Simple drone

Components with mass:

- Motor: DYS Motors SE2205 PRO : 29.3g
- PDB: Matek PDB BEC 5V & 12V PDB-XT60: 7.5g
- Flight Controller: BrainFPV RADIX LI Flight Controller: 4g
- ESC: Spedix GS30 30A 2-4S 32BIT Dshot 1200 ESC: 6g
- Battery: Tattu 14.8V 2300mAh 4S 45C LiPo Battery: 222g
- Receiver: TBS CROSSFIRE NANO RX: 0.5g
- Propellor: 6045
- Body: Nylon 6 chassis: 50.2g

Dimension across motor to motor:

Vertical distance: 113.7mm

Horizontal distance: 183.7mm

Estimated flight time:

5.27 minutes. Calculation done with reference to thrust chart

Explanation of component selection:

TATTU battery was used for its high output(2300 mAh) and light weight

Nylon 6 was used for body due to its light weight and ease to 3D print

DYS SE2205 PRO was used as 1000g thrust per motor was required it the body weight was to be 500g. Propellor was used in accordance to the chart.

PDB, ESC, receiver and flight controller were chosen from a blog I read.

Thrust ratio at 100% throttle:

weight of the drone with body and all components: 407.4g

thrust for motor at 100% at 14.8V: 1020g

Thrust ratio calculated using online calculator:- 10:1
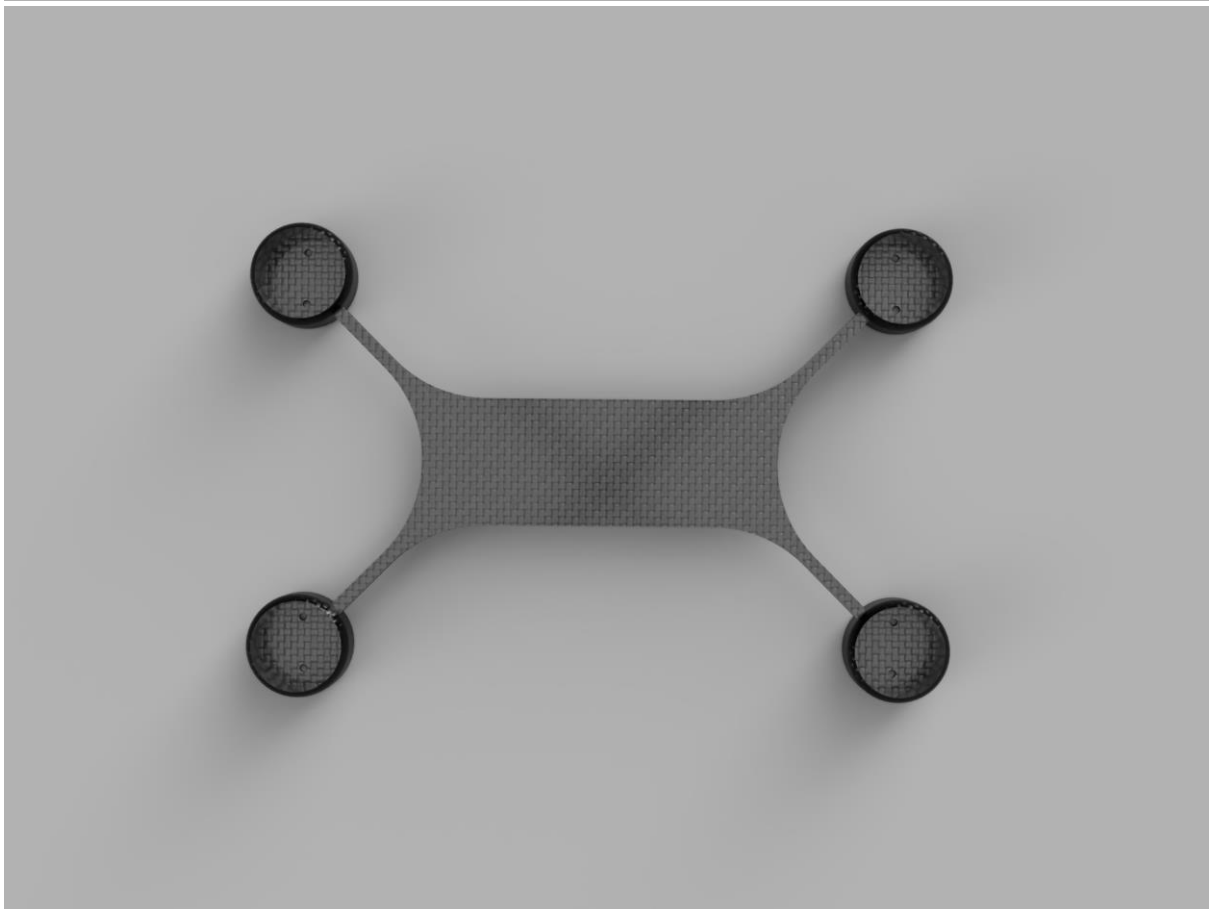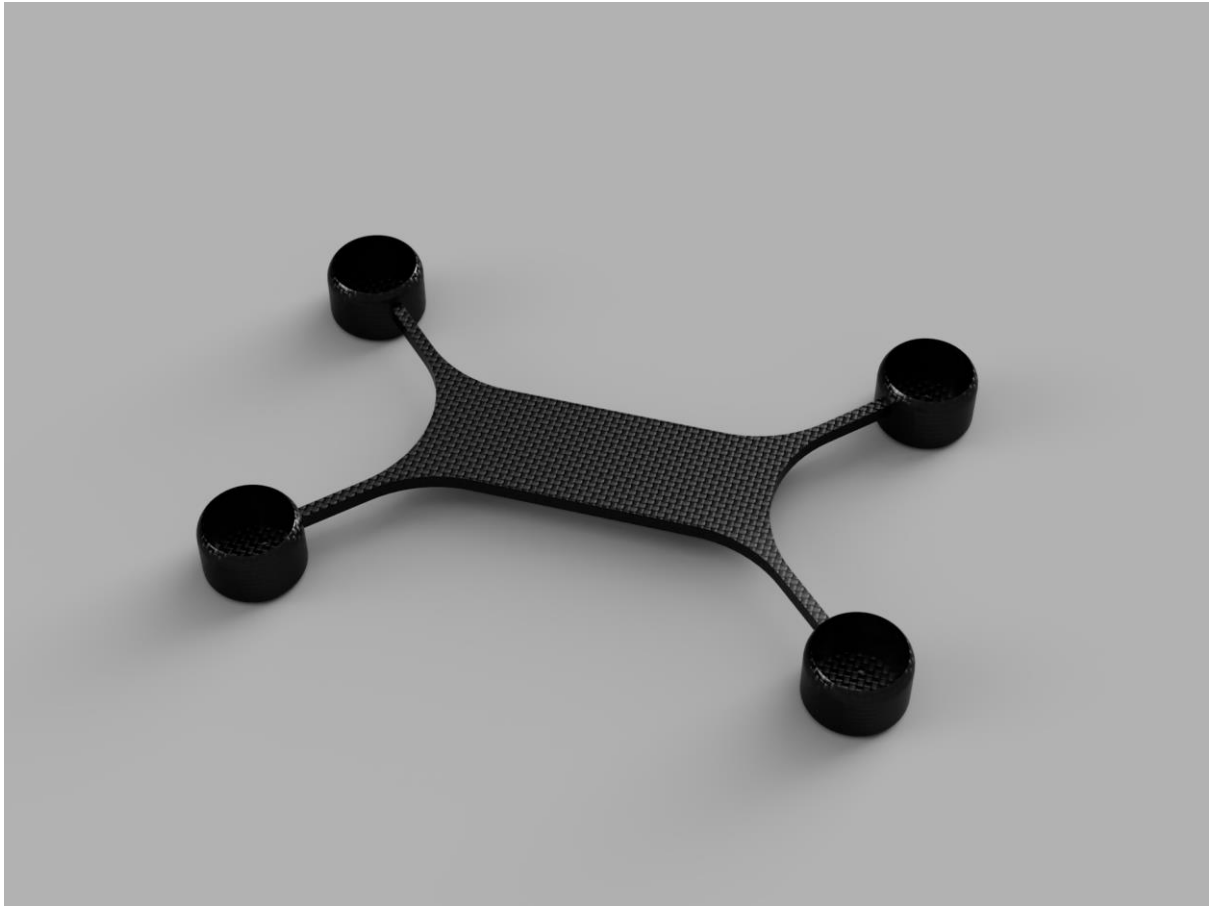
Thrust chart:

MOTOR TECHNICAL DATA:

VOLTAGE	NO LOAD		ON LOAD				LOAD TYPE
	CURRENT	SPEED	CURRENT	Pull	Power	EEP	Battery/prop
V	A	rpm	A	g	W	%	
11.1	0.7	28416	2.8	200	31.1	6.4	LiPo✕3/5045
			5.8	400	64.4	6.2	
			13.2	570	146.5	3.9	
			3.1	200	34.4	5.8	LiPo✕3/6045
			7.6	400	84.4	4.7	
			19.1	750	212.0	3.5	
			4.5	200	50.0	4.0	LiPo✕3/T5045
			11.3	400	125.4	3.2	
			15.5	600	172.1	3.5	
			3.6	200	40.0	5.0	LiPo✕3/T6045
			9.3	400	103.2	3.9	
			21.8	700	242.0	2.9	
14.8	0.8	37888	4.5	300	66.6	4.5	LiPo✕4/5045
			11.9	600	176.1	3.4	
			19.1	840	282.7	3.0	
			4.1	300	60.7	4.9	LiPo✕4/6045
			11.0	600	162.8	3.7	
			26.2	1020	387.8	2.6	
			4.1	300	60.7	4.9	LiPo✕4/T5045
			11.8	400	174.6	2.3	
			22.3	820	330.0	2.5	
			4.3	300	63.6	4.7	LiPo✕4/T6045
			13.2	600	195.4	3.1	
			27.8	890	411.4	2.2	

Taken from official website, link given below.

Render:

Links:

Motor/prop
https://fpv.tv/dys-motors-se2205-pro-series/
http://www.dys.hk/product/SE2205%20PRO.html
Receiver
https://www.risingsunfpv.com.au/collections/receviers/products/tbs-crossfire-nano-rx
PDB
https://www.risingsunfpv.com.au/collections/pdb/products/matek-pdb-bec-5v-12v-pdb-xt60
Flight controller
https://www.risingsunfpv.com.au/collections/fc/products/brainfpv-radix-li-flight-controller
ESC
https://www.risingsunfpv.com.au/collections/escs/products/spedix-gs30-30a-2-4s-32bit-dshot-1200-esc
Battery
https://www.amazon.com/TATTU-2300mAh-Battery-Racing-Drones/dp/B013I9SVD2#HLCXComparisonWidget_feature_div