

ORIGIN 1

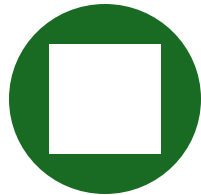


Drone Quadcopter (5 Inch)
Built/Designed by Michael Onyejekwe

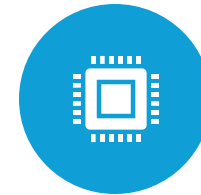
Flight Controller(FC): SpeedyBee



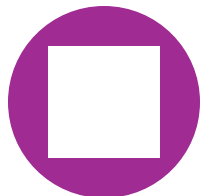
SB-F405-V3



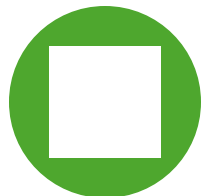
Betaflight/INAV Compatible



Why an F4 chip board instead of F7? - Cost! F4 is cheaper this is a high-powered budget build.



Although F7 has more processing power and more uarts, it's function is practically the same as the F4 just more expensive.

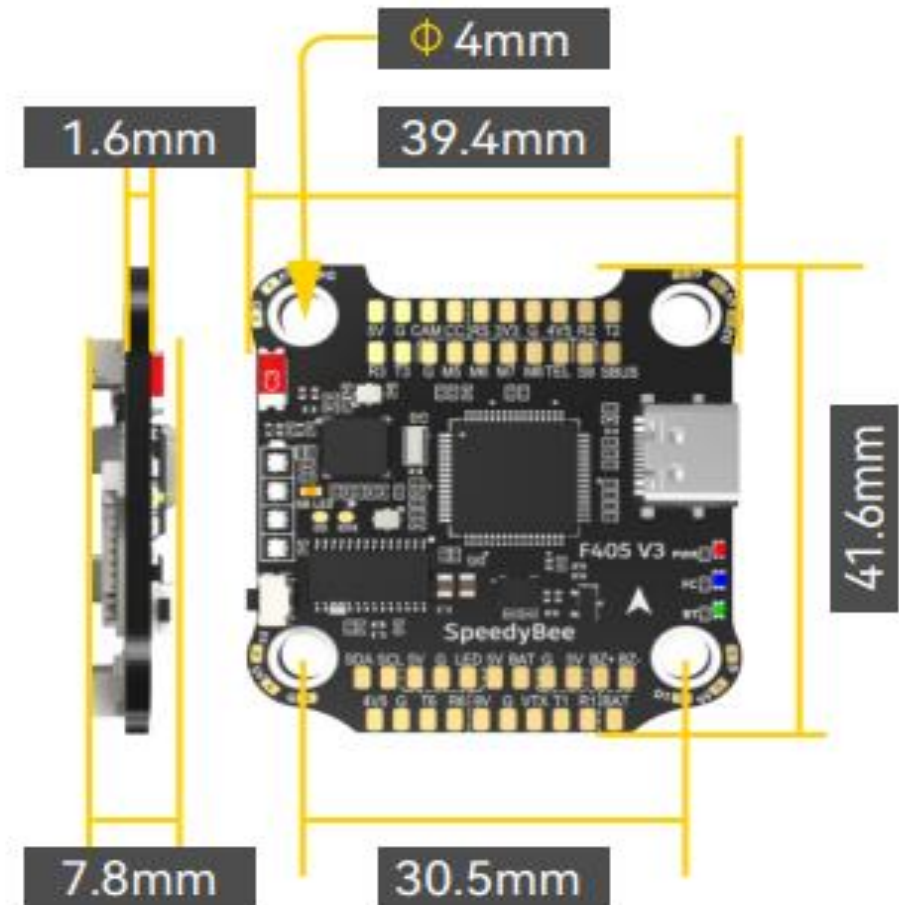
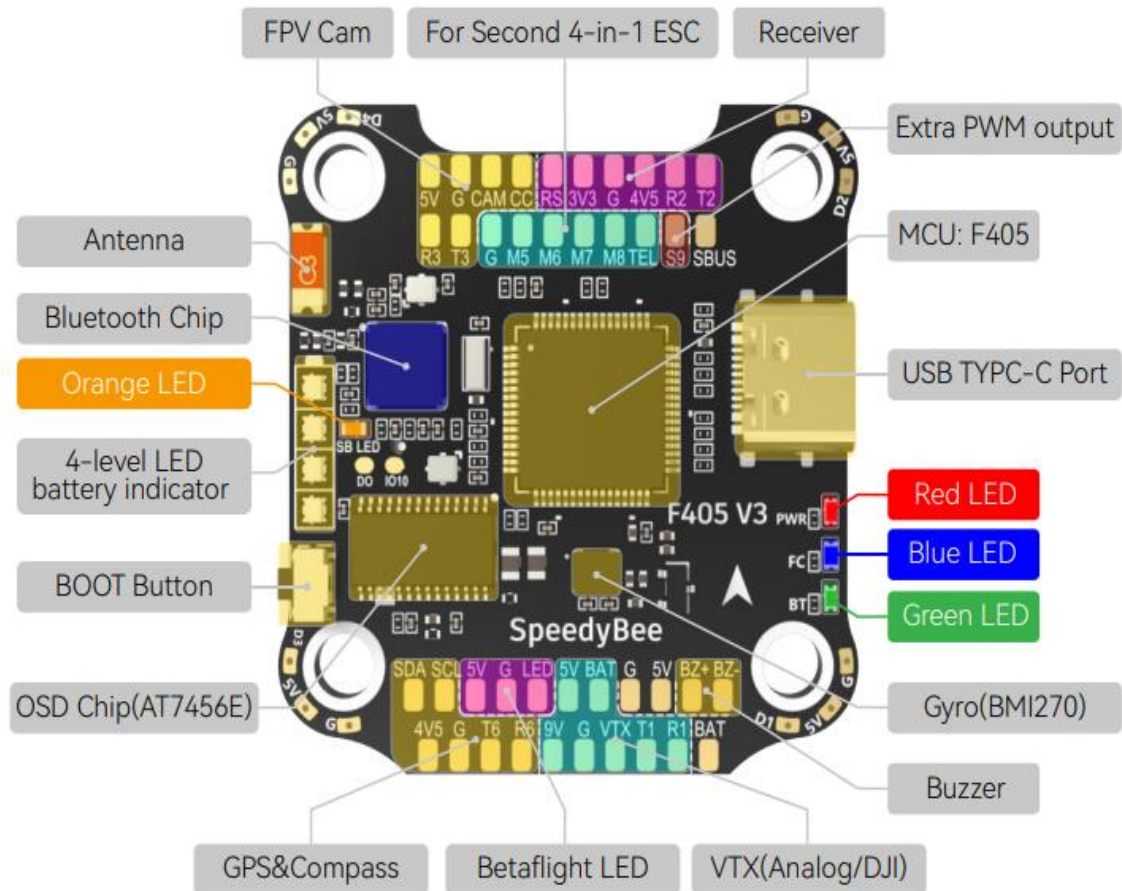


The FC has a built-in 5V & 9V 2A **BEC battery eliminator circuit(BEC)**

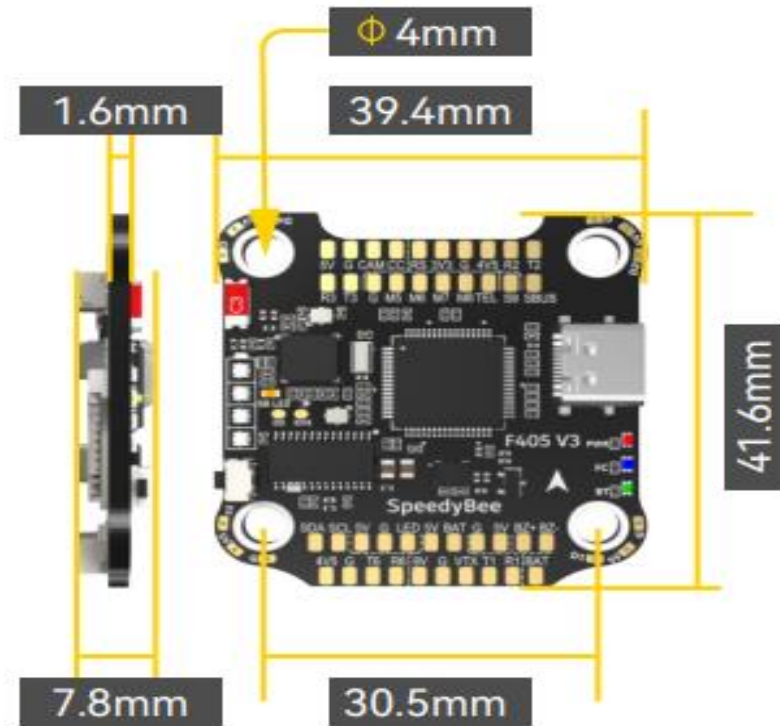
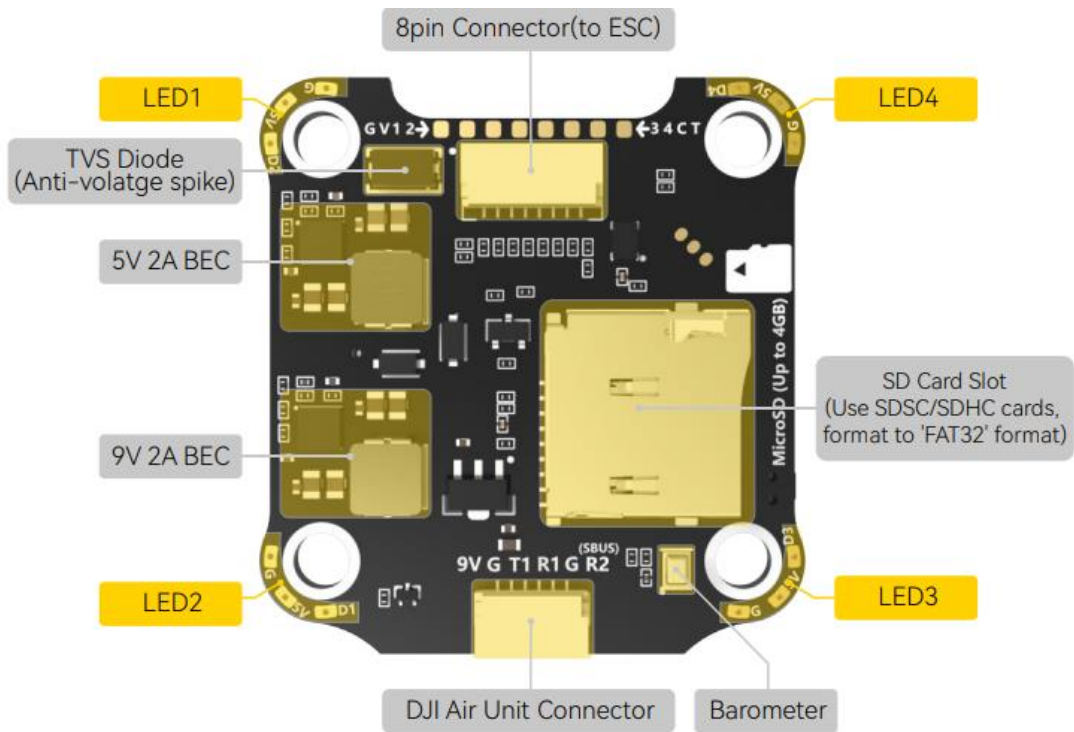


FC manual for soldering uarts here:
https://hobbymania.com.ua/file/SpeedyBee_F405_V3_Stack.pdf?srltid=AfmBOorzKCvbOrwPbexj4VsJJisg-BUdx_cn2Zb1-DGQpPIDSIZLT4M7

SpeedyBee FC: Top Side + Dimensions



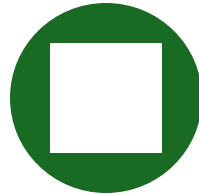
SpeedyBee FC: Bottom Side + Dimensions



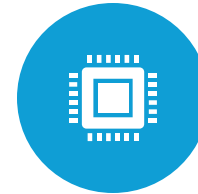
Electronic Speed Controller(ESC): SpeedyBee



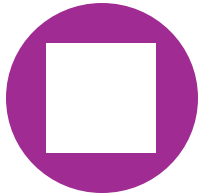
SB-BLS-50A



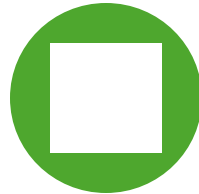
Betaflight/ESC Configurator



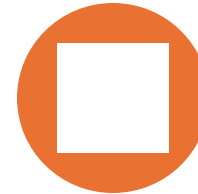
For the ESC also known as an **electronic speed controller** I went with a **50amp** rated esc as it was cheaper and still produced by speedybee so it would match seamlessly with the FC.



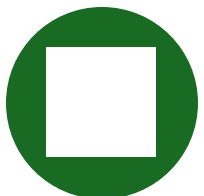
The ESC has a **low esr capacitor**, to **prevent burnout from voltage spikes**



Burst Current 55amp



This esc also has large solder pads which is a huge plus.



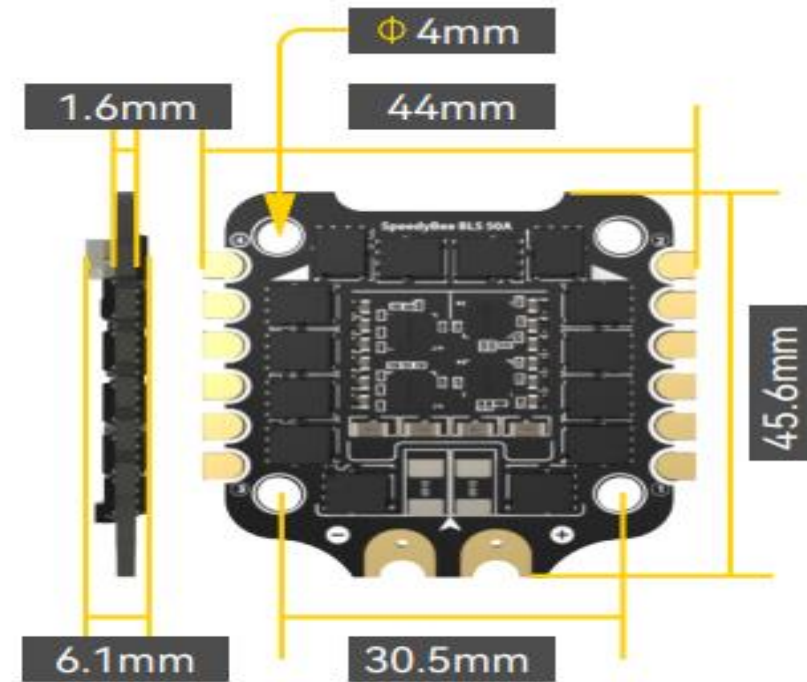
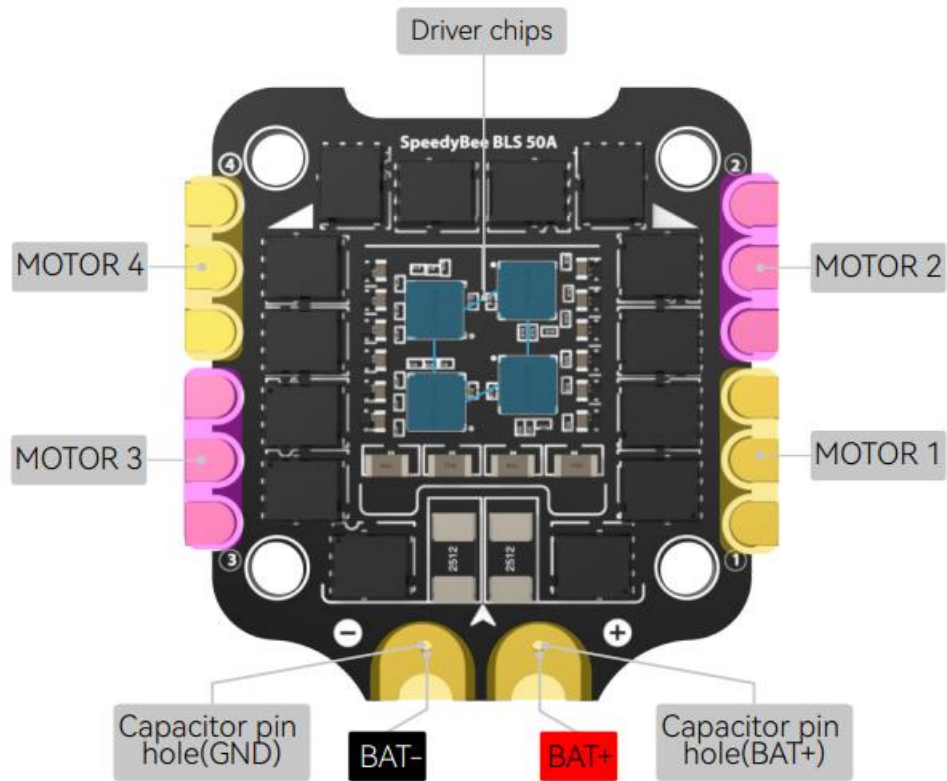
The esc requires a 3s – 6s battery input.



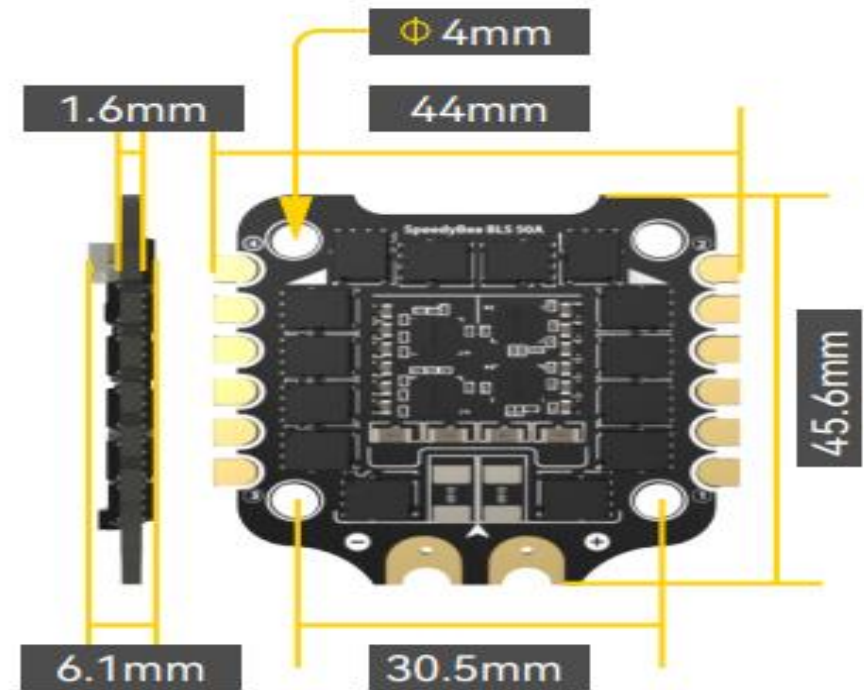
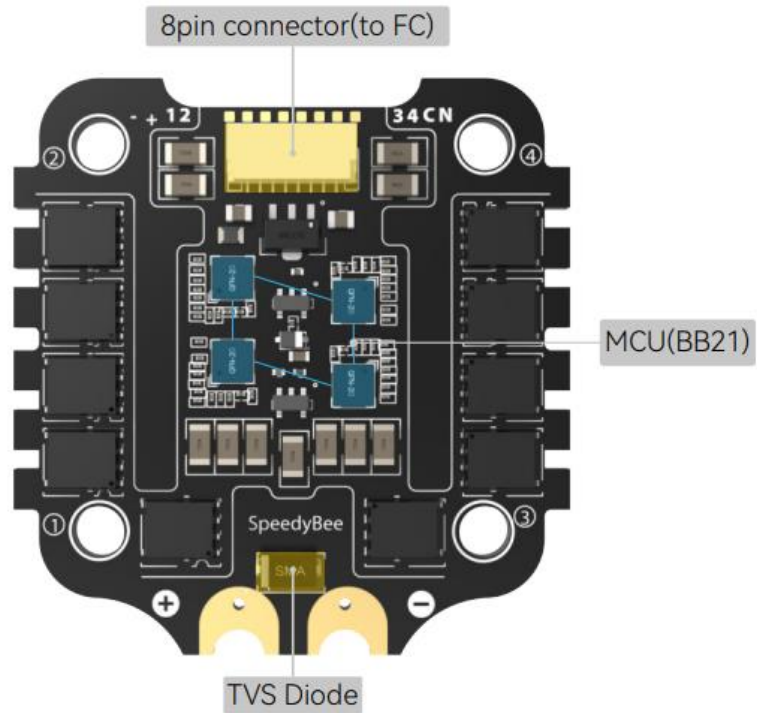
ESC manual here:

https://hobbymania.com.ua/file/SpeedyBee_F405_V3_Stack.pdf?srltid=AfmBOorzKCvbOrwPbexj4VsJJisg-BUdx_cn2Zb1-DGQpPIDSIZLT4M7

SpeedyBee ESC: Top Side + Dimensions



SpeedyBee ESC: Bottom Side + Dimensions

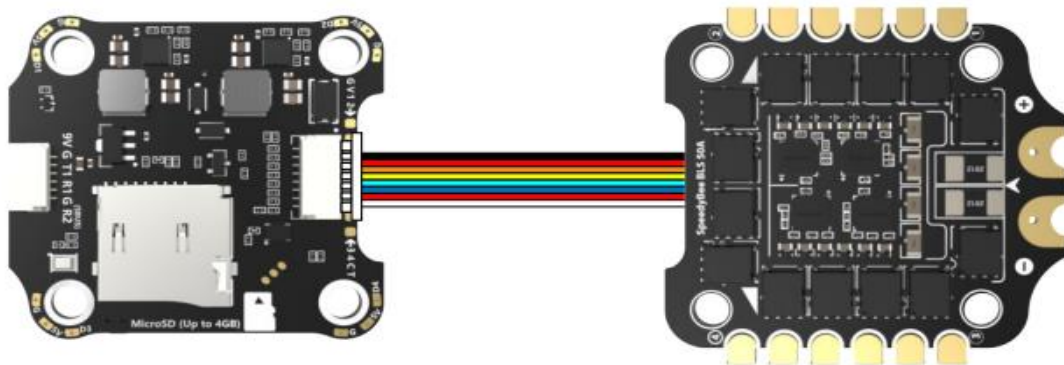


Connecting FC+ESC

- 2 methods to connect the FC + ESC is either through direct soldering or through the 8-pin connector
- (Personally) I use an 8-pin connector cable to ease with the repairs when necessary .

Method 1 - Using 8-pin cable

Use any end of the 8-pin JST cable to connect the FC to the ESC.

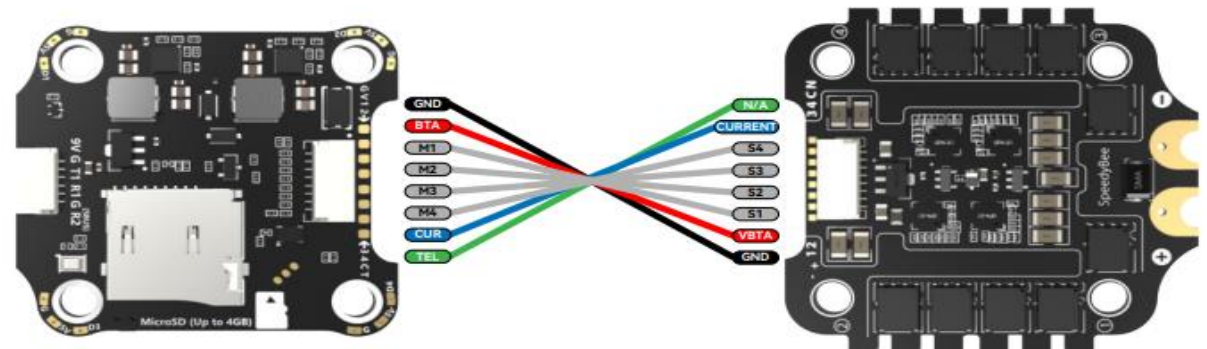


F7 V3 Flight Controller

BLS 50A 4-in-1 ESC

Method 2 - Direct soldering

Solder 8 wires to the 8 pads on each end referring to the pad definition below.



F405 V3 Flight Controller

BLS 50A 4-in-1 ESC

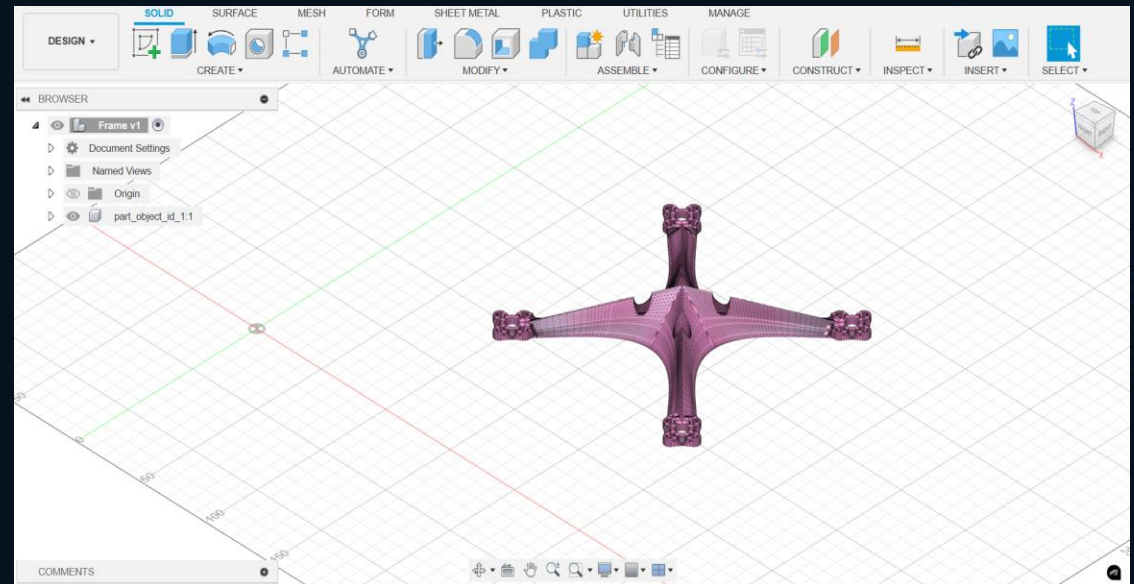
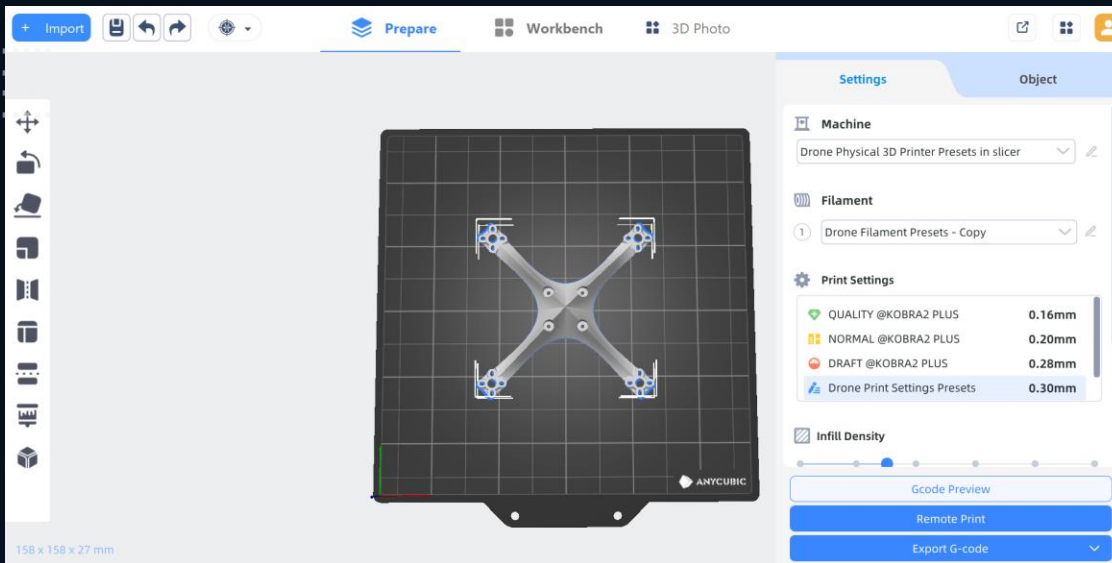
Receiver(RX):BayckRC

- For the receiver I used a 2.4GHz ELRS receiver produced by BAYCKRC
- ExpressLRS(ELRS) is a protocol that is known to be better than flskv & frskv for telemetry



Frame (body) - 3D Printed

- For the frame/body I used a 3D printed frame.
- I sourced the frame online and edited using fusion360(AutoCAD) and anycubic slicer (Slicer-Software).



Finished Product:

- For the finished product used m3 screws and washers to secure the board and motors to the frame
- I used zipties to hold the canopy to the frame
- Pictured below is the complete built drone
- I included an operational video



THANK YOU!!

- ***If you stayed until the end thank you***
- ***I have many more projects documented/to document!!***