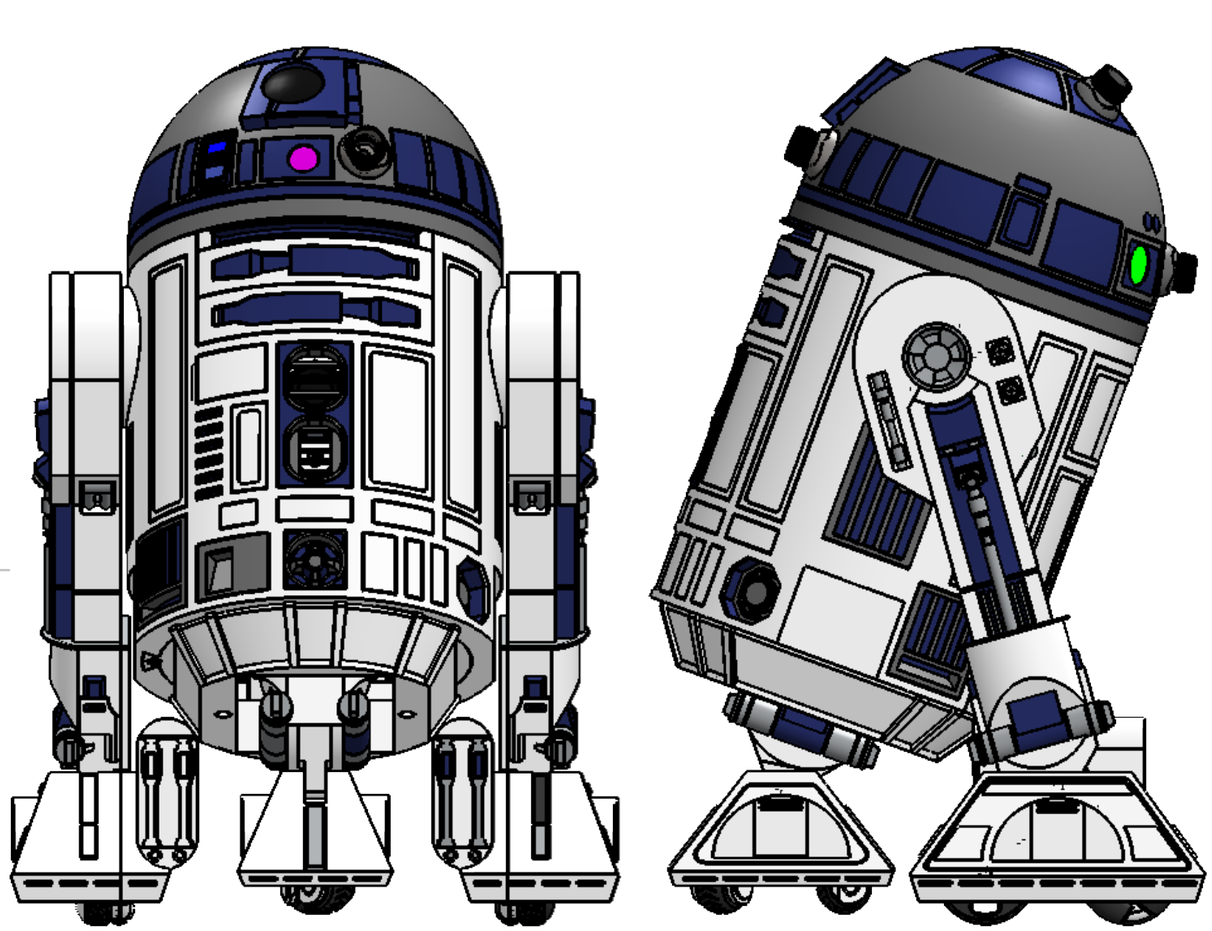
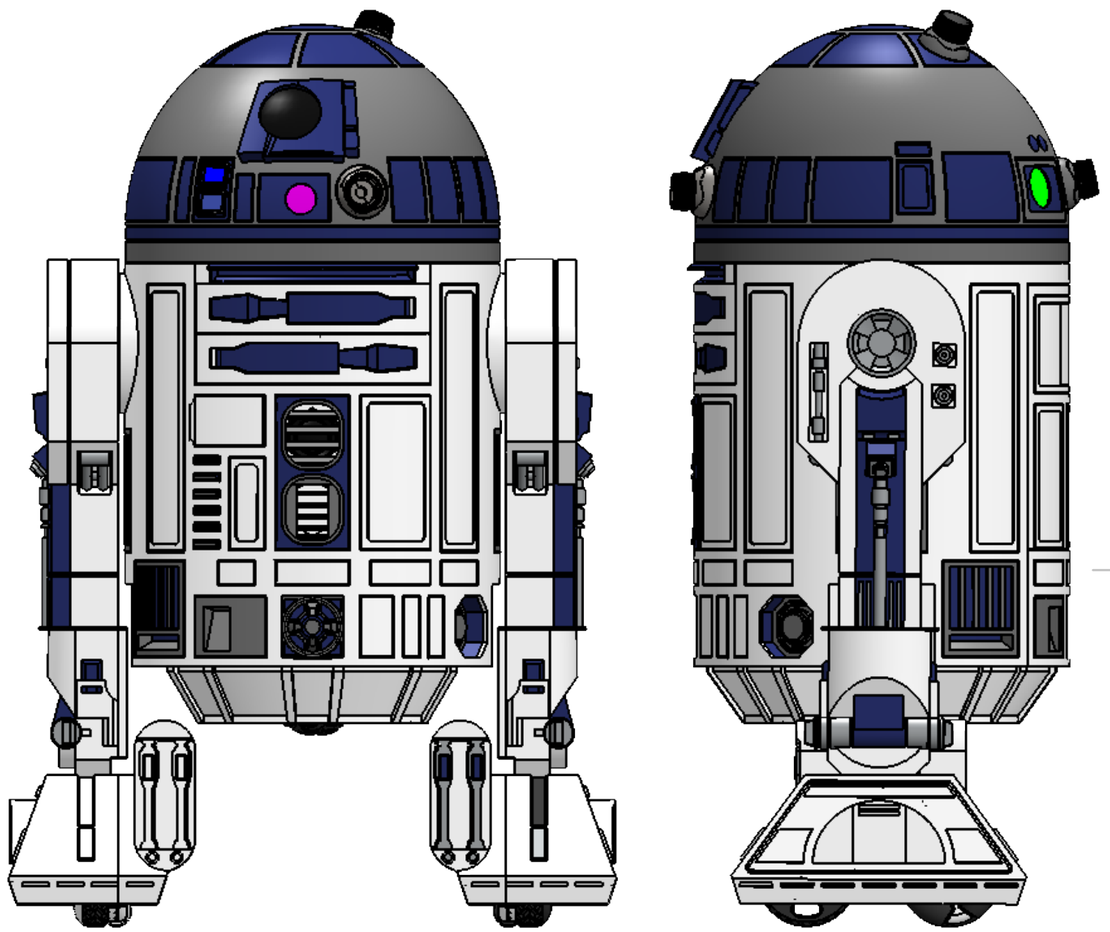
This is an approximately 40% scale R2-D2 that I designed that can be Bluetooth app controlled and convert from 2 leg mode to 3 leg mode and back, commonly known as 2-3-2 in the droid builders community.
Please read the instructions in full, build/ print guide and electronics schematic and hopefully it will help you get everything working on your own mini R2
Ask questions in the Mr Baddeley Printed Droid Facebook group for support
Happy Building, Matt Zwarts

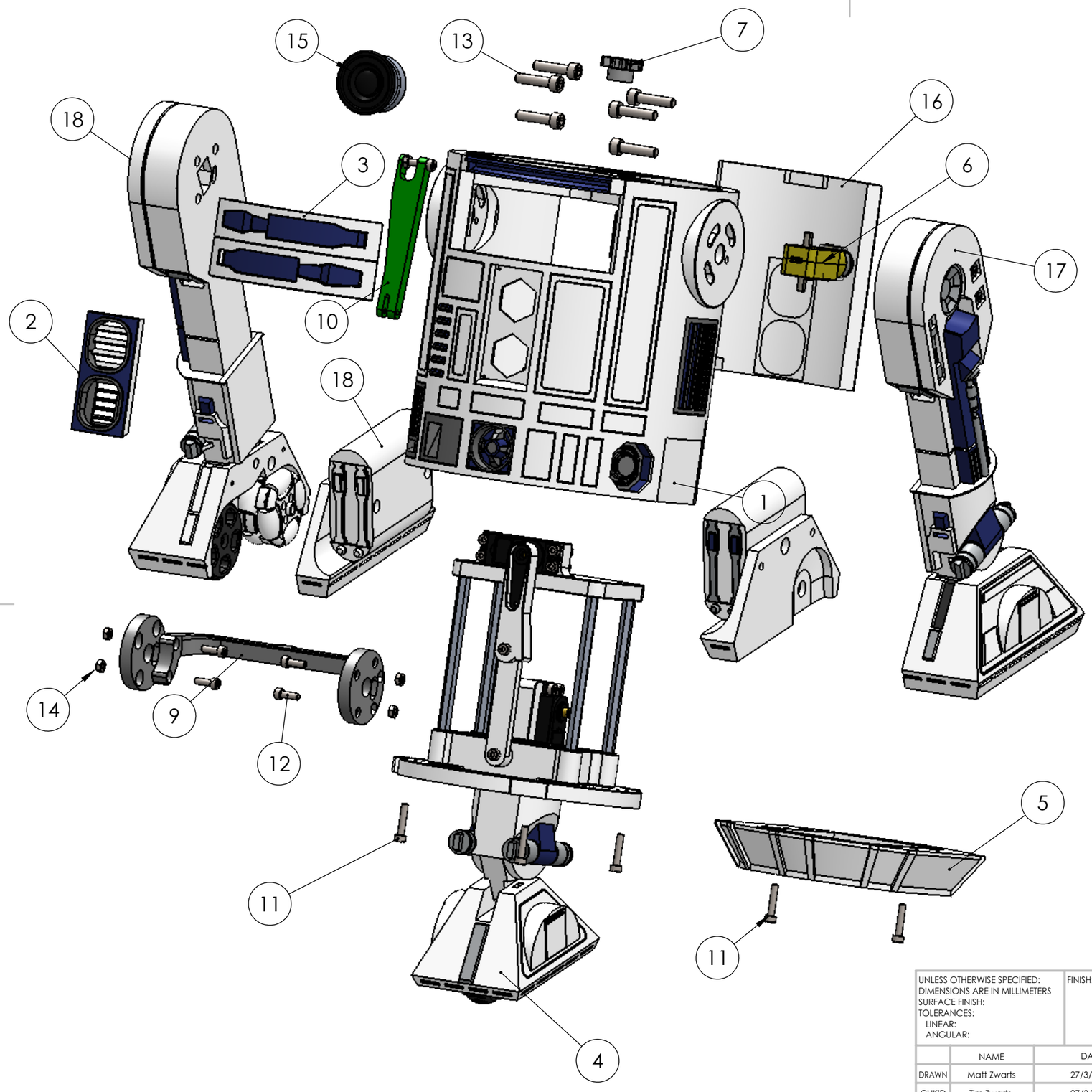


3 leg Mode



2 leg Mode

UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN MILLIMETERS SURFACE FINISH: TOLERANCES: LINEAR: ANGULAR:	FINISH:		DEBURR AND BREAK SHARP EDGES	DO NOT SCALE DRAWING	REVISION 1
	NAME	DATE		TITLE: Assembly for 40% scale mini R2 unit	
DRAWN	Matt Zwarts	27/3/2021			
CHK'D	Tim Zwarts	27/3/2021			
DWG NO. 2-3-2 Mini R2 Assembly Version 1					A3
					SHEET 1 OF 11



ITEM NO.	PART NUMBER	Drawing view no dome/QTY.
1	Body	1
2	Front Vent	1
3	Front Arm Assembly	1
4	Centre Leg Lift Assembly	1
5	Skirt	1
6	DC Geared Motor	1
7	Dome Gear	1
8	MG995 Servo Horn	1
9	Leg Tilt Main Cross Brace	1
10	Leg Tilt Servo Linkage	1
11	DIN 912 M4 x 20 --- 20N	6
12	DIN 912 M4 x 12 --- 12N	4
13	DIN 912 M6 x 25 --- 25N	6
14	Hexagon Nut ISO 4032 - M4 - D - N	5
15	Speaker40mm	1
16	Rear Door	1
17	Left Leg Assembly	1
18	Right Leg Assembly	1

Note: Not shown are small wood screws to assemble the Leg to battery boxes

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CHK'D	Tim Zwarts	27/3/2021			

TITLE:

Assembly for 40% scale mini R2 unit

DWG NO.

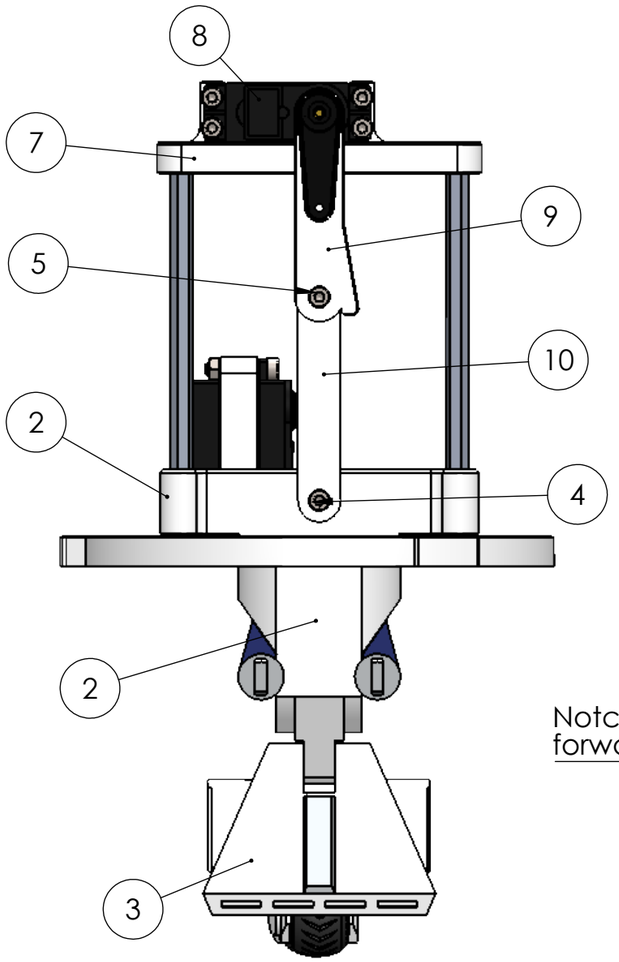
2-3-2 Mini R2 Assembly Version 1

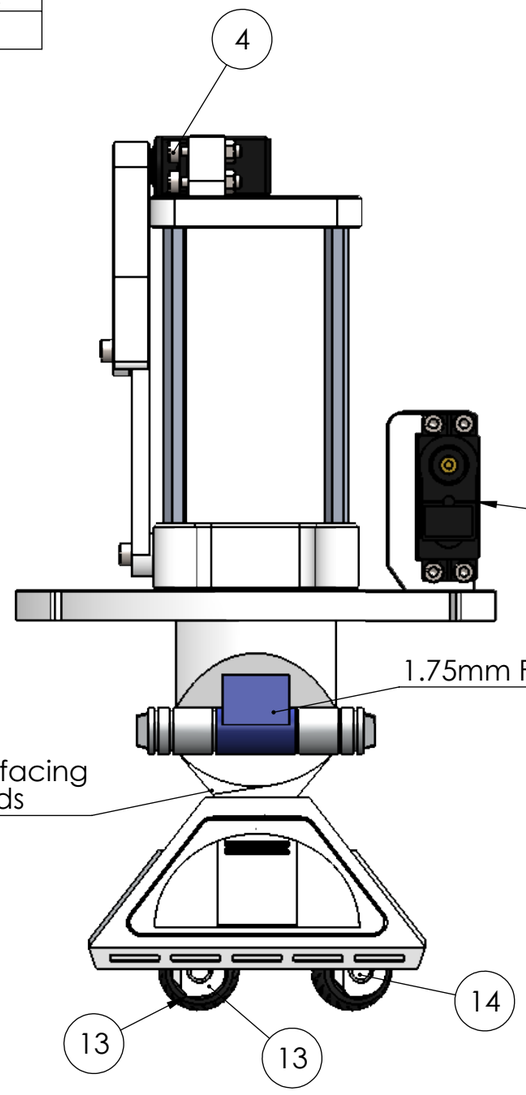
A3

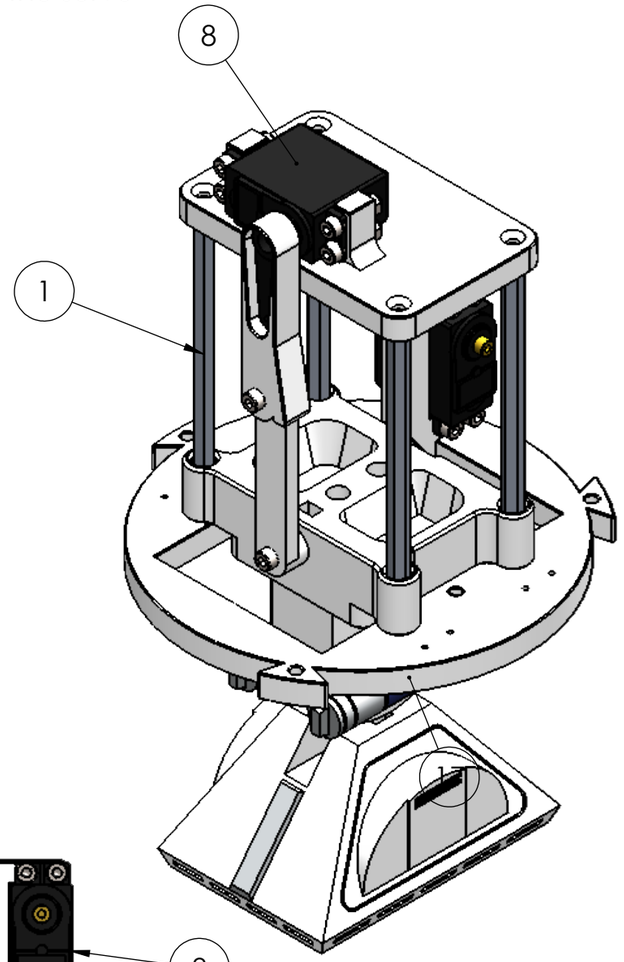
ITEM NO.	PART NUMBER	QTY.
1	Linear Rail 8mm Rod	4
2	R2-D2 Centre Foot	1
3	Centre Footshell	1
4	DIN 912 M4 x 20 --- 20N	12
5	DIN 912 M4 x 12 --- 12N	1
6	Hexagon Nut ISO 4032 - M4 - D - N	12
7	Centre Leg Lift Top	1
8	MG995	2
9	Crank A Servo	1
10	Crank B Lift	1
11	MG995 Servo Horn	1
13	Front Castor Fork	2
14	Front Caster Axle	2
15	R2 Front Castor Tyre	2
16	8mmID x 22OD x 7mm	2
17	Base	1

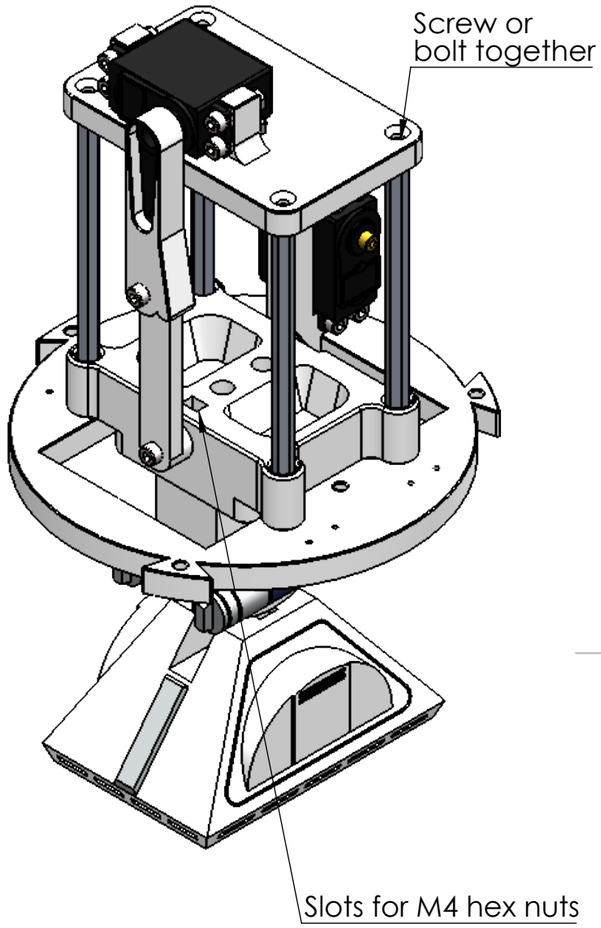
NOTE: Ensure all fits are loose and sliding this will put less stress on the servo

M4 Nylock nuts can also be used where they fit









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DRAWN	Matt Zwarts	27/3/2021
CHK'D	Tim Zwarts	27/3/2021

TITLE:

Assembly for 40% scale mini R2 unit

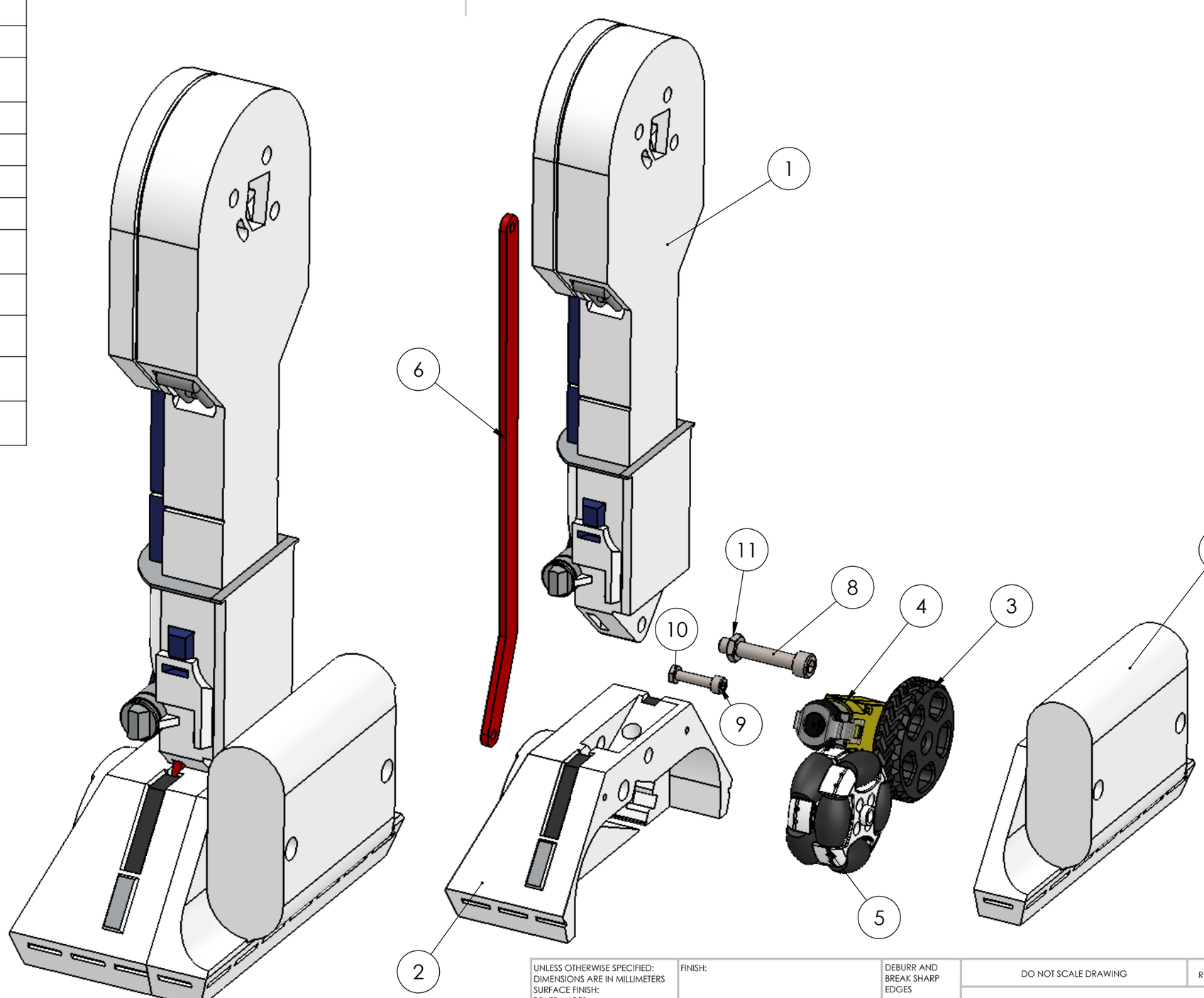
DWG NO.

2-3-2 Mini R2 Assembly Version 1

A3

SHEET 3 OF 11

ITEM NO.	PART NUMBER	QTY.
1	R2 Left Leg Ultimate	1
2	R2 Left Leg Ultimate Foot	1
3	39 C1-10P MZ Wheel	1
4	DC Geared Motor	1
5	Omniwheel 50mm MZ	1
6	Leg Tie Rod	1
7	MZ R2_D2 Left Battery Box	1
8	DIN 912 M6 x 35 --- 35N	1
9	DIN 912 M4 x 20 --- 20N	1
10	Hexagon Thin Nut ISO 4035 - M4 - N	1
11	Hexagon Thin Nut ISO 4035 - M6 - N	1



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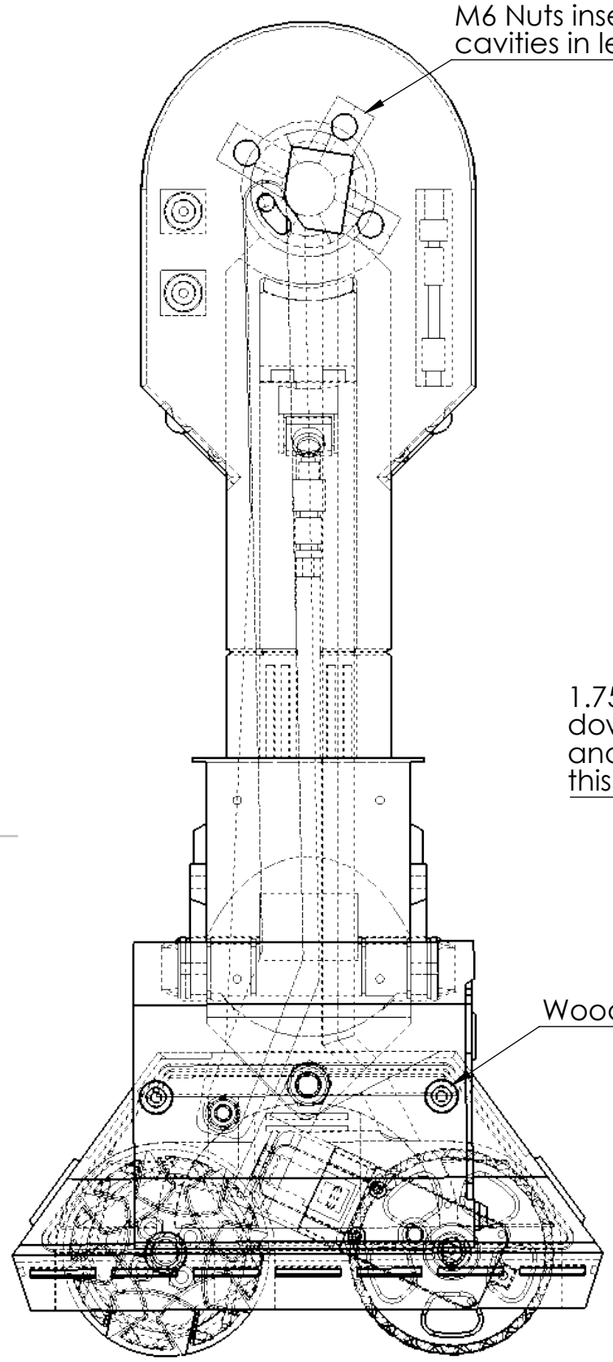
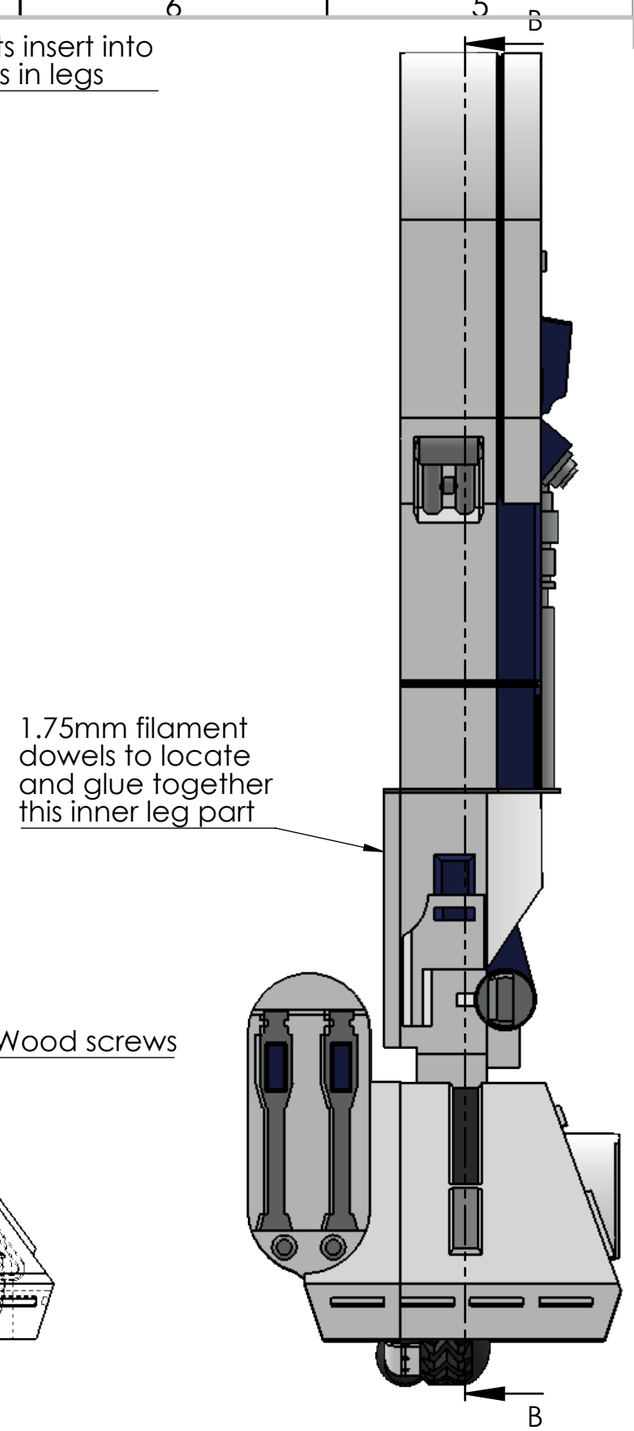
DWG NO.

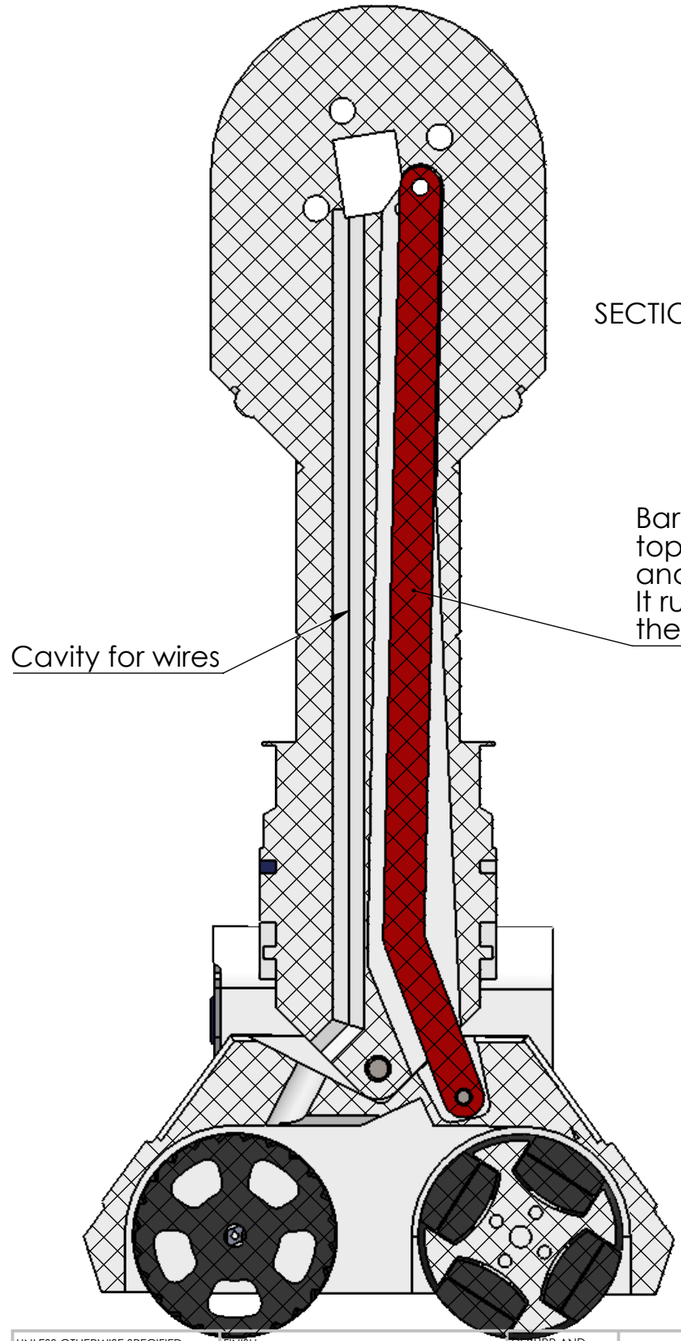
2-3-2 Mini R2 Assembly Version 1

A3

SHEET 4 OF 11







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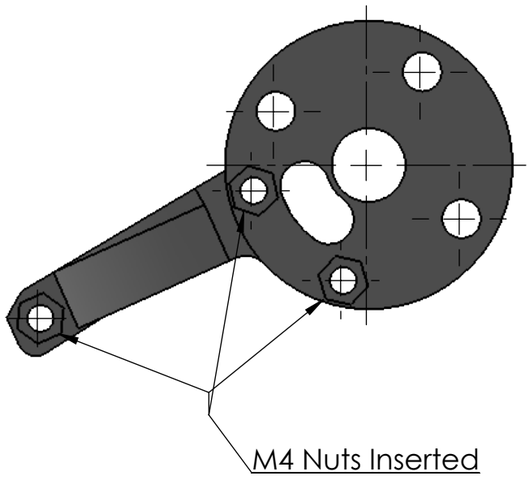
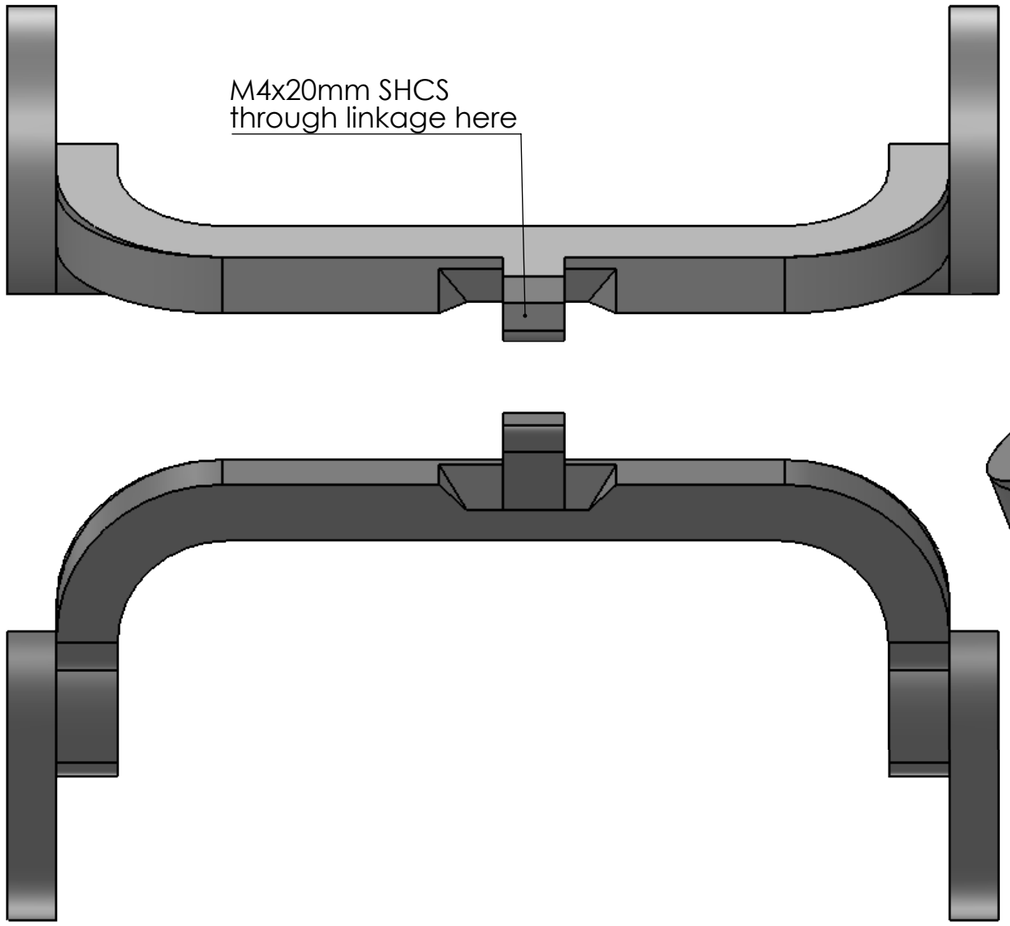
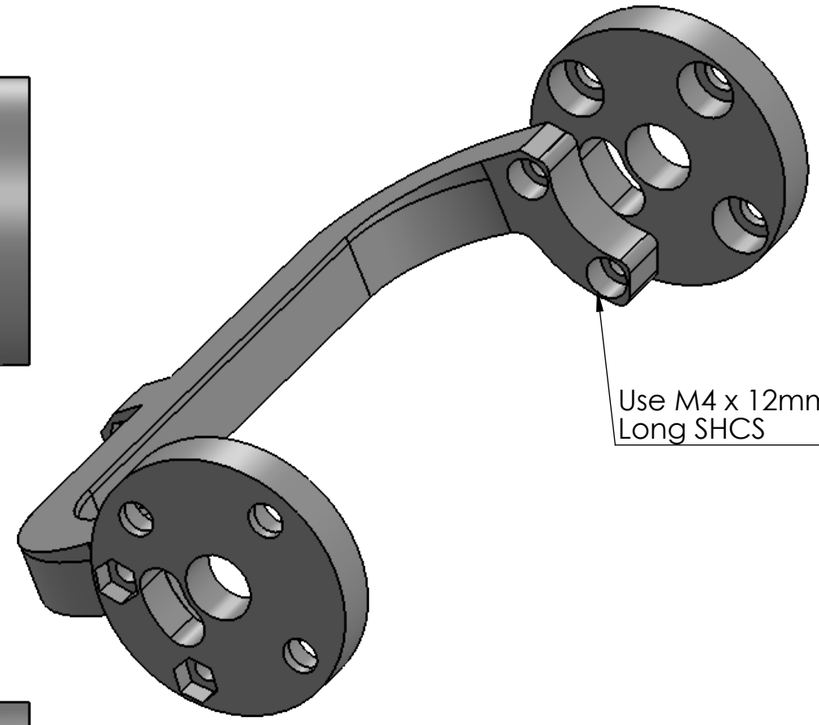
					SHEET 5 OF 11







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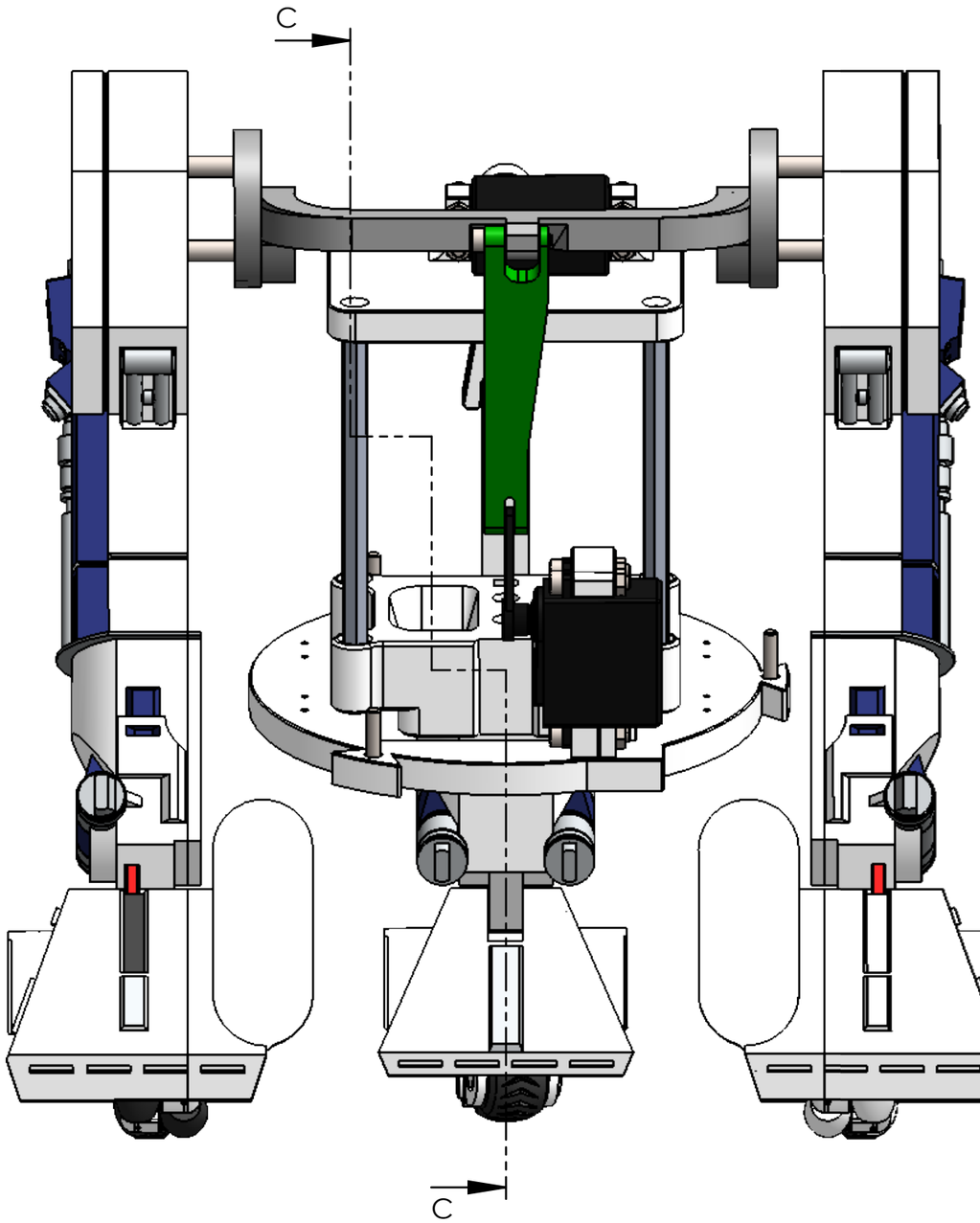
TITLE:

Assembly for 40% scale mini R2 unit

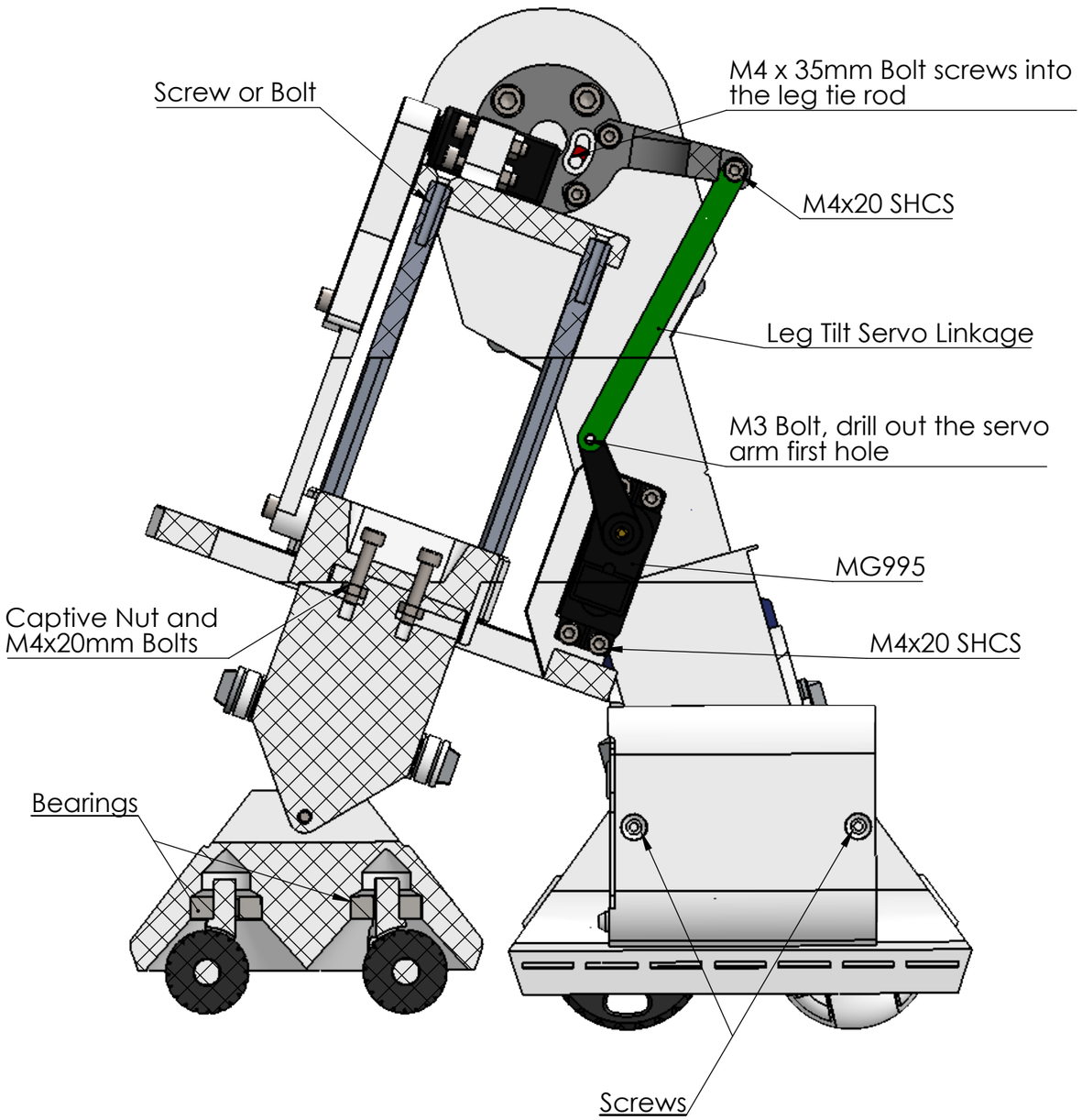
DWG NO.

2-3-2 Mini R2 Assembly Version 1

A3



SECTION C-C
SCALE 1 : 1.75



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Assembly for 40% scale mini R2 unit

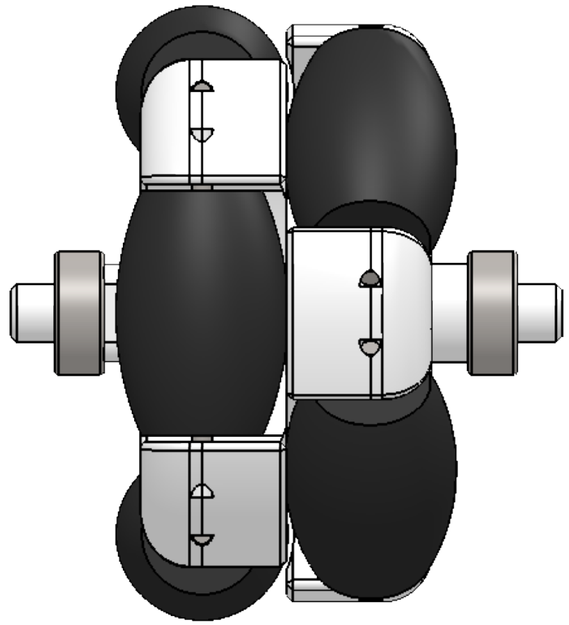
DWG NO.

2-3-2 Mini R2 Assembly Version 1

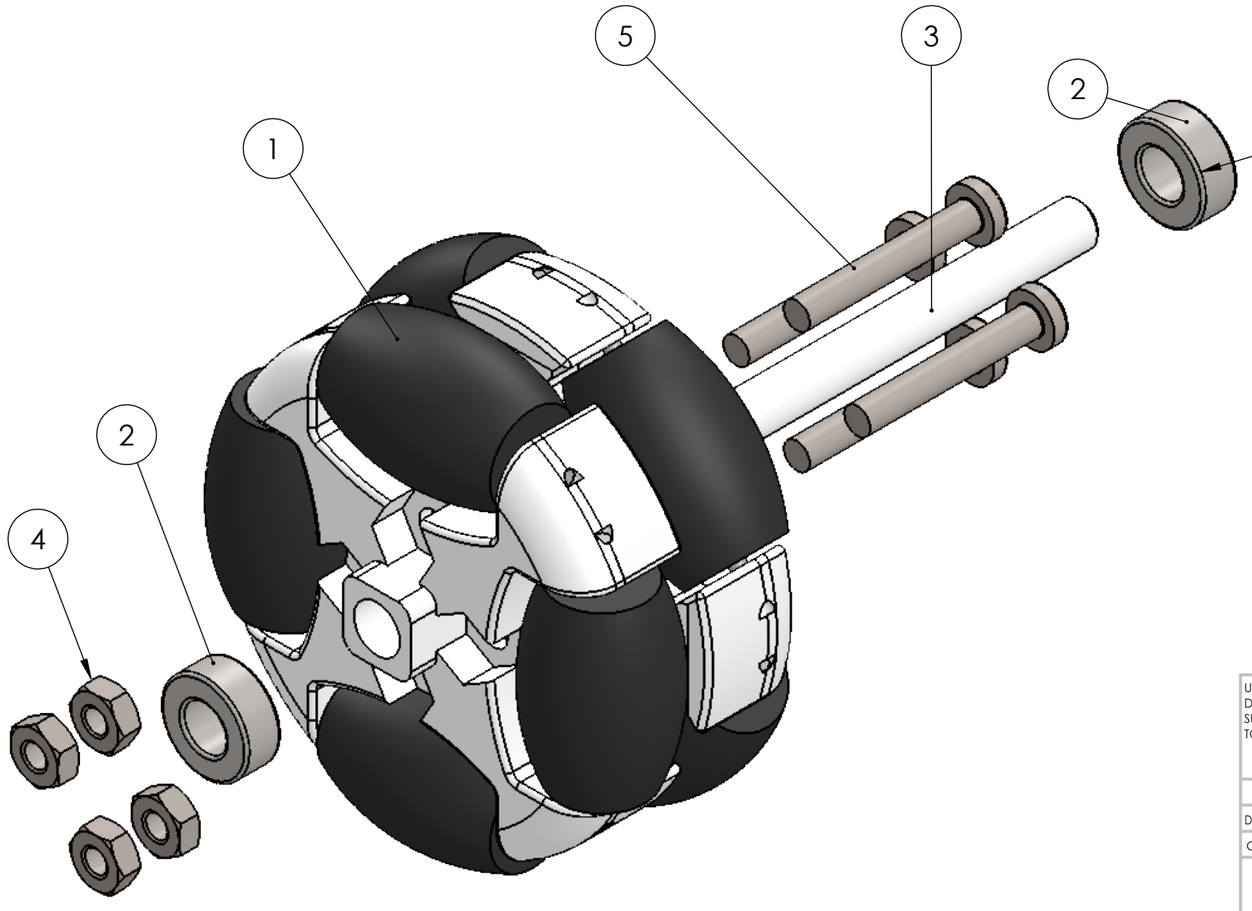
A3

SHEET 7 OF 11

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Omniwheel 50mm MZ		1
2	MR105ZZ	10x5x4mm Bearing	2
3	5x45mm Axle		1
4	Hexagon Nut ISO 4032 - M3 - D - N		4
5	DIN EN ISO 7045 - M3 x 20 - Z - 20N		4



2 Omniwheels required for idlers on the mini 2-3-2



These bearings can be replaced by printable spacers the same size

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TITLE:

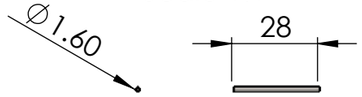
Assembly for 40% scale mini R2 unit

DWG NO.

2-3-2 Mini R2 Assembly Version 1

A3

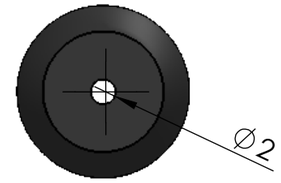
Scale 1:1



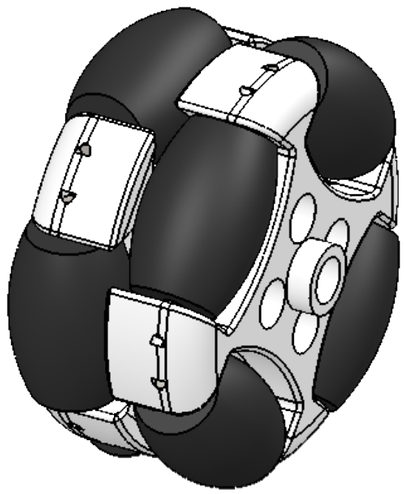
Scale 2:1

Axle Pins made from Stainless Steel wire
or similar **diameter 1.6mm**
Cut to **28-25mm long**

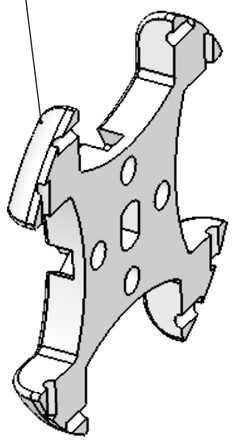
Rollers



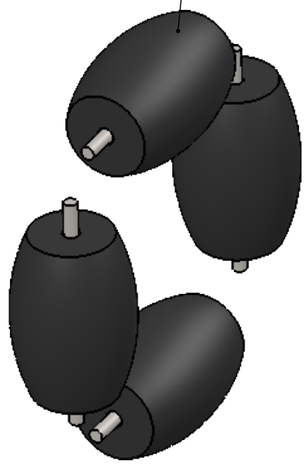
I drilled the Ø2 mm hole with a drill after printing to make sure the hole is round



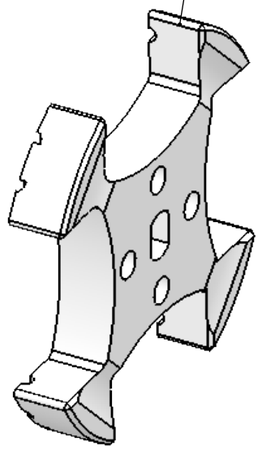
Part A



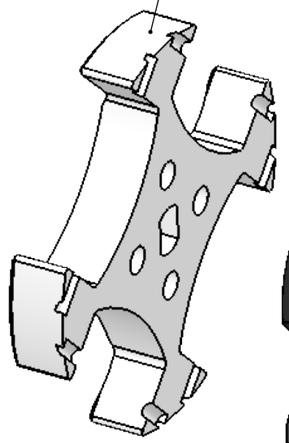
Rollers x 8



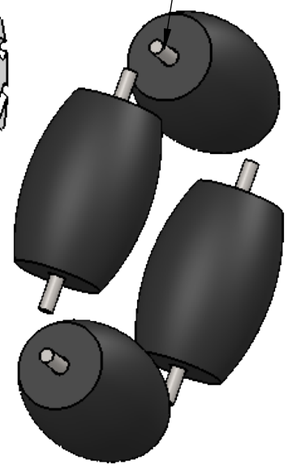
Part B



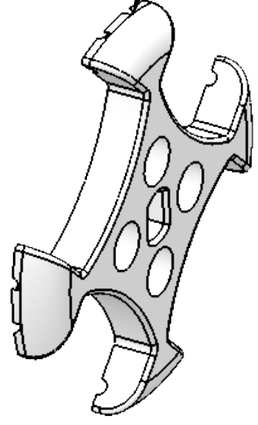
Part C

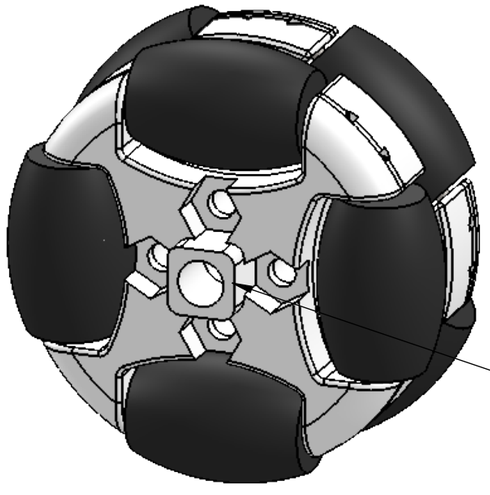


Axles x 8



Part D





NOTE: This side up against DC motor

NOTE: Hardware required

M3 x 20 mm long bolts 4 off per wheel

I used phillips pan head screws

I would suggest using a drop of thread lock on each nut on final assembly

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TITLE:

Assembly for 40% scale mini R2 unit

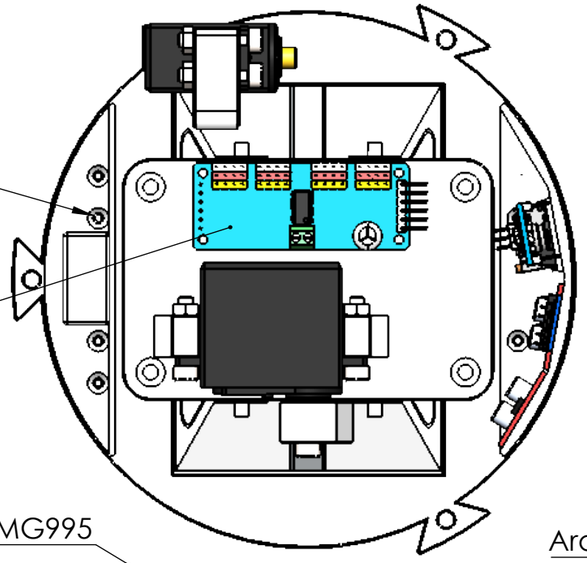
DWG NO.

2-3-2 Mini R2 Assembly Version 1

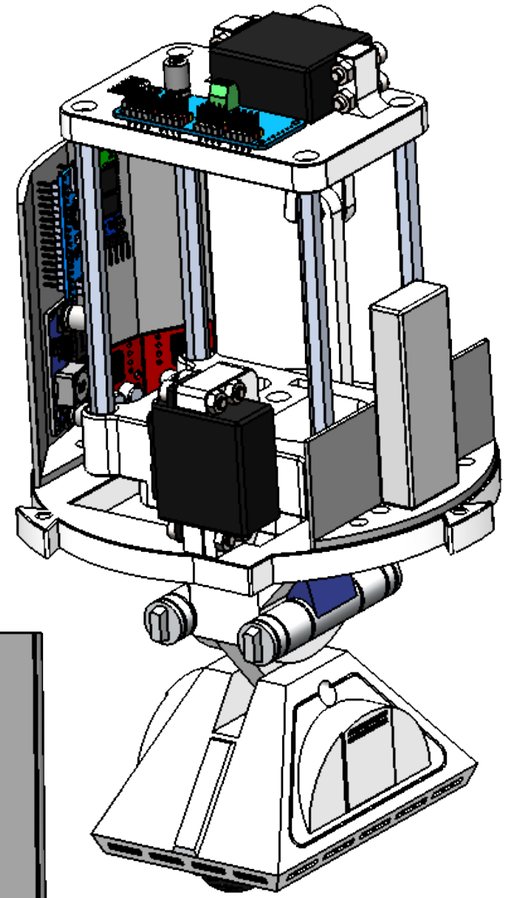
A3

Small Screws into base

PCA9685



Suggested Electronics location mounting

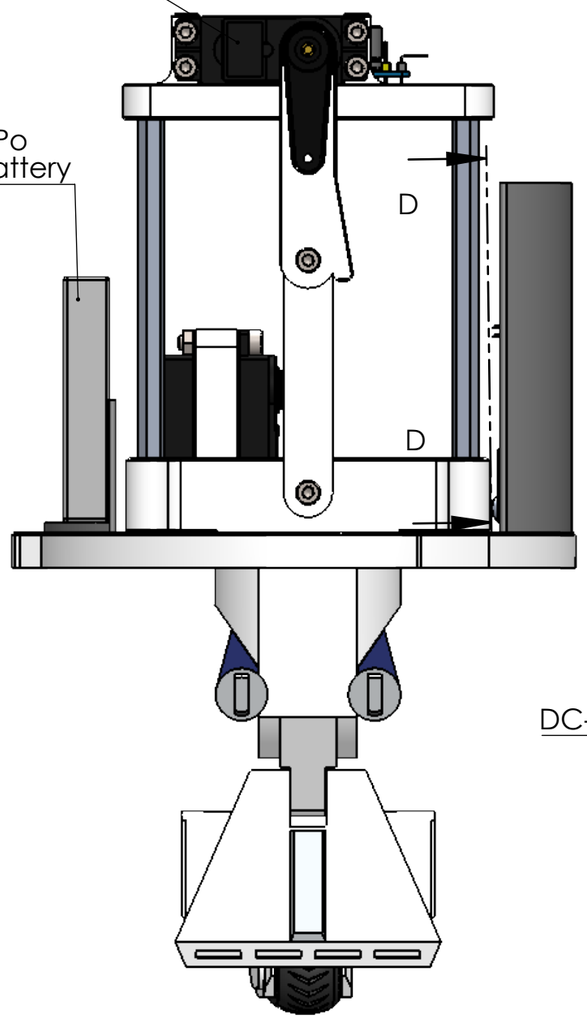


SECTION D-D
SCALE 1 : 1

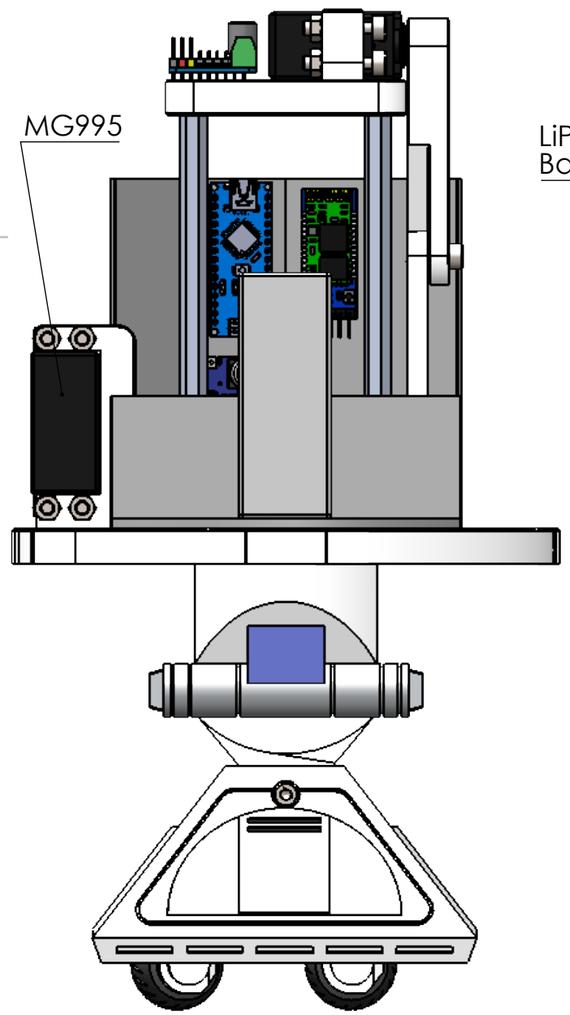
MG995

LiPo Battery

D



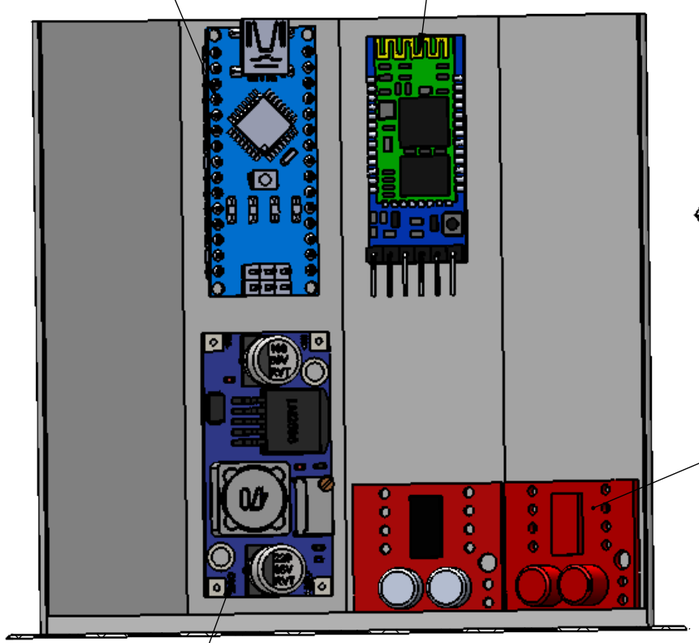
MG995



Arduino Nano

HC-05

MX1508



DC-DC Converter

Battery in 7.4V then 5-6V output

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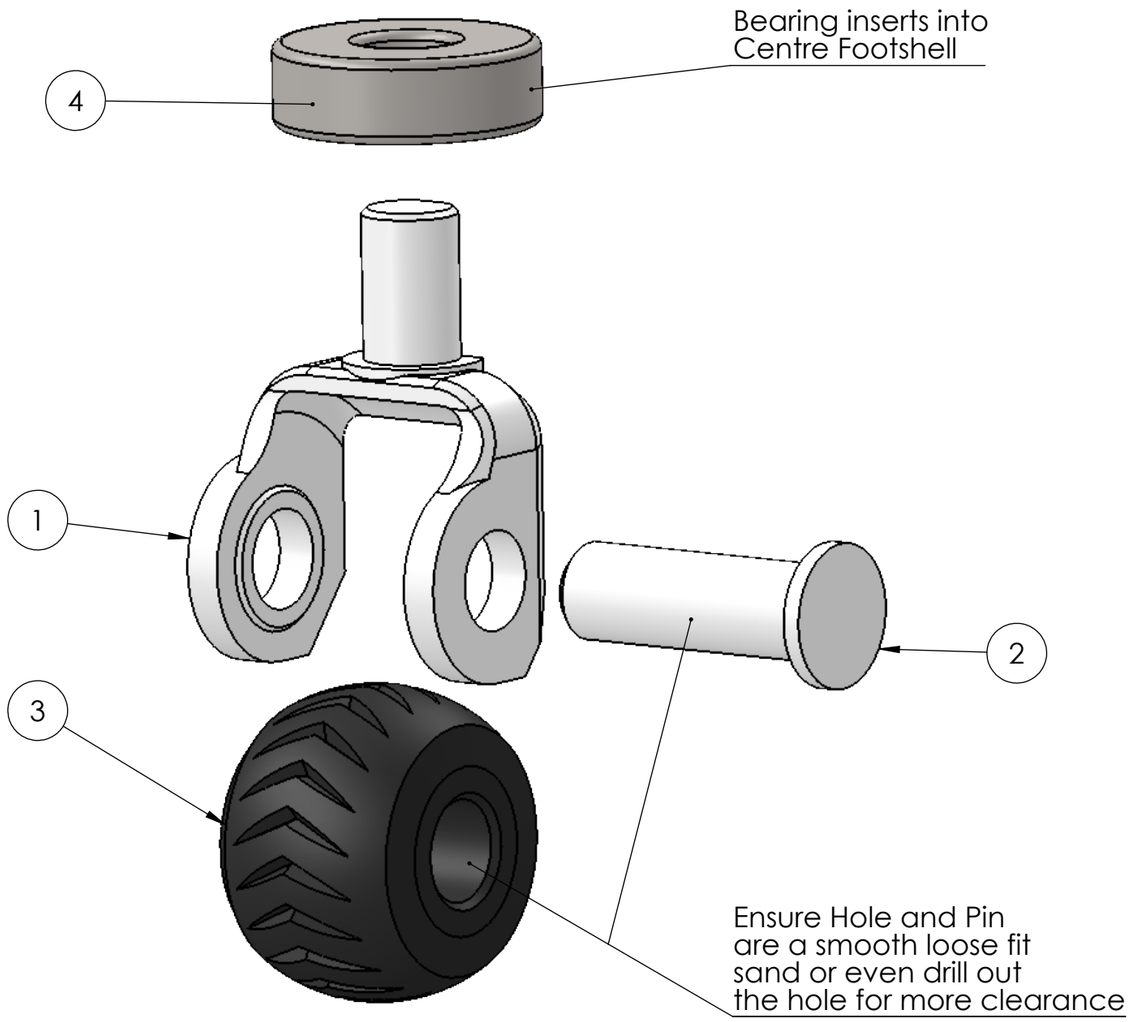
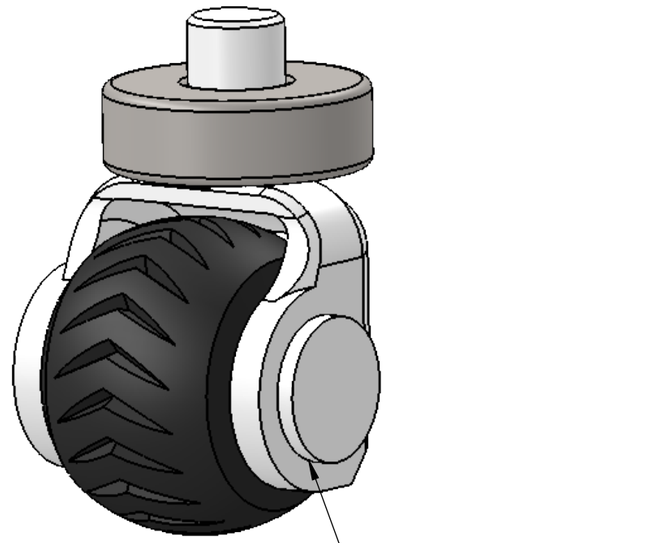
DWG NO.

2-3-2 Mini R2 Assembly Version 1

A3

ITEM NO.	PART NUMBER	QTY.
1	39 CH-33P Front Castor Fork	1
2	39 CH-33P Front Caster Axle MZ	1
3	R2 Front Castor Tyre	1
4	8mmID x 22OD x 7mm	1





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					SHEET 11 OF 11