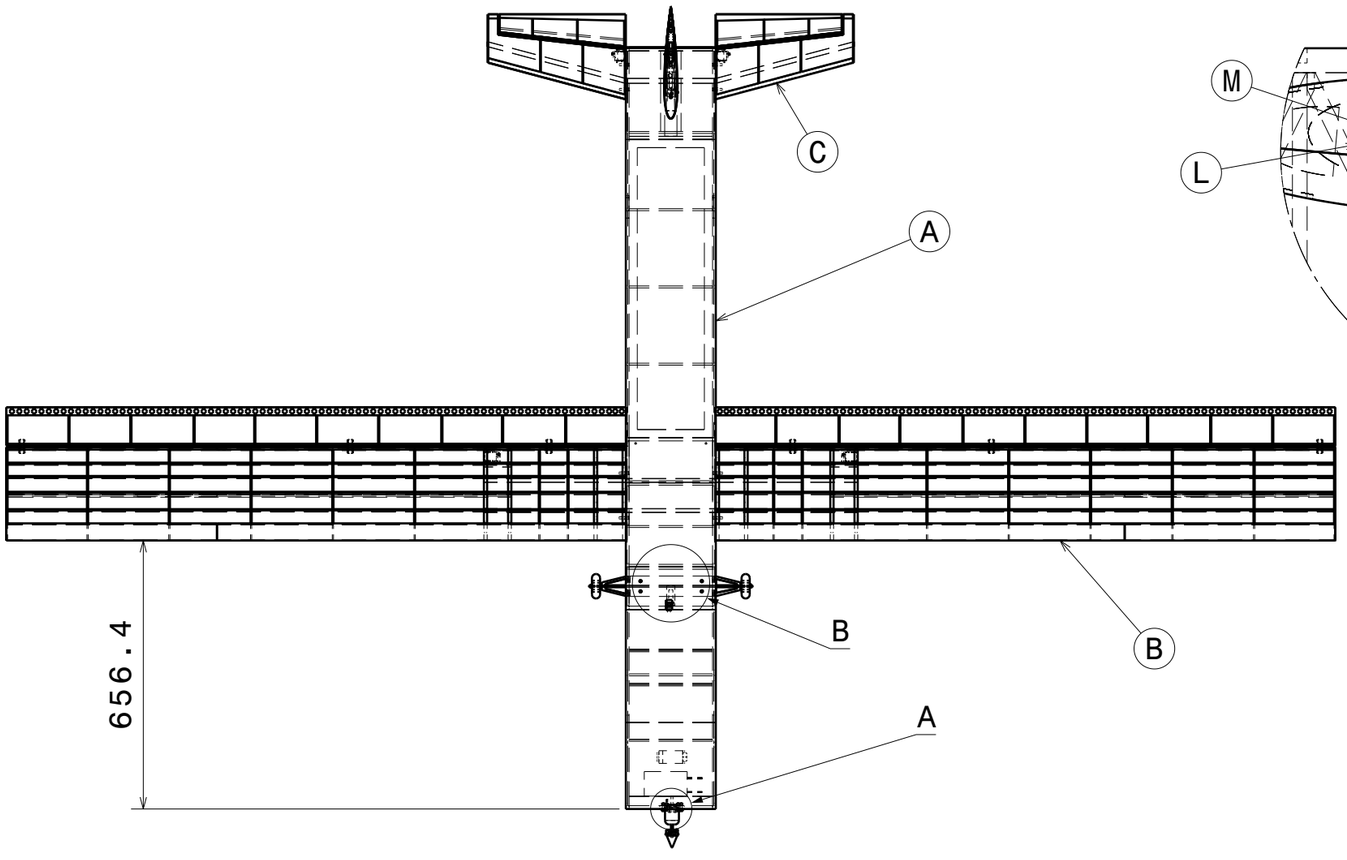
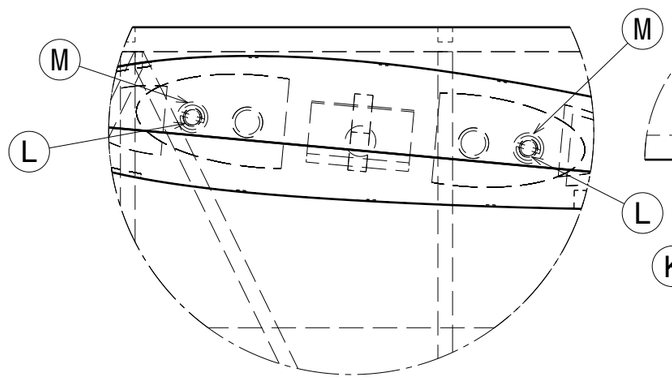
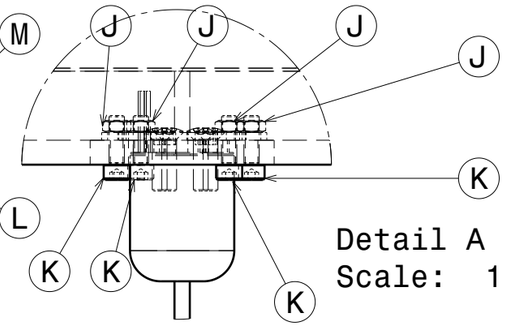


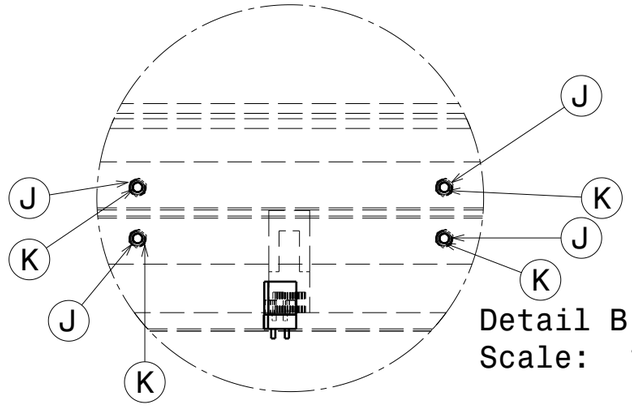
Top view
Scale: 1:15



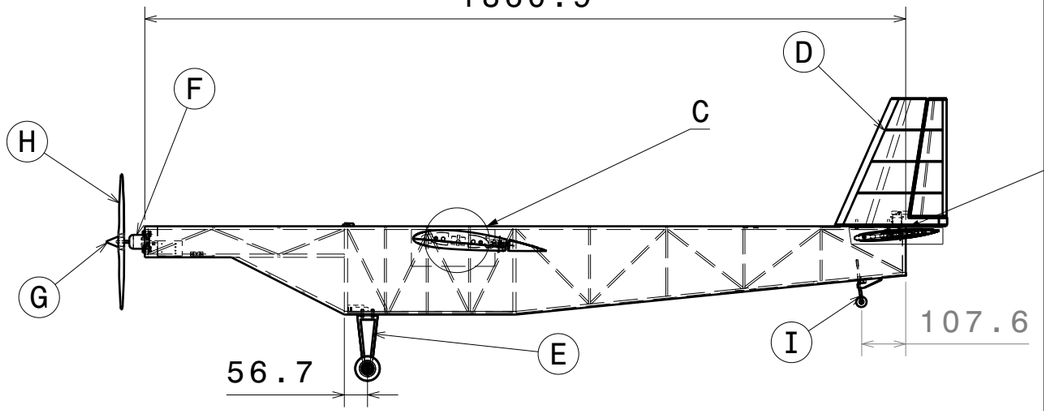
Detail C
Scale: 1:2



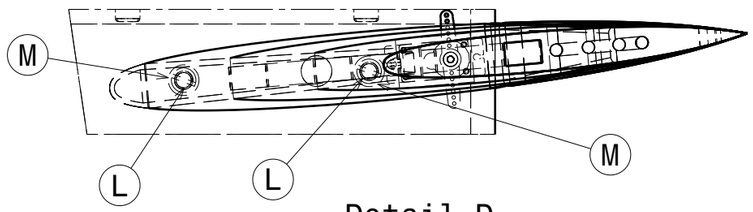
Detail A
Scale: 1:2



Detail B
Scale: 1:3



Right view
Scale: 1:15



Detail D
Scale: 1:2

NOTES:

1. All Measurements are in mm.
2. General Tolerance is to 2mm.
3. Unless otherwise scale is 1:15.

DRAWN BY: NGOSA NGOSA	DATE: 10/03/2025
CHECKED BY: PRIYANSHU G	DATE: 10/03/25
DESIGNED BY: BMFA TEAM	DATE: 10/03/2025

UNIVERSITY OF HERTFORDSHIRE

DRAWING TITLE: UAV ASSEMBLY

SIZE	DRAWING NUMBER	REV
A3	UAV00003	0

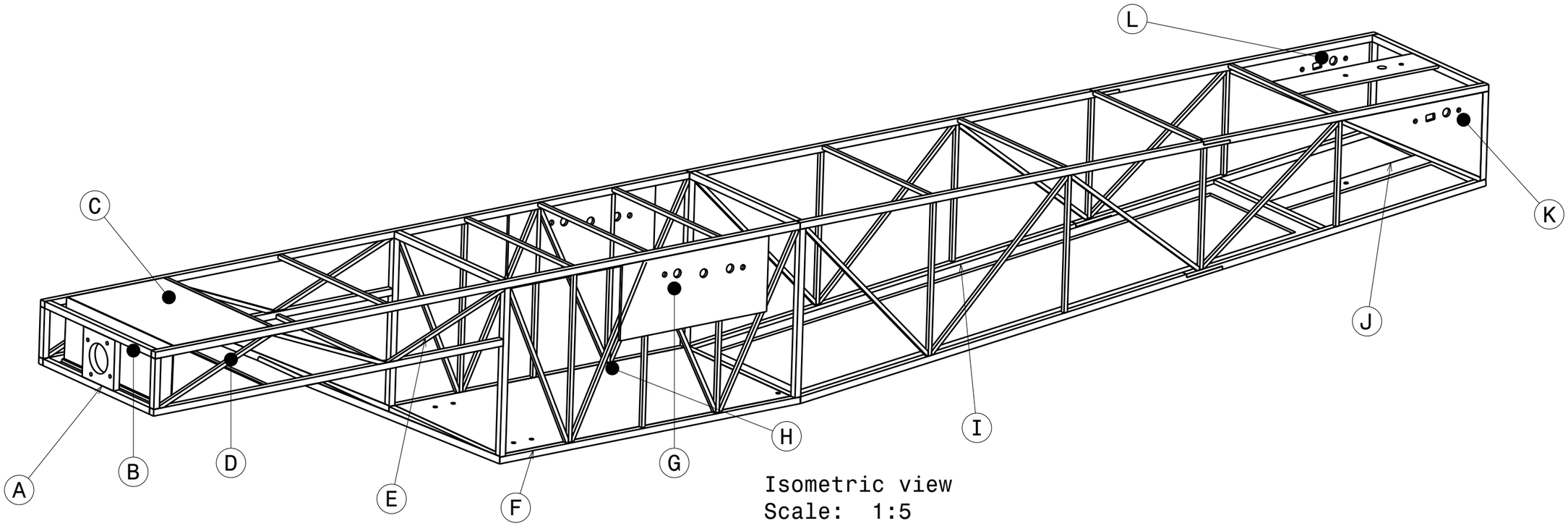
SCALE	WEIGHT(kg)		SHEET
1:15	1.43		1/2

BILL OF MATERIALS

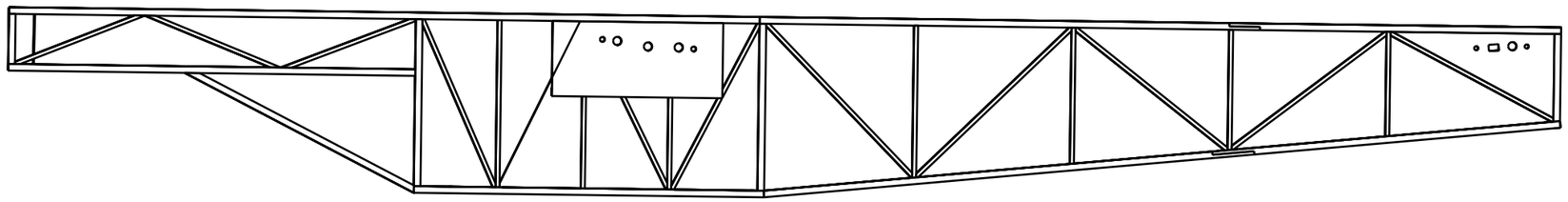
QTY	Part Number	Description	Nomenclature
1	CFAD0006	Fuslage Assembly	A
1	WDA00007	Wing Design Assembly	B
1	Horizontal_Tail	Horizontal Stabiliser	C
1	Vertical_Tail	Vertical Stabiliser	D
1	LGA0001	Main Landing Gear Assembly	E
1	Motor	Motor	F
1	Nose_Cone	Nose Cone	G
1	Propeller	Propeller	H
1	TWA0001	Tailwheel Assembly	I
8		M5 Hex Nut	J
8		M5x16 Hex Bolt	K
8		M5 Captive Nut	L
8		M5 Captive Bolt	M

UNIVERSITY OF HERTFORDSHIRE

DRAWN BY: NGOSA NGOSA	DATE: 10/03/2025	DRAWING TITLE: UAV ASSEMBLY	
CHECKED BY: PRIYANSHU G	DATE: 10/03/25	SIZE: A3	DRAWING NUMBER: UAV00003 / REV: 0
DESIGNED BY: BMFA TEAM	DATE: 10/03/2025	SCALE: 1:15	WEIGHT(kg): 1.43 / SHEET: 1/2



Isometric view
Scale: 1:5



Side View

Notes:

All measurements in mm.

Unless otherwise specified, all components and dimensions follow a 1:7 scale.

Assembly Instructions:

All structural components are bonded using wood glue for a secure and lightweight construction.

Captive nuts are used to attach the wing and empennage, ensuring a strong yet removable connection.

The motor mount and landing gear are secured using nuts and bolts for durability and ease of maintenancce.

A 5mm collet is used to firmly secure the tailwheel in place.

The cargo bay door and electronics bay door utilise hinge tape to enable smooth opening and closing, providing convenient access for maintenance and operation.

Fuselage Skin Material: Polypropylene Film

General Tolerance: +-0.5mm

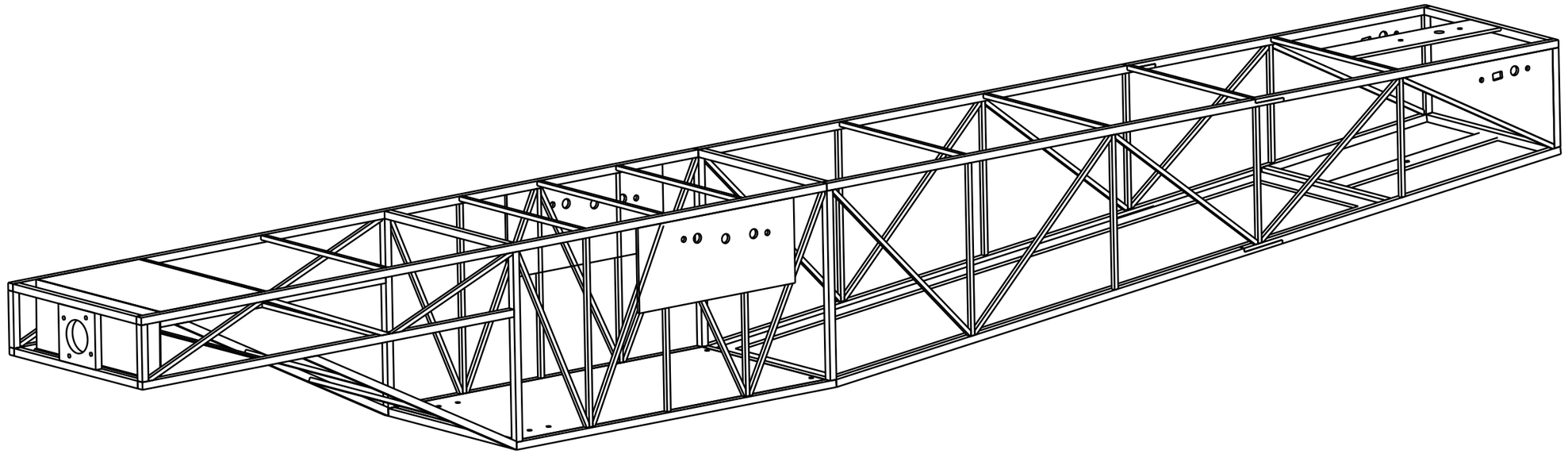
DRAWN BY: Taffazal S	DATE: 14/03/2025	
CHECKED BY: Priyanshu G	DATE: 15/03/2025	
DESIGNED BY: Taffazal S	DATE: 14/03/2025	

University of Hertfordshire

DRAWING TITLE: Complete Fuselage Assembled Design

SIZE	DRAWING NUMBER	REV
A3	CFAD0007	1

SCALE	WEIGHT(kg)		SHEET
1:7	0.302		1/1



Isometric View

Bill Of Materials:

Quantity	Part Number	Type	Size (mm)	Nomenclature
1	Motor Mount	Balsa Wood	60 x 60 x 3.18	A
1	Motor Protection Unit	Balsa Wood	204.1 x 72.72 x 1	B
1	Electronic Bay Door	Balsa Wood	204.1 x 134.11 x 1	C
1	Electronic Housing Flooring	Balsa Wood	204.1 x 139.12 x 3.18	D
50	Square Strip Balsa	Balsa Wood	4.78 x 4.78 x 914.40	E
35	Square Strip Balsa	Balsa Wood	7.95 x 7.95 x 914.40	F
1	Wing Attachment Board	Balsa Wood	204.44 x 90 x 3.18	G
1	Payload Flooring	Balsa Wood	204.1 x 404.1 x 3.18	H
1	Paylaod Cargo Bay Door	Balsa Wood	204.1 x 732.77 x 3.18	I
1	Tailwheel Attachment Board	Balsa Wood	210.33 x 30 x 3.18	J
1	Horizontal Stabiliser Attachment Board	Balsa Wood	100.84 x 194.49 x 3.18	K
1	Vertical Stabilsier Attachment Board	Balsa Wood	50 x 196.41 x 3.18	L

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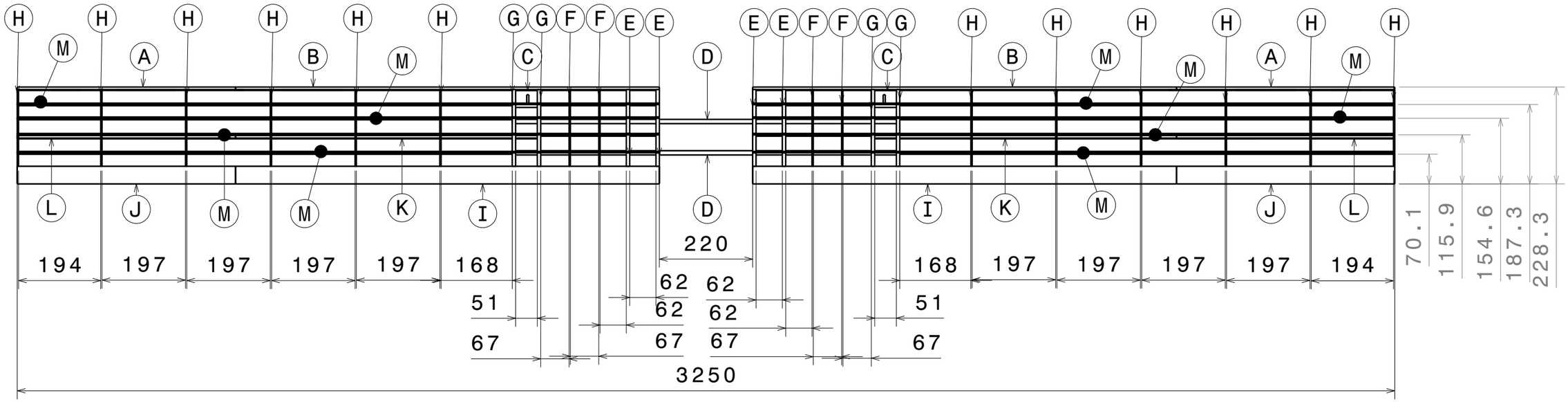
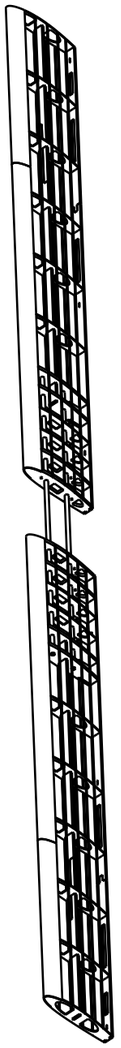
DRAWING TITLE: Complete Fuselage Assembly Design BOM

DRAWN BY: Taffazal S	DATE: 14/03/2025		
CHECKED BY: Priyanshu G	DATE: 15/03/2025	SIZE: A3	DRAWING NUMBER: CFAD0007 BOM — REV: 1
DESIGNED BY: Taffazal S	DATE: 14/03/2025	SCALE 1:5	WEIGHT(kg)0.302 — SHEET 1/1





Isometric view
Scale: 1:15

BILL OF MATERIALS

Qty	Nomenclature	Part Number	Description	Material
2	A	WTE00004	Trailing Edge Spar	Balsa Wood
2	B	WTE00003	Trailing Edge Spar	Balsa Wood
2	C	WDM00001	Servo Mount	Balsa Wood
2	D	WMJ00004	Major Spar	Carbon Fibre
4	E	WRB00007	Rib	Balsa Wood
4	F	WRB00008	Rib	Balsa Wood
4	G	WRB00009	Rib	Balsa Wood
12	H	WRB00010	Rib	Balsa Wood
2	I	WLE00003	Leading Edge	Balsa Wood
2	J	WLE00004	Leading Edge	Balsa Wood
2	K	WMI00004	Minor Spar	Balsa Wood
2	L	WMI00003	Minor Spar	Balsa Wood
16	M	WST00001	Stringers	Carbon Fibre

NOTES

1. All measurements are in mm.
2. Total wing span is 3250 mm.
3. Airfoil profile: NACA 2414 with cord length 325mm.
4. All wood to wood connections to be joined using wood glue.
5. All wood to carbon fibre joints to be joined using epoxy resin.
6. Unless specified, a general tolerance of ±0.5mm applies.
7. Unless specified, a 1:10 scale is applied.
8. Weight of Intenal structure 0.332Kg, Total weight with skin 0.362Kg
9. Wing skin material: Polypropylene Film

DRAWN BY	Ngosa Ngosa	DATE 10/02/2025
CHECKED BY	Priyanshu	DATE 10/02/2025
DESIGNED BY	Ngosa Ngosa	DATE 09/02/2025

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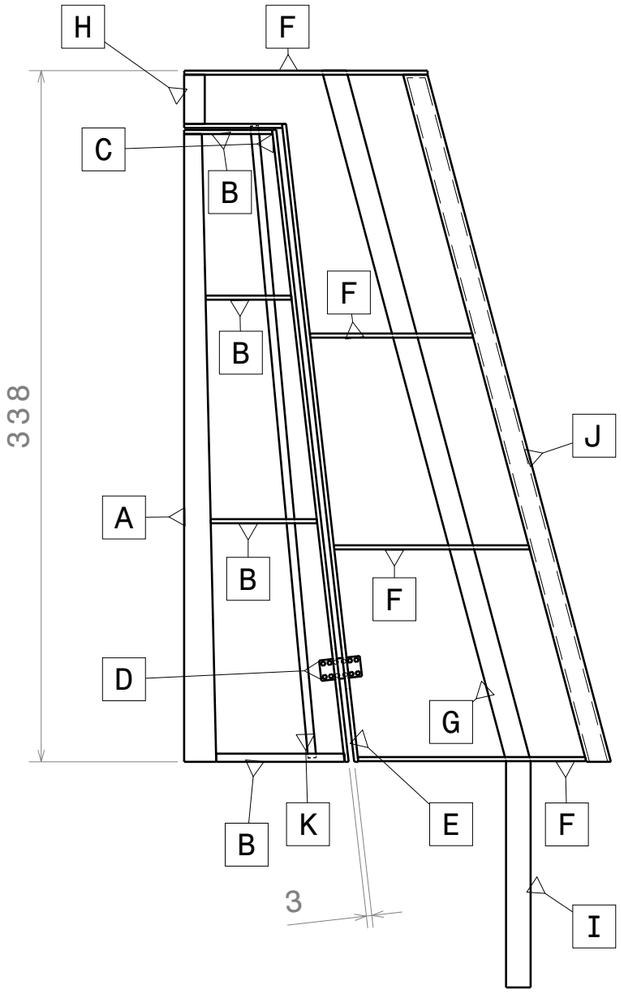
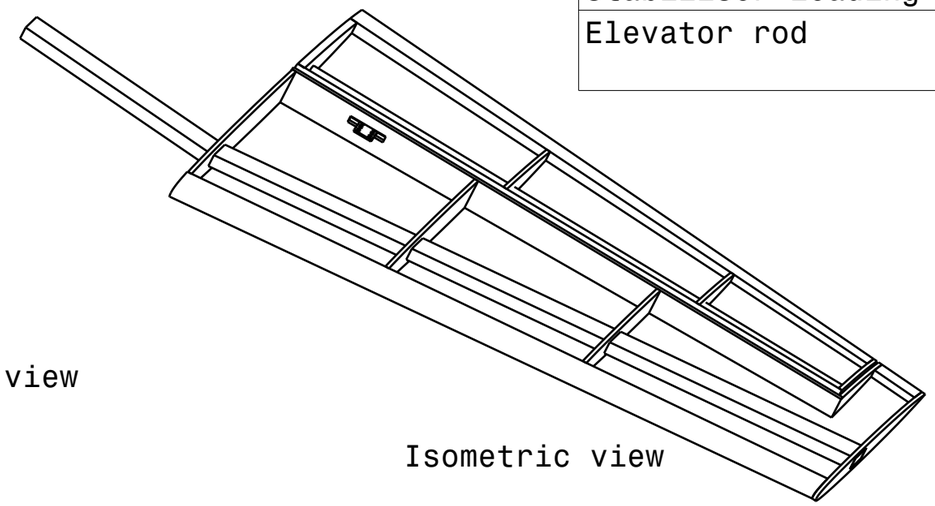
DRAWING TITLE: Internal Wing Design Assembly

SIZE	PART/ASSEMBLY NUMBER	REV
A3	WDA00006	0

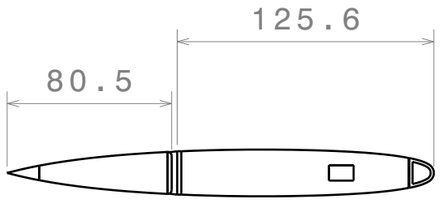
SCALE	WEIGHT(kg)		SHEET
1:10	see note 8		1/1



Front view



Isometric view



Bottom view

Bill of Materials

Part name	Nomenclature	Material	Quantity
Elevator trailing edge	A	Balsa wood	1
Elevator ribs	B	Balsa wood	4
Elevator front spar	C	Balsa wood	1
Hinge	D		1
Stabiliser rear spar	E	Balsa wood	1
Stabiliser ribs	F	Balsa wood	4
Stabiliser spar	G	Balsa wood	1
Stabiliser support	H	Balsa wood	1
Connecting spar	I	Balsa wood	1
Stabiliser leading edge	J	Balsa wood	1
Elevator rod	K	Carbon fibre	1

Notes

1. 2 horizontal tails will be needed for UAV assembly
2. Assembly drawings for stabiliser and elevator have been provided in stability and control report
3. All measurements in mm
4. General tolerance of ±0.5 mm
5. Airfoil profile: NACA0011 with chord length 234mm
6. All wood to wood connections to be joined using wood glue
7. All carbon fibre to wood connections to be joined using epoxy resin
8. Skin material: polyproylene film

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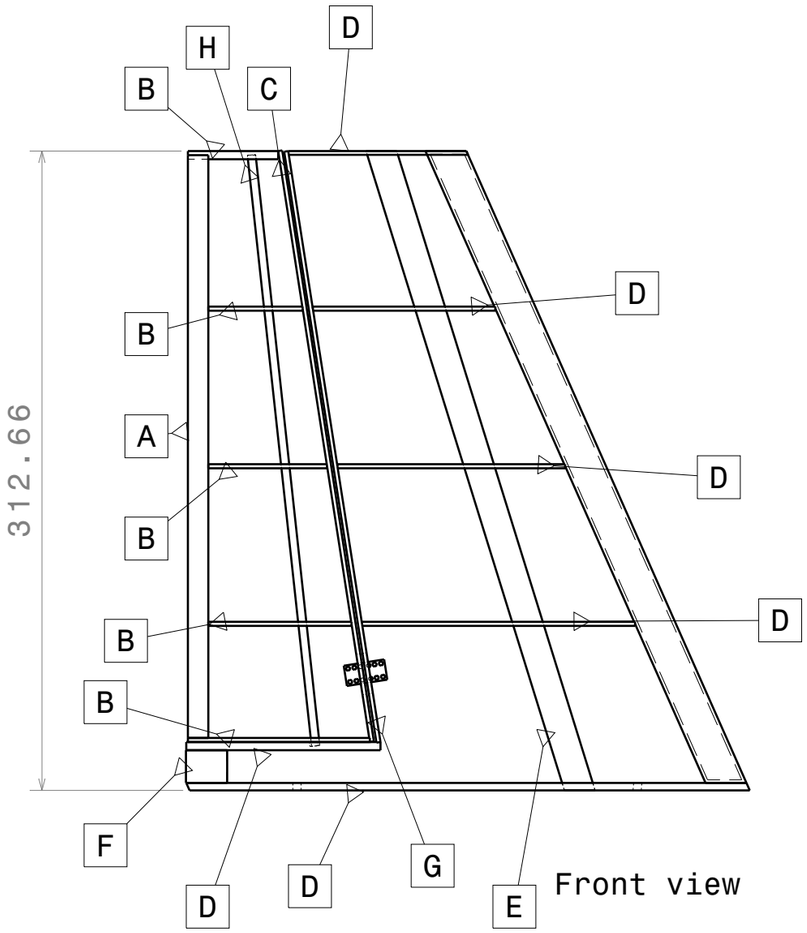
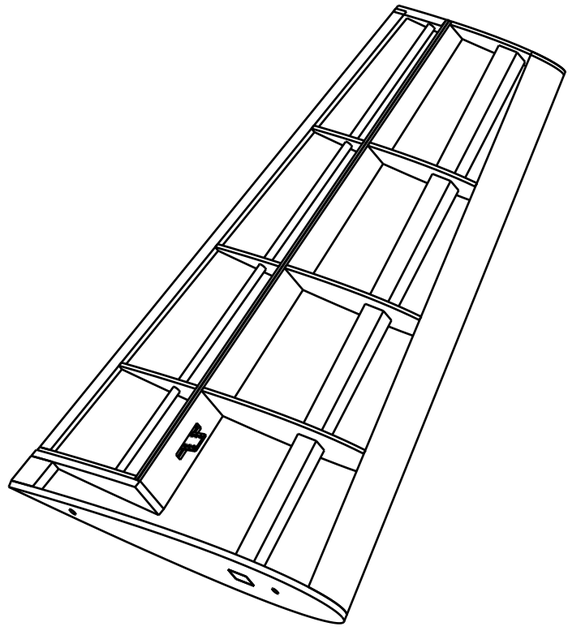
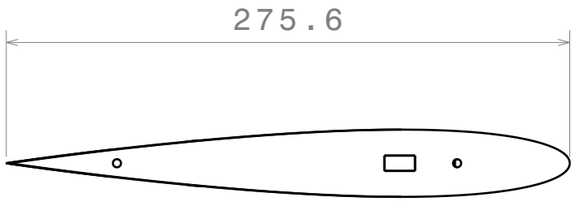
DRAWN BY: Mohammad Asif	DATE: 19/03/2025	DRAWING TITLE: Horizontal tail	
CHECKED BY: Priyanshu G	DATE: 19/03/2025	SIZE: A3	DRAWING NUMBER: Horizontal_Tail / REV: 0
DESIGNED BY: Mohammad Asif	DATE: 19/03/2025	SCALE: 1:3	WEIGHT(kg): 0.028 / SHEET: 1/1



Front view



Isometric view



Bottom view

Bill of Materials

Part name	Nomenclature	Material	Quantity
Rudder trailing edge	A	Balsa	1
Rudder ribs	B	Balsa	5
Rudder front spar	C	Balsa	1
Stabiliser ribs	D	Balsa	5
Stabiliser spar	E	Balsa	1
Stabiliser support	F	Balsa	1
Stabiliser rear spar	G	Balsa	1
Rudder rod	H	Carbon fibre	1

Notes

1. Assembly drawings for stabiliser and rudder have been provided in stability and control report
2. All measurements in mm
3. General tolerance of ±0.5mm
4. All wood to wood connections to be joined using wood glue.
5. All wood to carbon fibre connections to be joined using epoxy resin.
6. Airfoil profile: NACA0012, with chord length 270mm.
7. Skin material: polypropylene film

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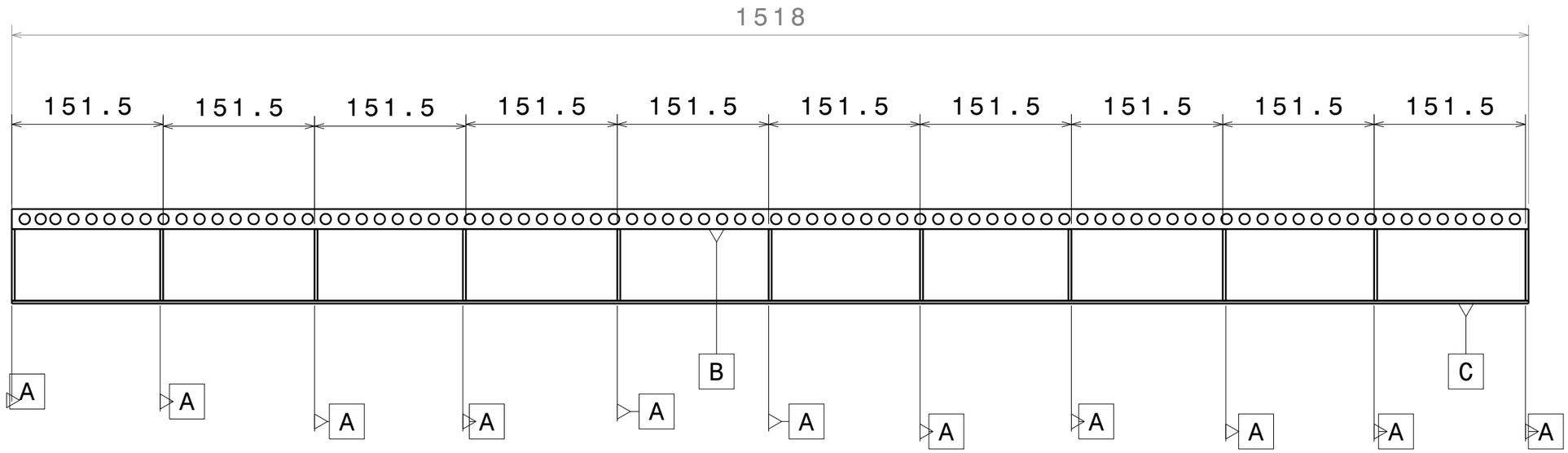
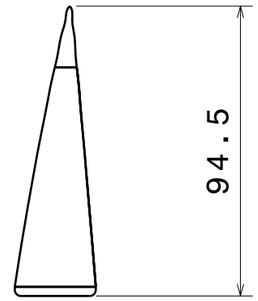
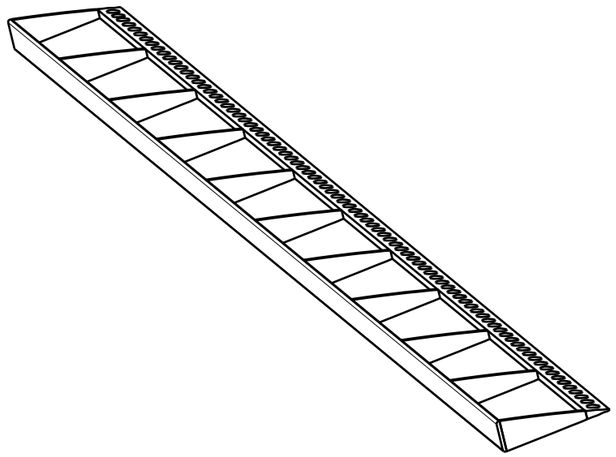
DRAWN BY: Mohammad Asif	DATE: 19/03/2025	DRAWING TITLE: Vertical Tail	
CHECKED BY: Priyanshu G	DATE: 19/03/2025	SIZE: A3	DRAWING NUMBER: Vertical_Tail / REV: 0
DESIGNED BY: Mohammad Asif	DATE: 19/03/2025	SCALE: 1:3	WEIGHT(kg): 0.031 / SHEET: 1/1



Front view



Right view
Scale: 1:2



Isometric view

Bill of Materials

Part name	Nomenclature	Material	Quantity
Ribs	A	Balsa wood	11
Trailing edge	B	Balsa wood	1
Leading spar	C	Balsa wood	1

Notes

1. 2 flaperons will needed for UAV assembly
2. All measurements in mm
3. General tolerance of ±0.5mm
4. Airfoil profile 2414 with chord length 325mm at 70% chord length
5. All wood to wood connections to be joined using wood glue
6. Skin material: polypropylene film
7. Unless otherwise specified, 1:5 scale

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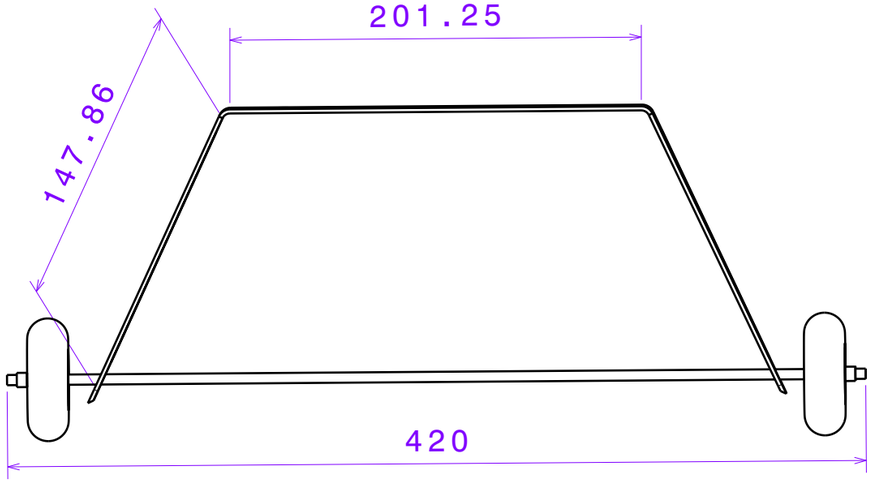
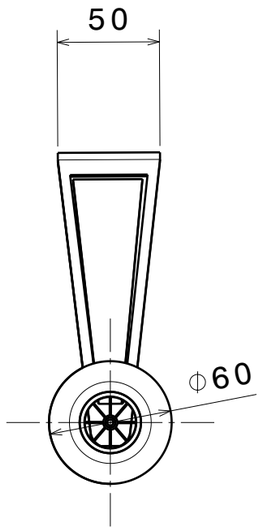
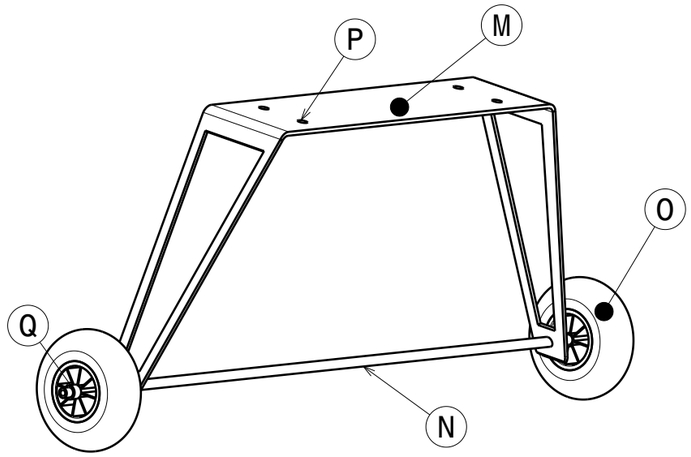
DRAWN BY: Mohammad Asif	DATE: 21/03/2025	DRAWING TITLE: Flaperon	
CHECKED BY: Priyanshu G	DATE: 21/03/2025	SIZE: A3	DRAWING NUMBER: Flaperon_Internal / REV: 0
DESIGNED BY: Mohammad Asif	DATE: 21/03/2025	SCALE: 1:5	WEIGHT(kg): 0.031 / SHEET: 1/1



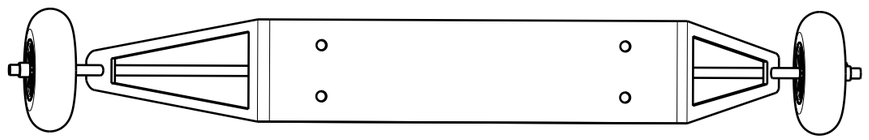
Front View



Side View



Isometric view



Top View

Bill of Material: Main Landing Gear

Quantity	Part Number	Type	Nomenclature
1	Landing Gear Strut	Carbon fiber	M
1	Main Shaft	Carbon fiber	N
2	Wheels	Rubber	O
4	ISO 4014 BOLT M5x16 STEEL GRADE A HEXAGON HEAD	Stainless Steel	P
2	SWG Wheel Collets (5mm)	Stainless Steel	Q

Notes:

All measurements are in milimeters.
Wheel weight assumption: 0.03kg.

Assembly Instructions:

Assembly of the wheels: Slide the collet onto the landing gear shaft. Place the wheel onto the shaft, ensuring proper alignment. Secure the wheel by tightening the screw into the collet.

Assembly of the landing gear strut to main shaft : Insert the landing gear strut into the designated mounting point on the shaft. Align the holes on the strut and shaft. Secure the connection using screws or fasteners, ensuring a tight fit. Verify stability and alignment before final tightening.

General tolerance: +/- 0.5mm

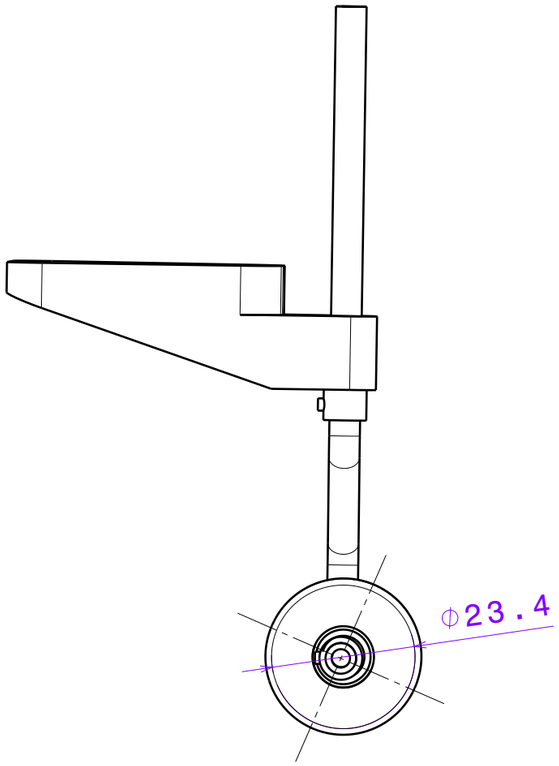
University Of Hertfordshire

DRAWN BY: Taffazal S	DATE: 10/03/2025		
CHECKED BY: Priyanshu G	DATE: 12/03/2025		
DESIGNED BY: Taffazal S	DATE: 10/03/2025		

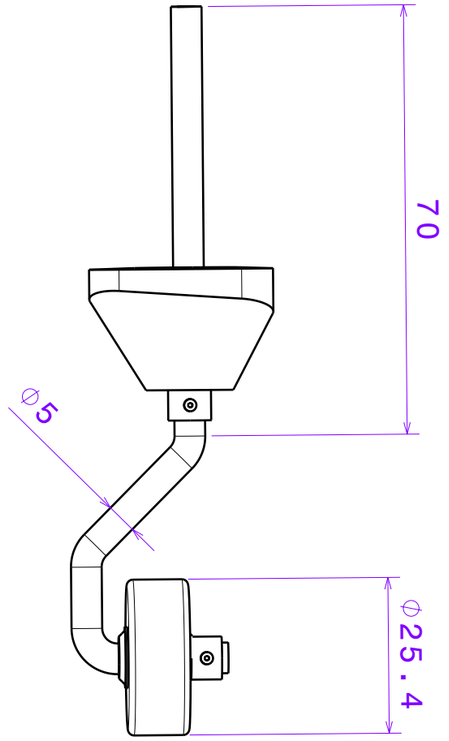
DRAWING TITLE: Front Landing Gear Assembled

SIZE	DRAWING NUMBER	REV
A3	LGA0001	2

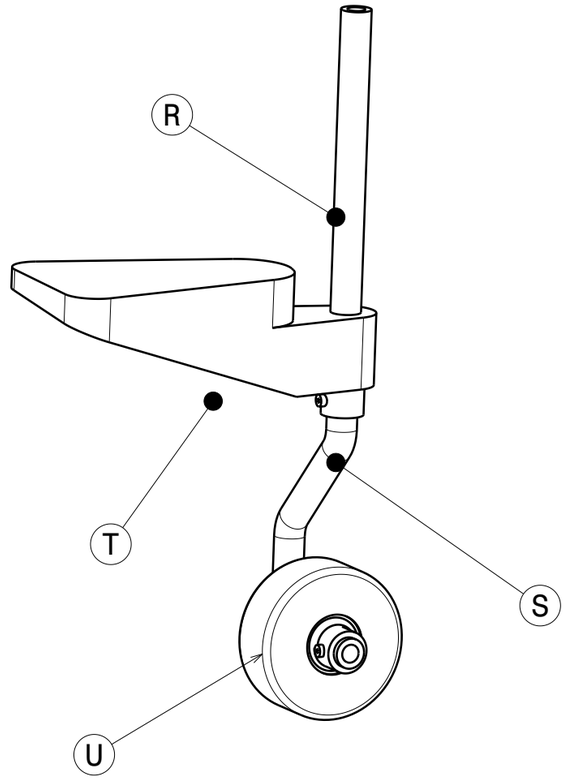
SCALE	WEIGHT(kg)		SHEET
1:3	0.106		1/1



Front View



Side View



Isometric View

Notes:
All measurements are in milimetres
Wheel weight assumption: 0.02kg
Entire Bracket is supplied by Jperkins
Assembly Instructions:
Wheel Assembly to Bracket: Insert the wheel axle through the brackeet. Slide a 5mm collet onto the axle to secure the wheel. Tighten the collet to hold the wheel firmly in place.
Fuselage Bracket Attachment: Position the fuselage bracket onto the fuselage mounting point. Secure the bracket using a 5mm collet. Ensure the collet is tightened properly for a stable connection.
General Tolerance: +-0.5mm

Bill of Materials:

Quantity	Part Number	Type	Nomenclature
1	TWS0001	Plastic	R
1	SWG Wheel Collets (5mm)	Plastic	S
1	TWB0001	Plastic	T
1	TWW0001	Rubber	U

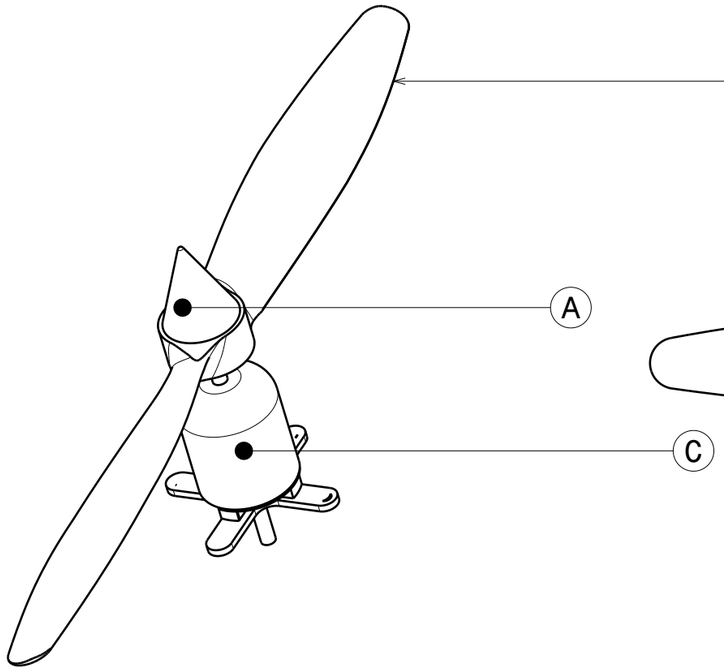
University Of Hertfordshire

DRAWN BY TAFFAZAL S	DATE 07/02/2025	
CHECKED BY PRIYANSHU G	DATE 09/02/2025	
DESIGNED BY TAFFAZAL S	DATE 07/02/2025	

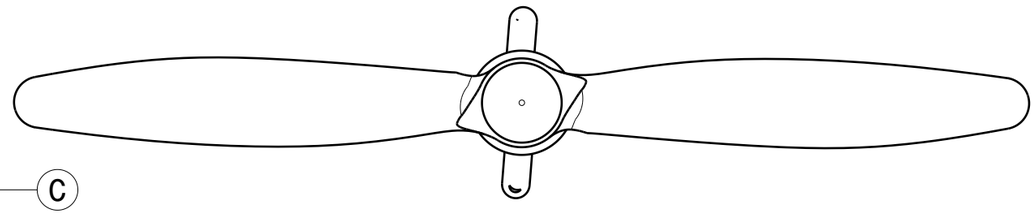
DRAWING TITLE
Tailwheel Assembly

SIZE	DRAWING NUMBER	REV
A3	TWA0001	0

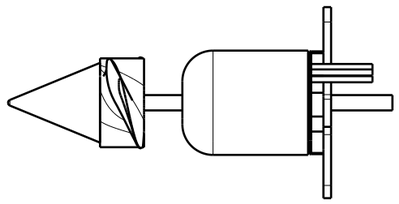
SCALE	WEIGHT(kg)		SHEET
1:1	0.02		1/1



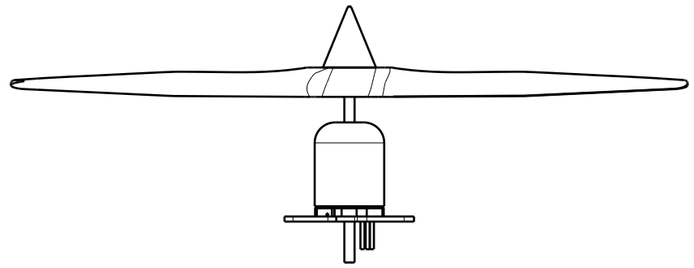
Isometric view



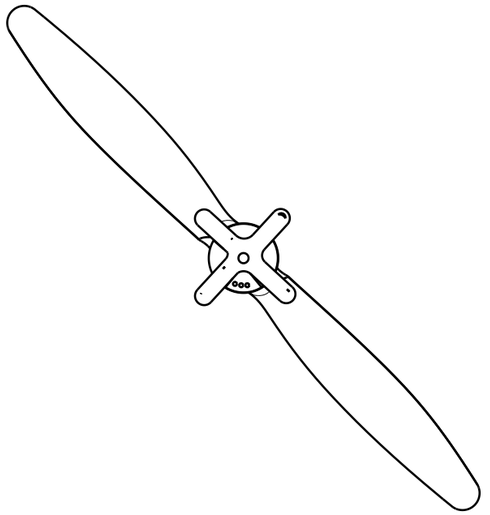
Front view



Right view



Bottom view



Rear View

Recapitulation of: Propulsions System
Different parts: 3
Total parts: 3

Quantity	Part Name
1	MOTOR
1	13x6.5 Prop
1	Nose_Cone.1

Bill of Material: Propulsion's system

Item Number	Part Name	Material	Part Number	Quantity
A	Nose_Cone.1	Carbon Fibre	4M-45SPIN-BKP	1
B	Propeller	Glass Fibre	LP13065E	1
C	Motor	Aluminim Alloy	PO-3541-1070	1

ASSEMBLY INSTRUCTION

1**. Attach the propeller:** Slide the propeller **(Item Number B)** onto the motor shaft, ensuring correct orientation. **Apply Loictite 648 or Loctite 609** to secure the propller to the motor shaft.
2**.Insert the Nose Cone:** Align the nose cone **(Item Number A)** with the propeller centre **(propeller hub base)** and attach them using a **Loctite 243 or 222**

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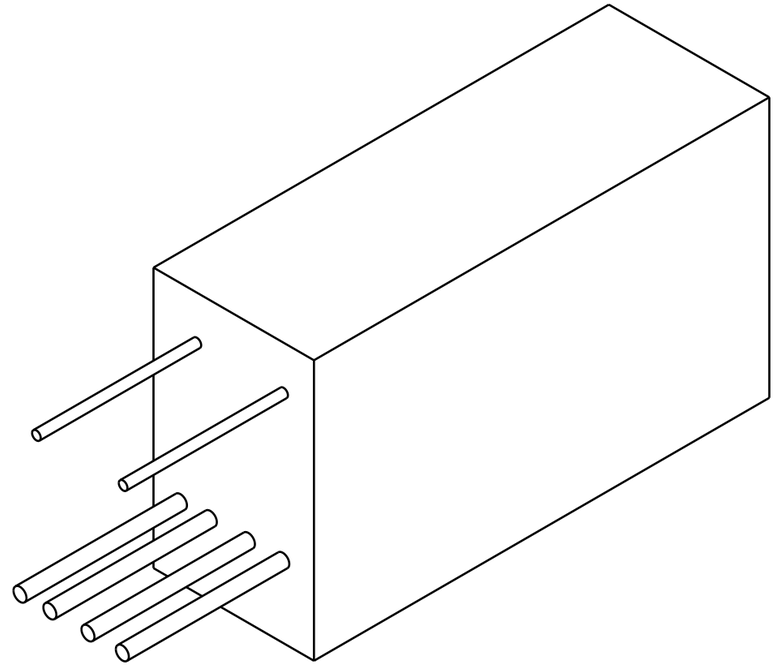
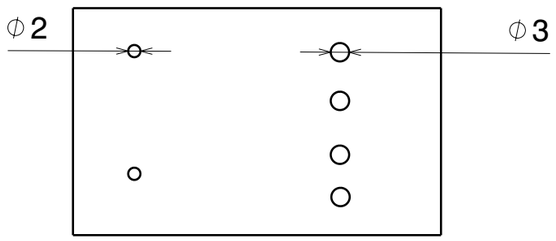
DRAWN BY: ABEL V	DATE: 21/02/2025	DRAWING TITLE: PROPULSION SYTEMS ASSEMBLY	
CHECKED BY: PRIYANSHU S	DATE: XXX	SIZE: A3	DRAWING NUMBER: 001 / REV: 0
DESIGNED BY: ABEL V	DATE: XXX	SCALE: 1:1	TIME (Hrs): 24 / SHEET: 1/1

Bottom view



Isometric view



Right view

Front view

NOTES:
All Dimensions in mm
Unless Specified, general tolerance of ±0.5mm applies

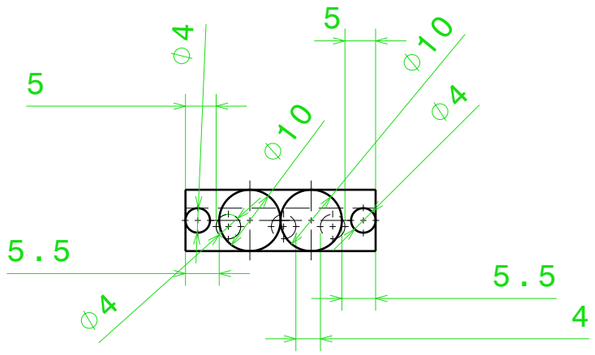
DRAWN BY	Priyanshu Gautam	DATE 19/03/2025
CHECKED BY	Taffazal S	DATE 19/03/2025
DESIGNED BY	Priyanshu Gautam	DATE 19/03/2025

University of Hertfordshire

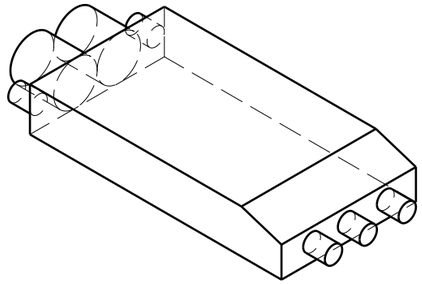
DRAWING TITLE
4-Max Professional LiPo Battery

SIZE	PART/ASSEMBLY NUMBER	REV
A3	PPL-60C3S-2200	0

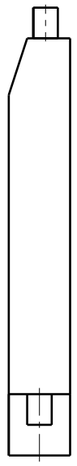
SCALE	WEIGHT(kg)		SHEET
1:1	0.17		1/1



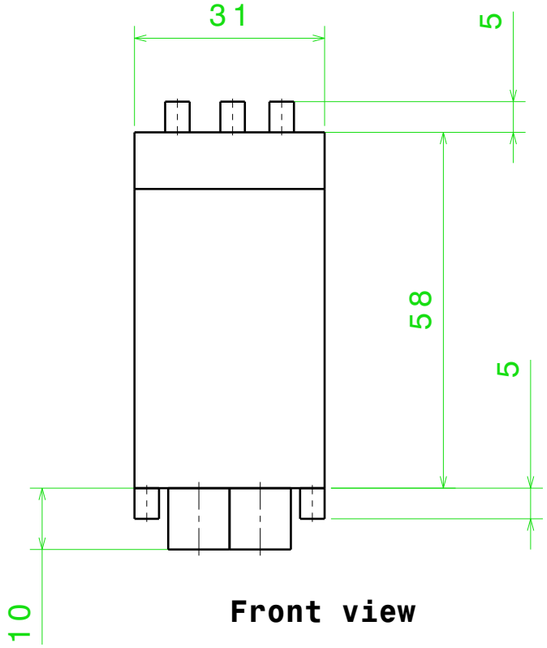
Bottom view



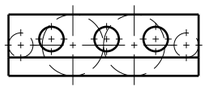
Isometric view



Right view



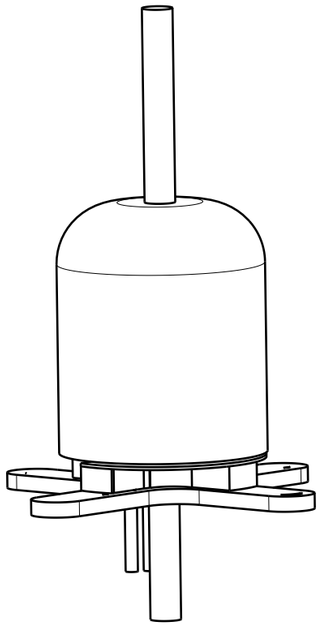
Front view



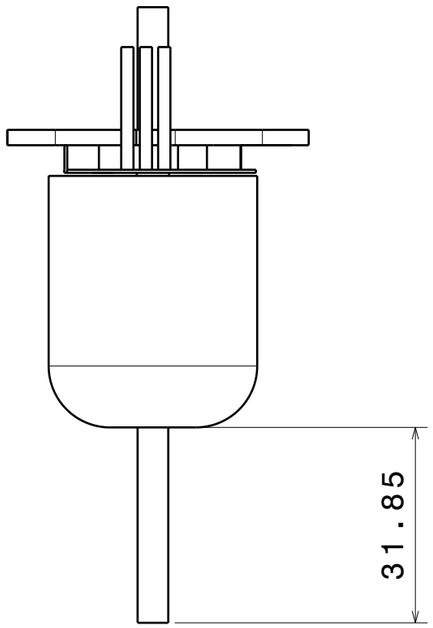
Top view

NOTES:
All Dimensions in mm
Unless Specified, general tolerance
of ±0.5mm applies

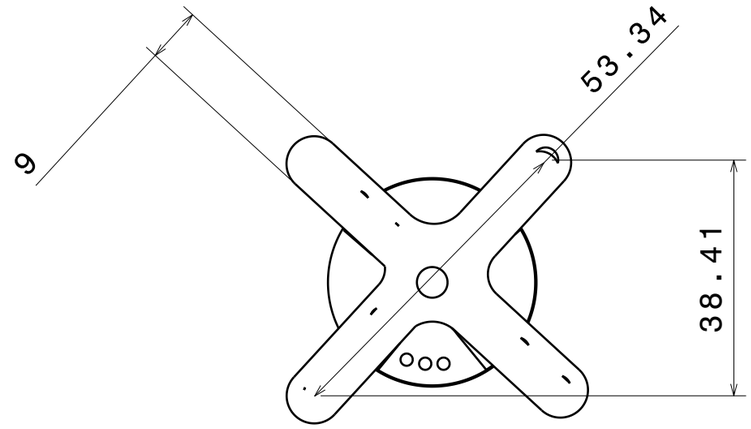
DRAWN BY Priyanshu Gautam	DATE 19/03/2025	University of Hertfordshire			
CHECKED BY Taffazal S	DATE 19/03/2025	DRAWING TITLE Brushless Electronic Speed Controller			
DESIGNED BY Priyanshu Gautam	DATE 19/03/2025	SIZE A3	DRAWING NUMBER 4M-HESC50AV2		REV 0
		SCALE 1:1	WEIGHT(kg) 0.041		SHEET 1/1



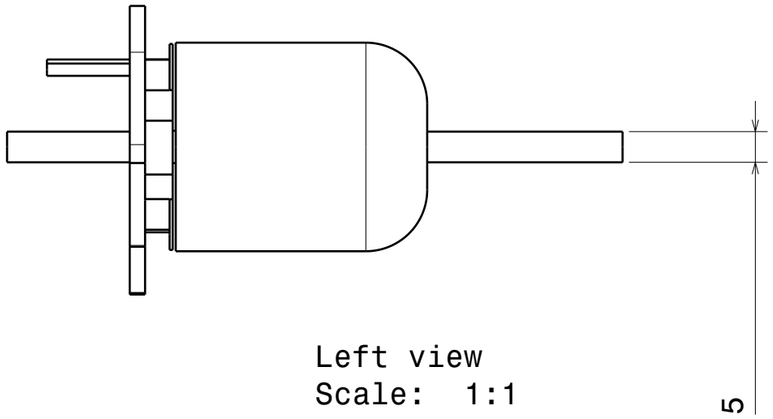
Isometric view
Scale: 1:1



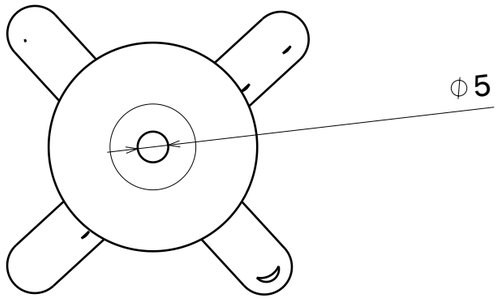
Top view
Scale: 1:1



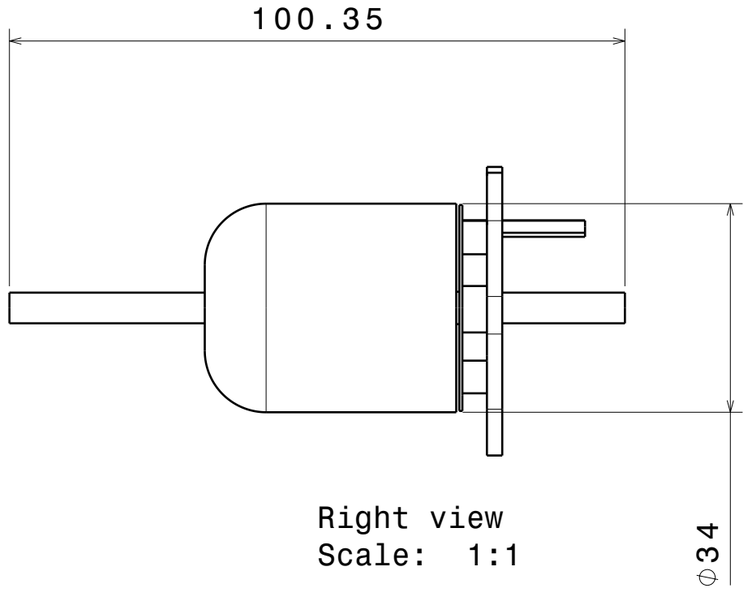
Rear View



Left view
Scale: 1:1



Front view
Scale: 1:1



Right view
Scale: 1:1

NOTES: All Dimensions in mm
Unless Specified, general
tolerance of ±0.5 applies

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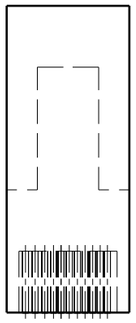
DRAWN BY: Priyanshu Gautam	DATE: 19/03/2025
CHECKED BY: Taffazal S	DATE: 19/03/2025
DESIGNED BY: Priyanshu Gautam	DATE: 19/03/2025

UNIVERSITY OF HERTFORDHIRE

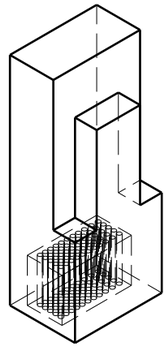
DRAWING TITLE: Motor

SIZE	DRAWING NUMBER	REV
A3	PO-3541	0

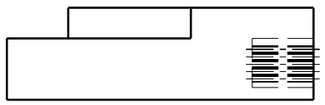
SCALE	WEIGHT(kg)		SHEET
1:1	0.127		1/1



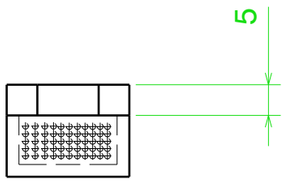
Bottom view



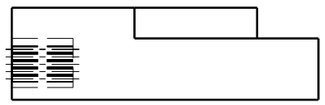
Isometric view



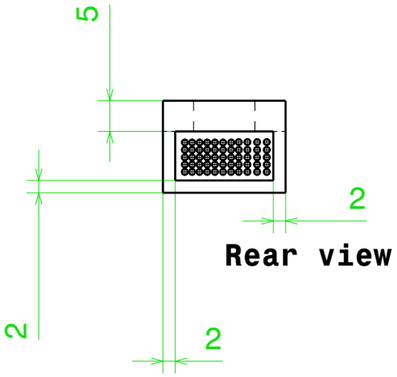
Right view



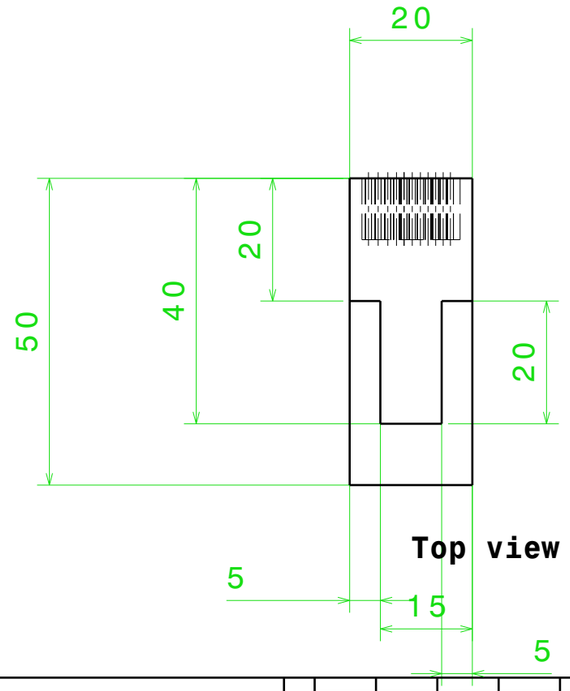
Front view



Left view



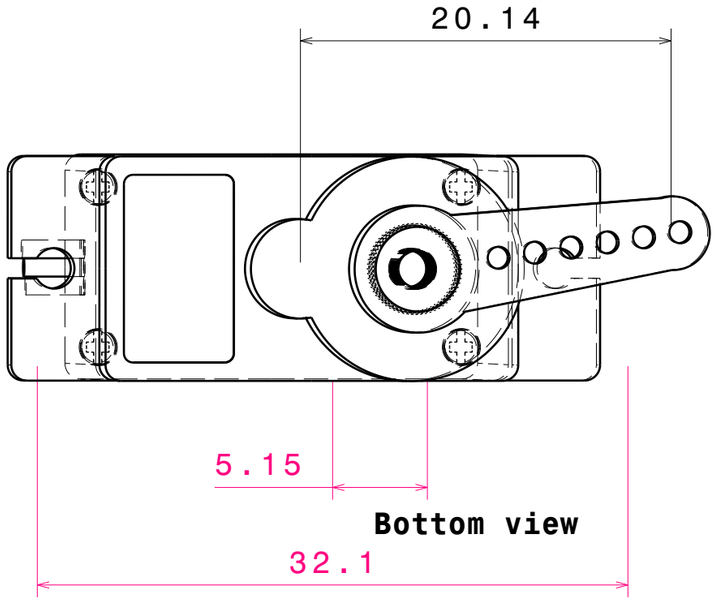
Rear view



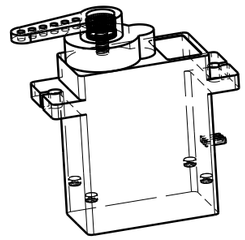
Top view

NOTES: All Dimensions in mm Unless Specified, general tolerance of ±0.5 applies

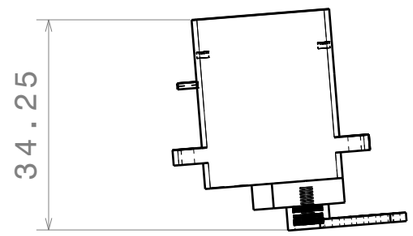
DRAWN BY: Priyanshu Gautam	DATE: 19/03/2025	University of Hertfordshire			
CHECKED BY: Taffazal S	DATE: 19/03/2025	DRAWING TITLE: DSMX 6-Channel AS3X & SAFE Telemetry Receiver			
DESIGNED BY: Priyanshu Gautam	DATE: 19/03/2025	SIZE: A3	PART/ASSEMBLY NUMBER: AR637T		REV: 0
		SCALE: 1:1	WEIGHT(kg): 0.012		SHEET: 1/1



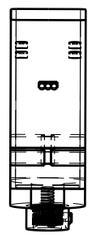
Bottom view



Isometric view



Front view



Left view

NOTES: All Dimensions in mm
Unless Specified, general
tolerance of ±0.5 applies

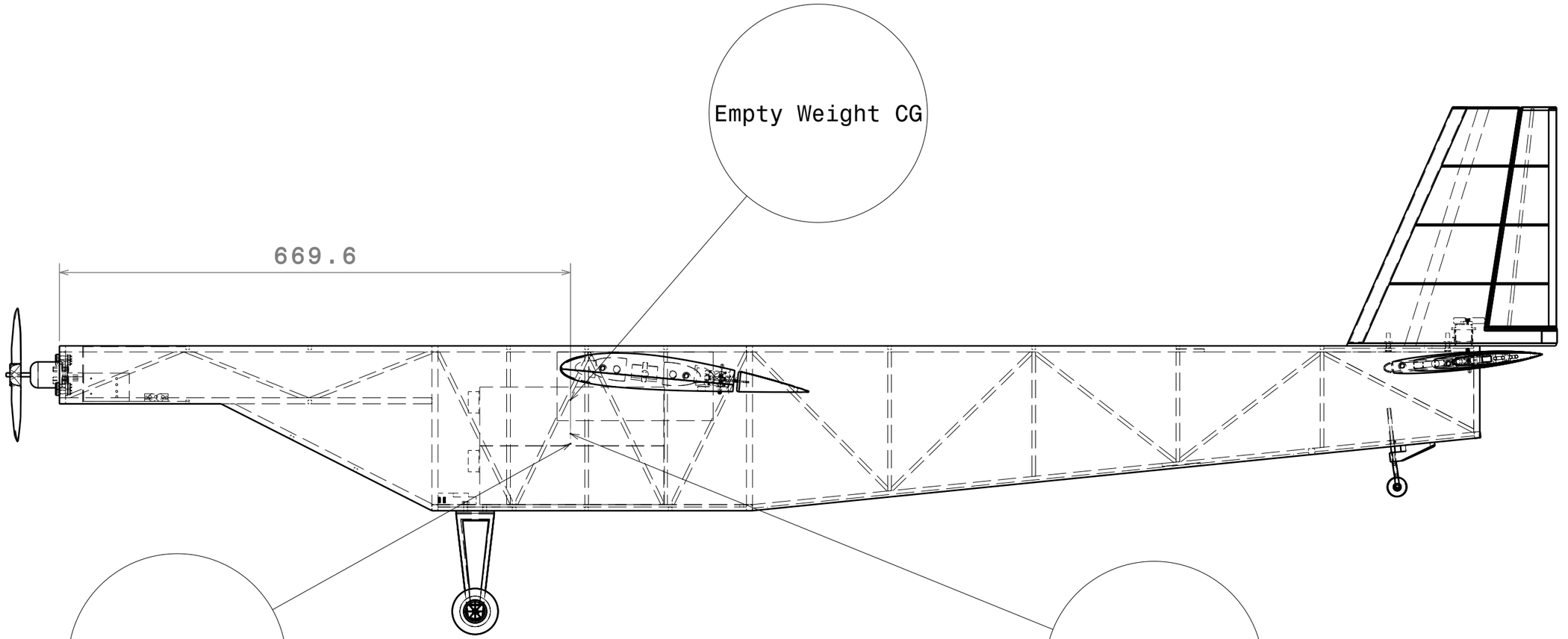
DRAWN BY	Priyanshu Gautam	DATE 19/03/2025
CHECKED BY	Taffazal S	DATE 19/03/2025
DESIGNED BY	Priyanshu Gautam	DATE 19/03/2025

University of Hertfordshire

DRAWING TITLE
Tower Pro SG90

SIZE	DRAWING NUMBER	REV
A3	A2212-2200	0

SCALE	WEIGHT(kg)		SHEET
1:1	0.0108		1/1



NOTES:

1. All dimensions are in mm.

DRAWN BY: NGOSA NGOSA	DATE: 05/03/2025	
CHECKED BY: PRIYANSHU	DATE: 05/03/2025	
DESIGNED BY: BMFA TEAM	DATE: 04/03/2025	

University Of Hertfordhire

DRAWING TITLE: Center Of Gravity

SIZE	DRAWING NUMBER	REV
A3	COG00001	1

SCALE 1:6 | SHEET 1/1