
1	Upper Fuselage Plate – RunCam Owl FPV cam (2.5mm CF)
1	Runcam Owl FPV Camera (Sold Separately)
1	Upper Lens Hood (Included with Upgrade Kit)
1	Camera Barrel Clamp (Included with Upgrade Kit)
1	Lower Camera Mount (Included with Upgrade Kit)
1	M2 X 12mm Screw (Included with Upgrade Kit)
1	M2 Nut (Included with Upgrade Kit)
1	M2 Small Washer – 5mm OD (Included with Upgrade Kit)
2	M2 Large Washer – 7mm OD (Included with Upgrade Kit)
4	Phillips Head Screw #1 x 1/4" Long (Included with Upgrade Kit)
2	Socket Head Screw (M3 x 10mm long x silver 7075 aluminum)

Assembly Process:

Using double sided stick tape, install your RC receiver onto the 2.5mm upper fuselage plate mounted sideways (antenna wires pointing out the side of the craft). Be cognizant of where the antenna wires exist in reference to the props. Make sure the props do not hit these wires. Use the hardware included in your upgrade kit to join the Owl to the Camera Barrel Clamp and Lower Camera Mount. Press the mount down over the two front standoffs, leaving some space between the mount and the bottom plate. Join the hood to to the Upper Fuselage Plate using the included phillips head screws as shown. Mount the assembly down onto the craft with the aluminum socket head screws as shown. Use two phillips head screws and large washers to set camera angle.