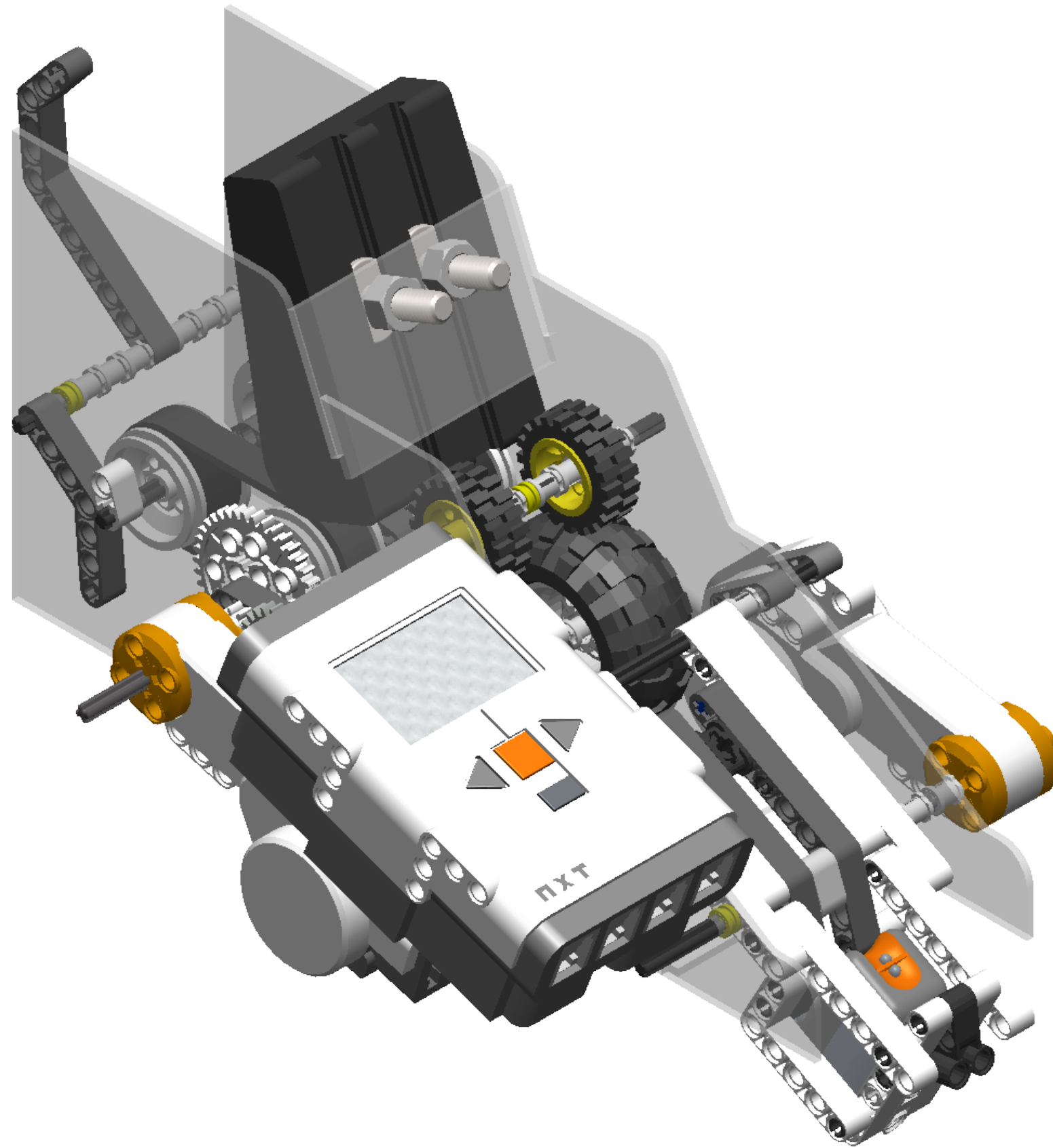


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LEGO Card-Scanning Robot ver. 4

Build Guide

Assembly Videos and Downloads available for free at GarrettFrickey.com/cardbot

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	NAME	DATE		
DRAWN	GFrickey	27FEB25		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE: LEGO Card Scanning Robot	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
			REV	04
SCALE: 1:1			WEIGHT:	SHEET 1 OF 18

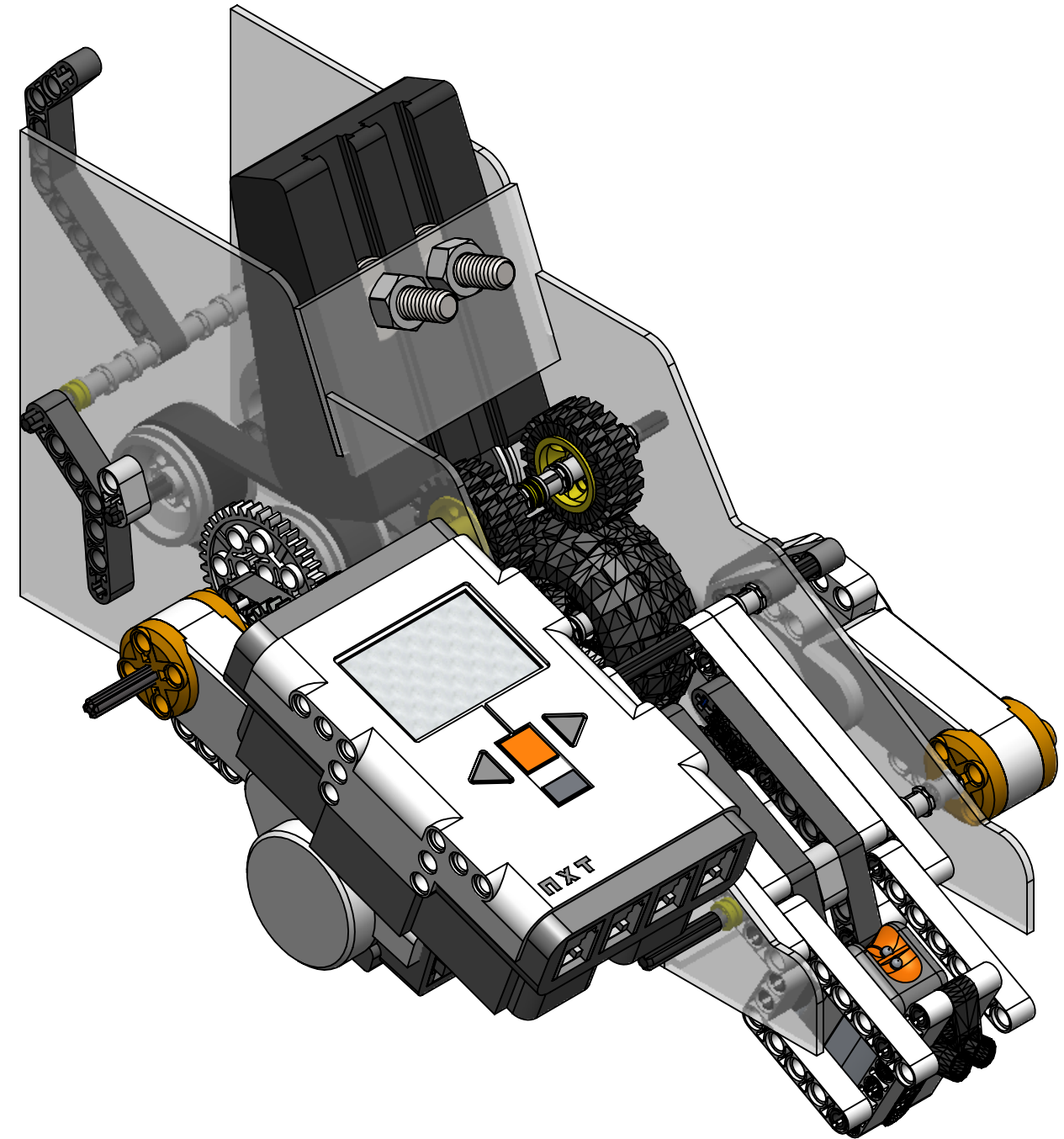
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ITEM NO.	DESCRIPTION	PART NO.	QTY.
1	Side Wall	-	2
2	Rail Support	-	1
3	Base Support	-	2
4	Belt	-	2
5	T-Slot Bolt	-	2
6	Medium-Strength Steel Hex Nut	-	2
7	Adjustment rail (3D Printed)	-	1
8	NXT Servo Motor	-	2
10	Module Bush (32128)	32128	2
11	Technic, 11M Beam (64290)	64290	2
12	Technic, 9M Beam (40490)	40490	2
13	Technic, 7M Beam (32524)	32524	4
14	3M Beam (32523)	32523	2
15	Technic, Ang. Beam 3x5, 90deg (32526)	32526	2
16	Double Angular Beam 3x7 45 deg (32009)	32009	3
17	Beam 3M x 4 Snaps (48989)	48989	1
18	Technic Crossblock 2x3 (32557)	32557	1
19	Connector Peg w. Friction (2780)	2780	15
20	Connector Peg-Cross Axle (6562)	6562	3
21	3M Connector Peg (32556)	32556	3
22	NXT Light Sensor	-	1
23	Tire 56x26 (70695)	70695	2
24	Wheel 30.4mm D x 20mm (56145)	56145	2
25	30.4x14 VR Tire (5578)	5578	2
26	Wheel 30.4mm x 14 VR (2494)	2494	2
27	NXT PRG Brick	-	1
28	Wheel 68.8x40 Balloon Large (2996)	2996	4
29	Bush (3713)	3713	28
30	Bush 1-2 (4255c)	4255c	6
31	Cross Axle 12L (3708)	3708	-
31	Cross Axle 12M (3708)	3708	5
32	Cross Axle 16M (50451)	50451	2
33	Cross Axle 8M with End Stop (55013)	55013	1
34	Angular Beam 3x7 (32271)	32271	1
35	Beam Bent 53deg 3 and 7 holes (32271)	32271	1
36	Double Cross Axle 5.5M (32209)	32209	1
37	Angular Beam 4x4 (32348)	32348	1
38	Cross Block 90 deg (6536)	6536	2
39	Gear 40 Tooth (3649)	3649	2
40	Gear 20 Tooth Double Bevel (32269)	32269	1
41	Gear 24 Tooth (3648)	3648	1
42	Gear 8 Tooth (3648)	3648	1



	NAME	DATE		
DRAWN	GFrickey	27FEB25		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE: LEGO Card Scanning Robot	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
			REV	04
SCALE: 1:4			WEIGHT:	SHEET 2 OF 18

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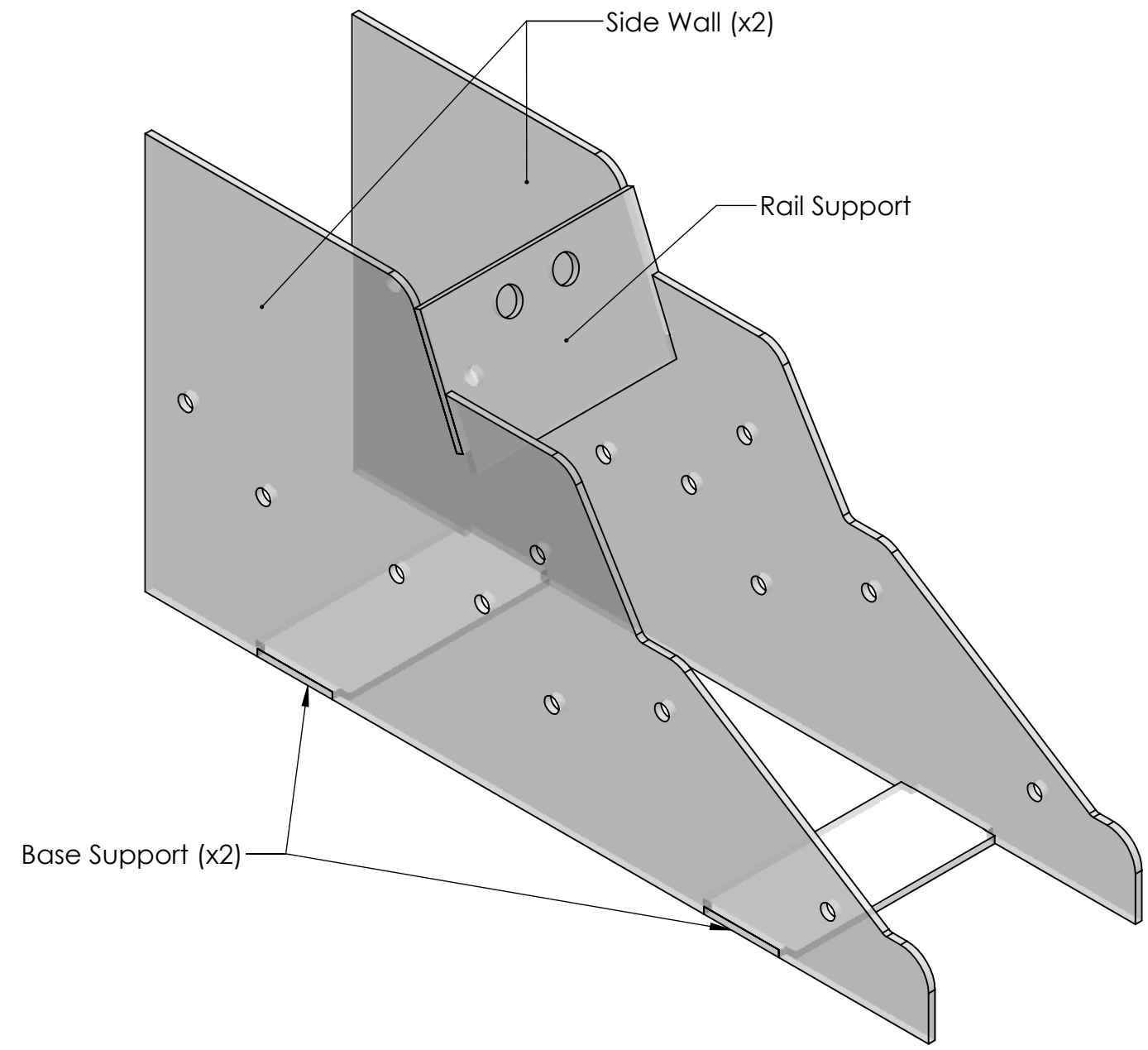
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NOTES:

- 1) It helps to use tape to hold the frame components together prior to gluing joints.
- 2) Glue joints with Super Glue
 - > recommended glue is Cyanoacrylate with Activator
 - > do not use expanding glues (i.e. Gorilla Glue)
- 3) If ordering from SendCutSend, be sure to use the correct file:
 - > CARDBOT_FRAME_3MM.dxf



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	NAME	DATE		
DRAWN	GFrickey	27FEB25		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE: LEGO Card Scanning Robot	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
			REV	04
			SCALE: 1:2	WEIGHT:
			SHEET 3 OF 18	

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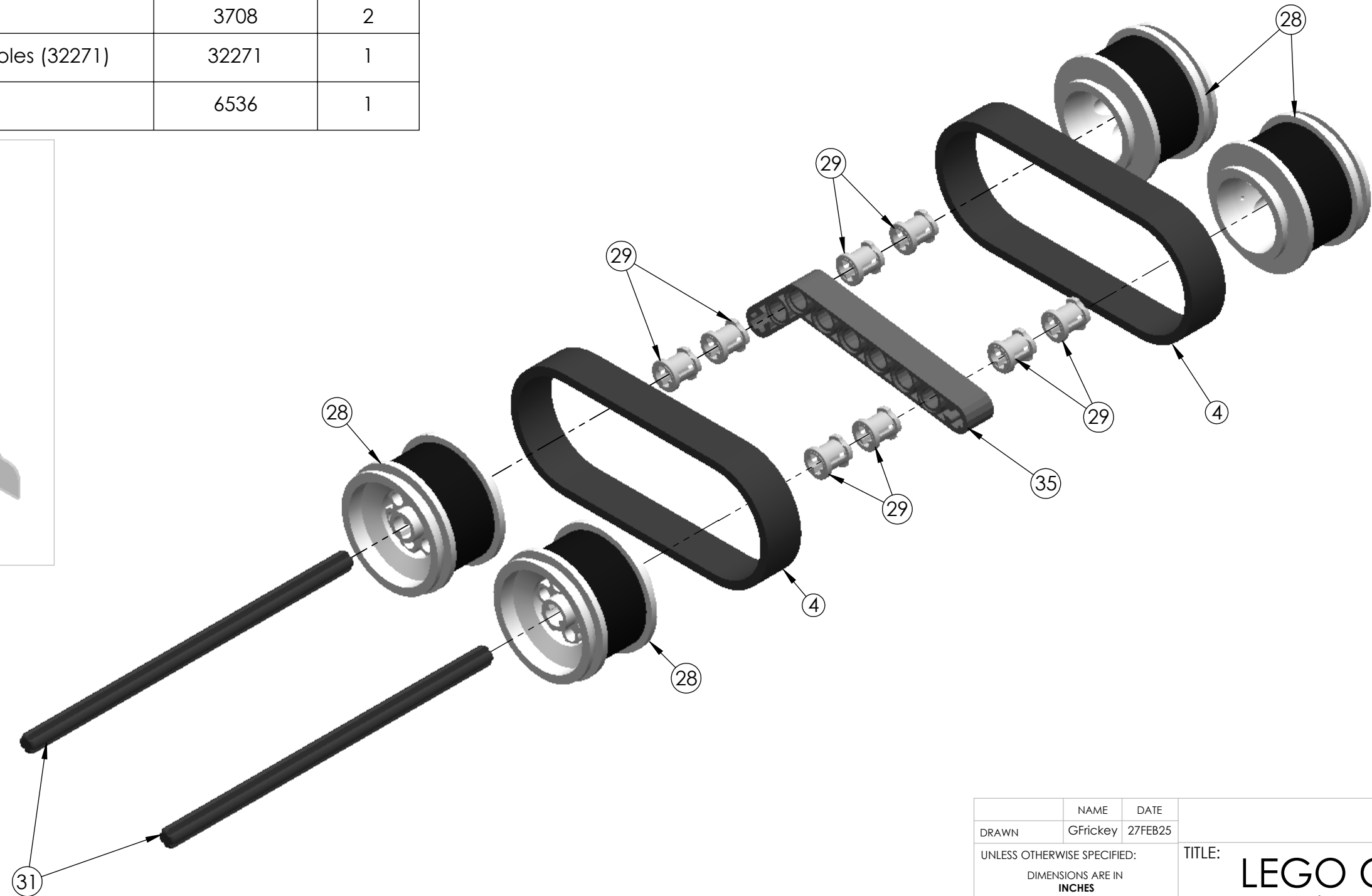
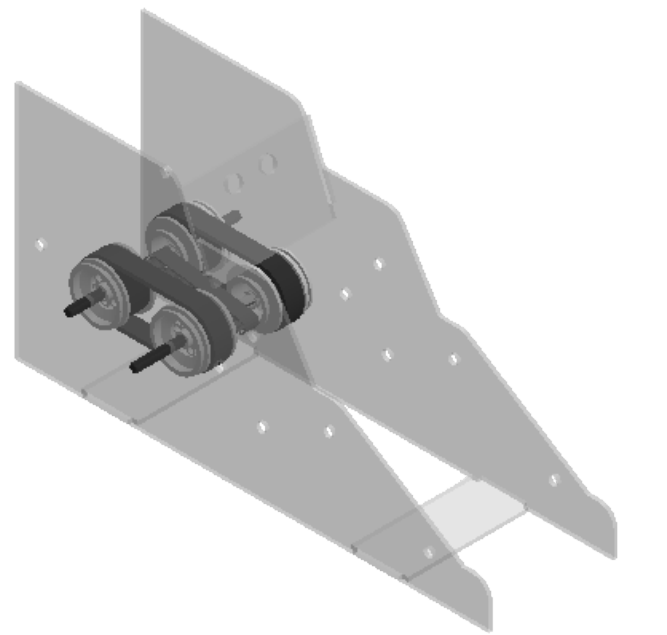
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ITEM NO.	DESCRIPTION	PART NO.	QTY.
4	Belt	-	2
28	Wheel 68.8x40 Balloon Large (2996)	2996	4
29	Bush (3713)	3713	8
31	Cross Axle 12M (3708)	3708	2
35	Beam Bent 53deg 3 and 7 holes (32271)	32271	1
38	Cross Block 90 deg (6536)	6536	1

NOTE:

1) Must be assembled inside of acrylic frame
(see assembly instruction video for help)

	NAME	DATE	TITLE:	
DRAWN	GFrickey	27FEB25	LEGO Card Scanning Robot	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			SIZE	DWG. NO.
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			B	Cardbot
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GarrettFrickey.com/cardbot			SCALE: 1:1	WEIGHT:
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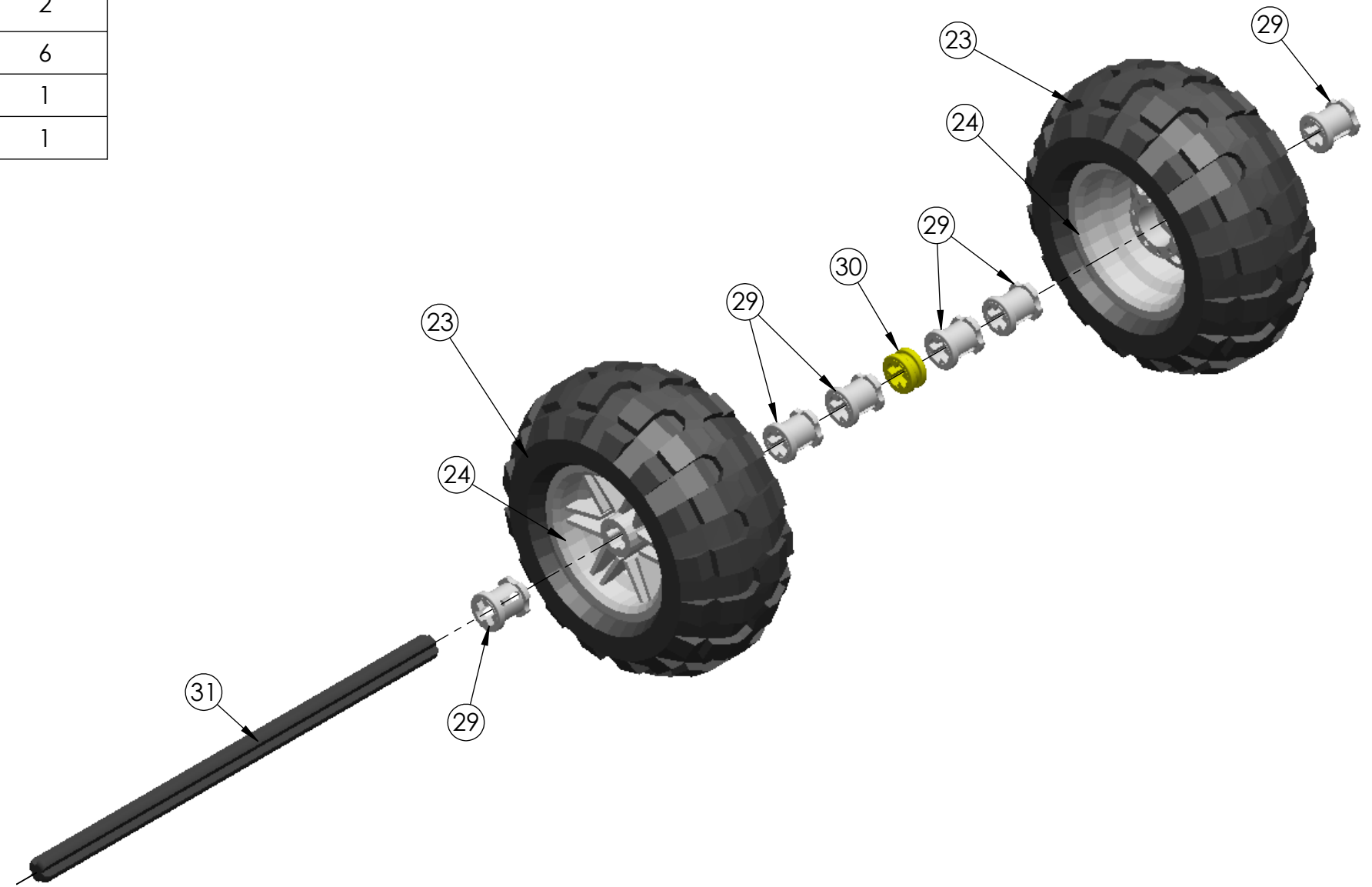
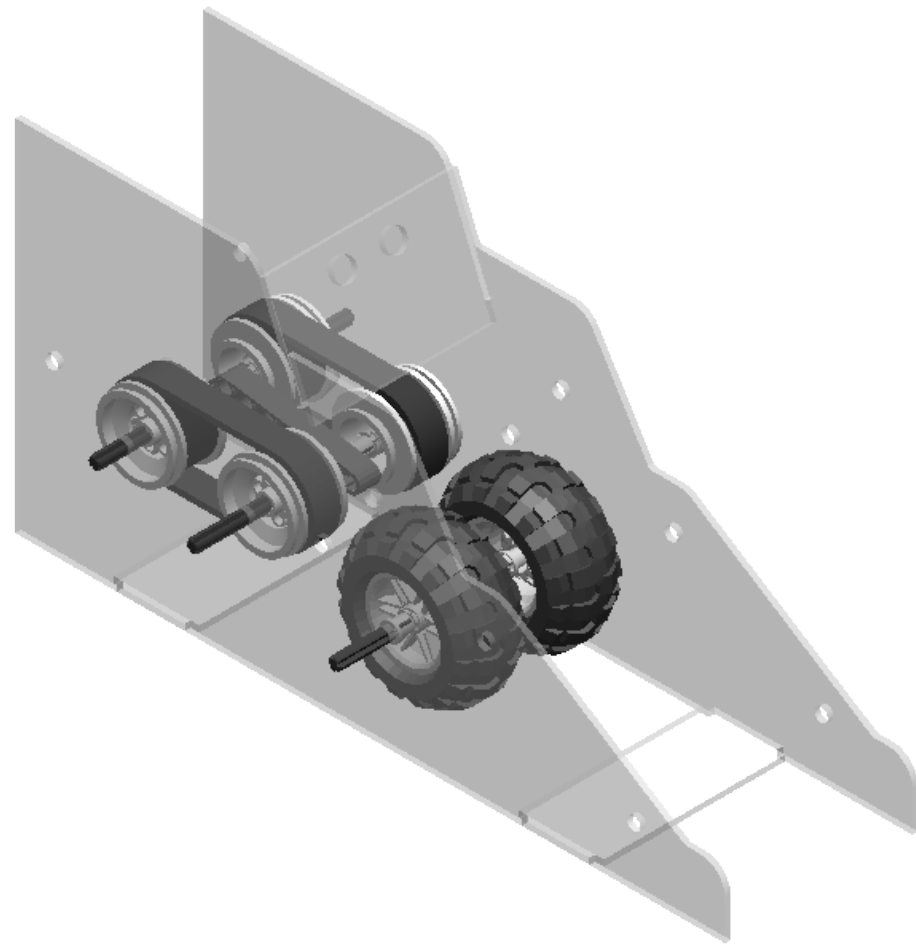
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
23	Tire 56x26 (70695)	70695	2
24	Wheel 30.4mm D x 20mm (56145)	56145	2
29	Bush (3713)	3713	6
30	Bush 1-2 (4255c)	4255c	1
31	Cross Axle 12M (3708)	3708	1



DRAWN	NAME	DATE	TITLE:	
GFrickey	GFrickey	27FEB25	LEGO Card Scanning Robot	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			SIZE	DWG. NO.
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			B	Cardbot
COMMENTS: GarrettFrickey.com/cardbot			REV	04
SCALE: 1:1			WEIGHT:	SHEET 5 OF 18

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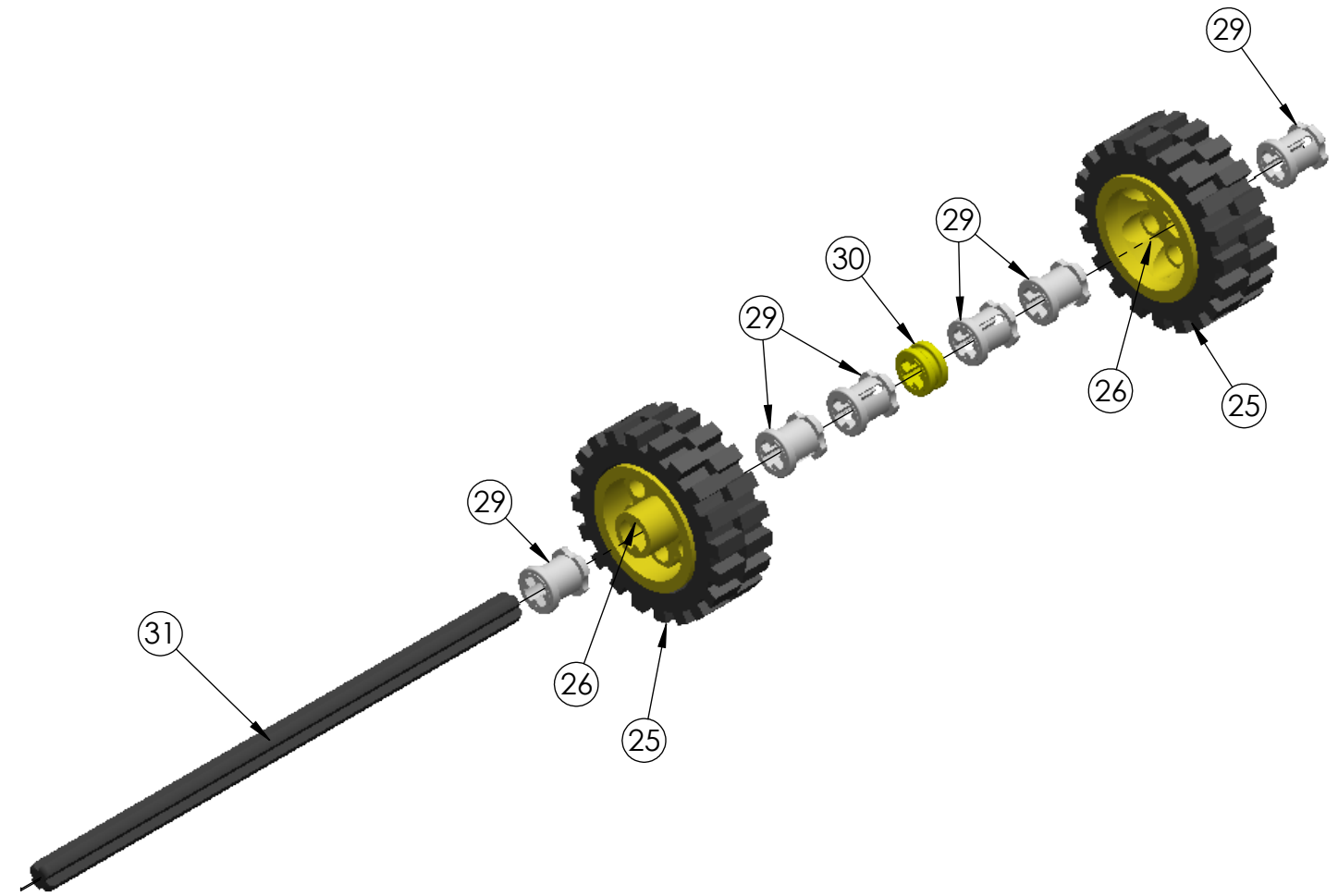
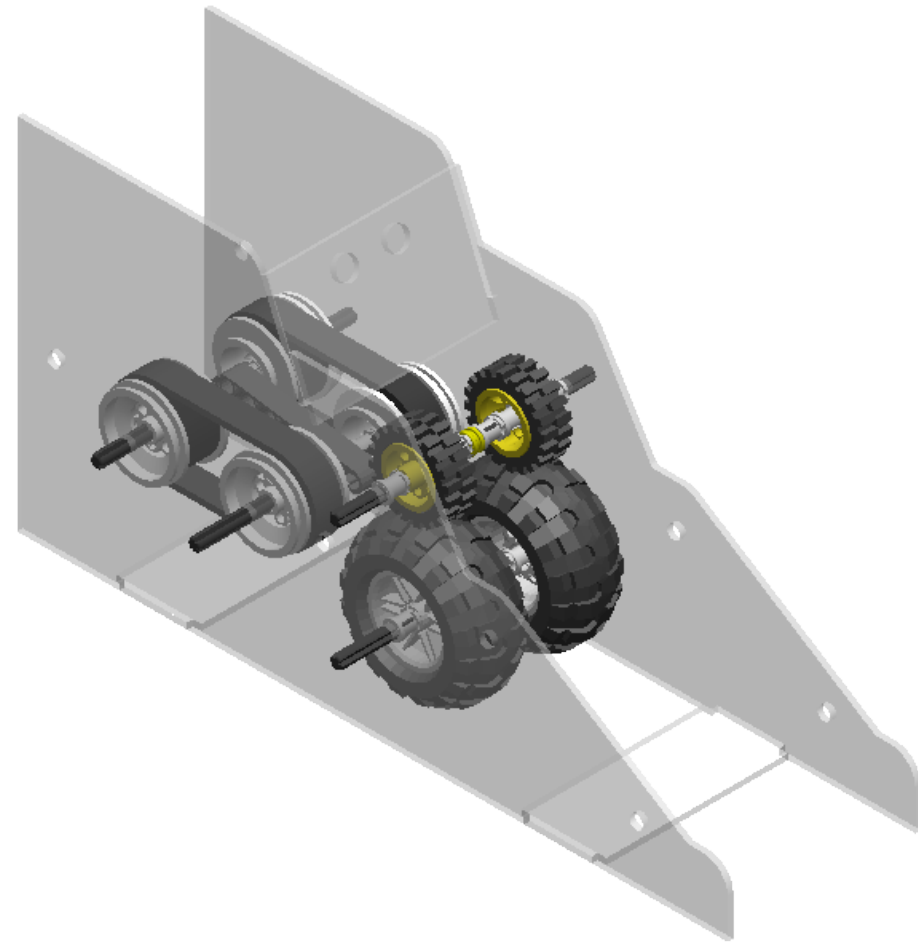
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ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
25	30.4x14 VR Tire (5578)	5578	2
26	Wheel 30.4mm x 14 VR (2494)	2494	2
29	Bush (3713)	3713	6
30	Bush 1-2 (4255c)	4255c	1
31	Cross Axle 12M (3708)	3708	1



DRAWN	NAME	DATE	TITLE:	
GFrickey	GFrickey	27FEB25	LEGO Card Scanning Robot	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE:	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
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			REV 04	
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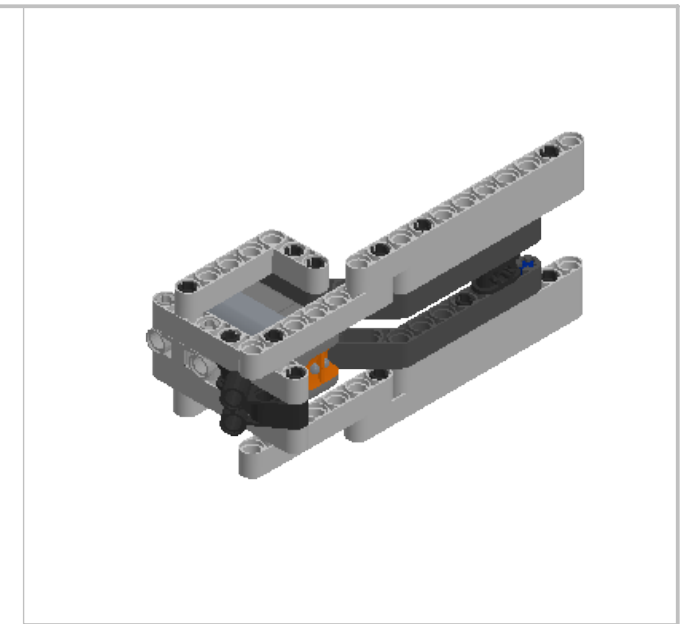
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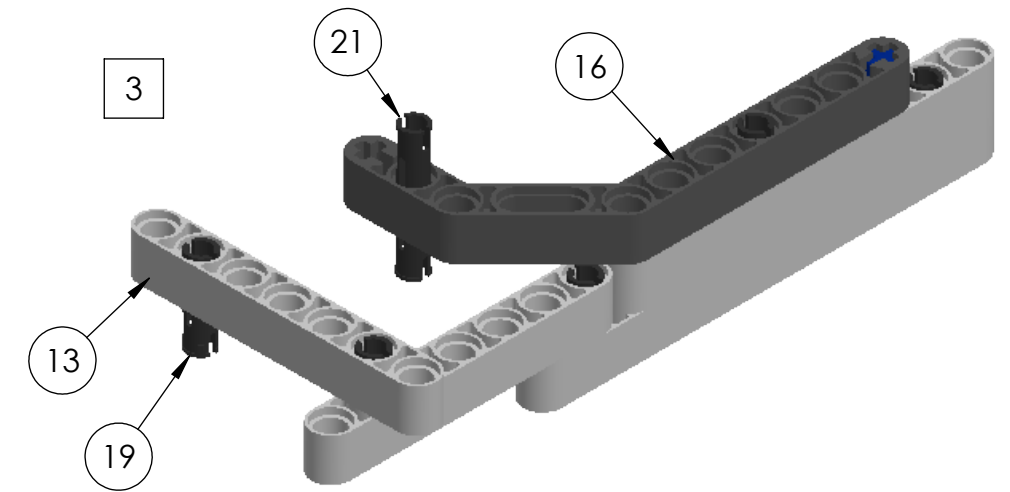
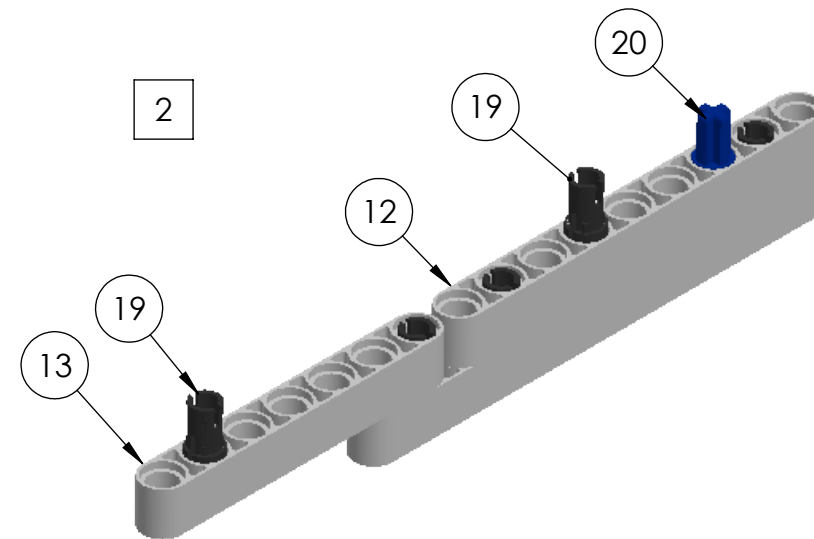
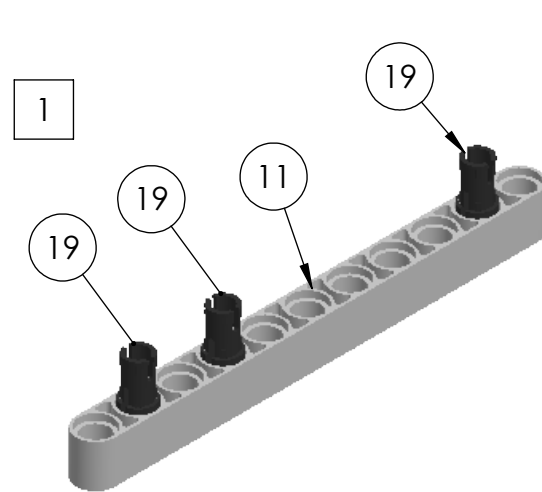
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ITEM NO.	DESCRIPTION	PART NO.	QTY.
10	Module Bush (32128)	32128	2
11	Technic, 11M Beam (64290)	64290	2
12	Technic, 9M Beam (40490)	40490	2
13	Technic, 7M Beam (32524)	32524	4
15	Technic, Ang. Beam 3x5, 90deg (32526)	32526	2
16	Double Angular Beam 3x7 45 deg (32009)	32009	2
17	Beam 3M x 4 Snaps (48989)	48989	1
18	Technic Crossblock 2x3 (32557)	32557	1
19	Connector Peg w. Friction (2780)	2780	15
20	Connector Peg-Cross Axle (6562)	6562	3
21	3M Connector Peg (32556)	32556	2
22	NXT Light Sensor	-	1
29	Bush (3713)	3713	2
30	Bush 1-2 (4255c)	4255c	2
32	Cross Axle 16M (50451)	50451	2
38	Cross Block 90 Deg (6536)	6536	1



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DRAWN	NAME	DATE	TITLE:	
	GFrickey	27FEB25	LEGO Card Scanning Robot	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			SIZE	DWG. NO.
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			B	Cardbot
COMMENTS: GarrettFrickey.com/cardbot			REV	04
SCALE: 1:1			WEIGHT:	SHEET 7 OF 18

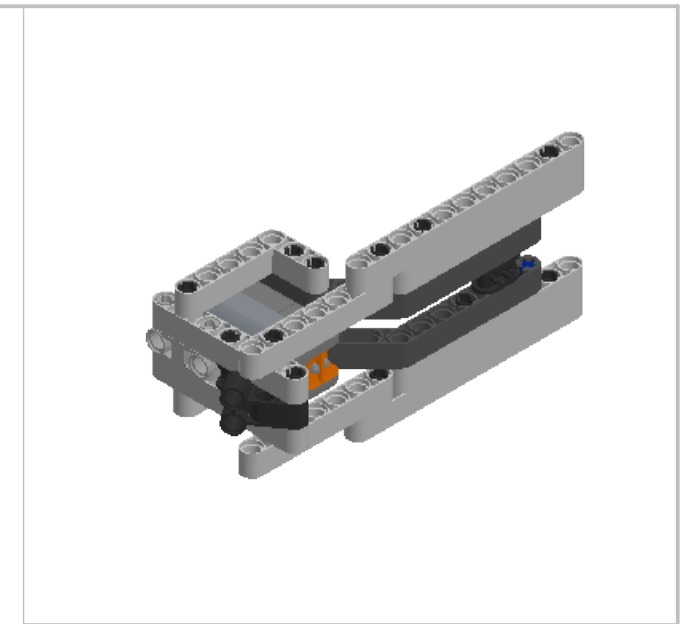
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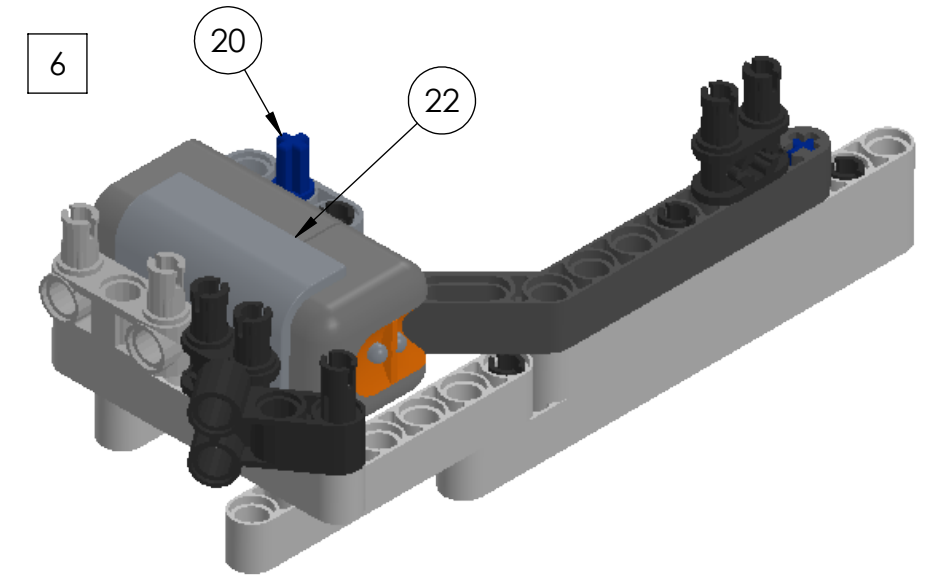
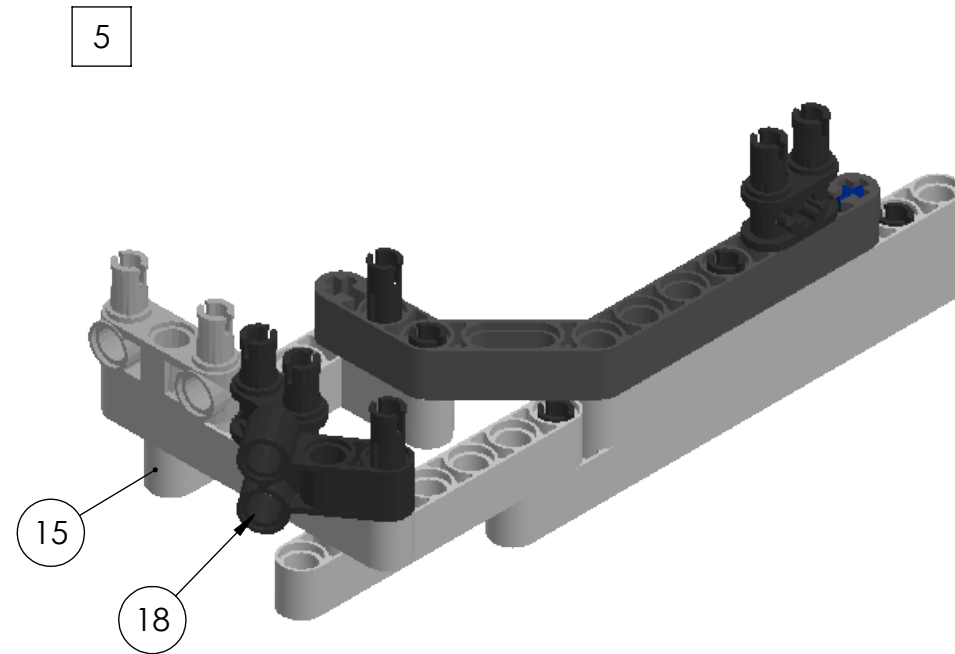
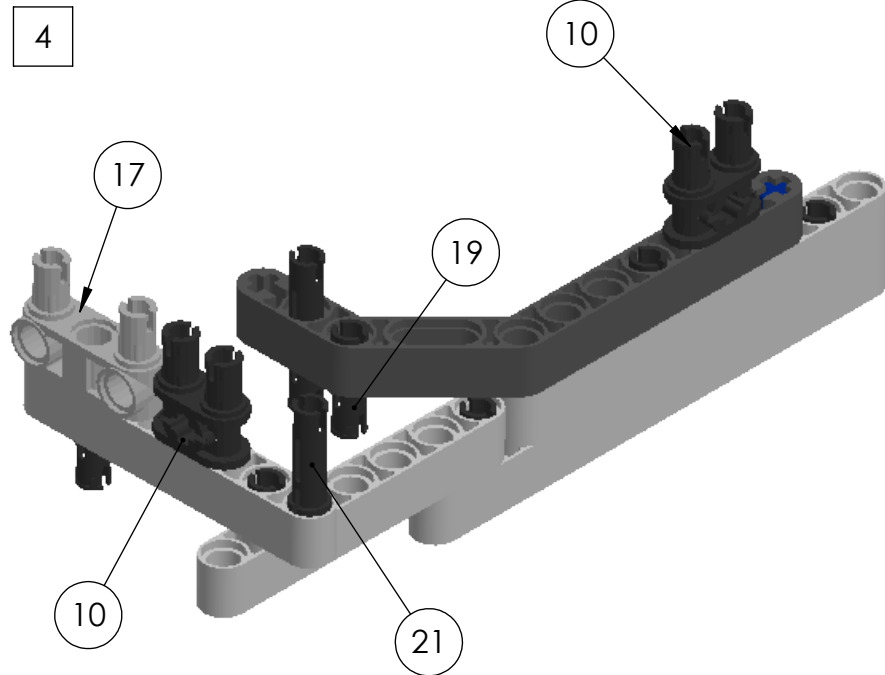
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ITEM NO.	DESCRIPTION	PART NO.	QTY.
10	Module Bush (32128)	32128	2
11	Technic, 11M Beam (64290)	64290	2
12	Technic, 9M Beam (40490)	40490	2
13	Technic, 7M Beam (32524)	32524	4
15	Technic, Ang. Beam 3x5, 90deg (32526)	32526	2
16	Double Angular Beam 3x7 45 deg (32009)	32009	2
17	Beam 3M x 4 Snaps (48989)	48989	1
18	Technic Crossblock 2x3 (32557)	32557	1
19	Connector Peg w. Friction (2780)	2780	15
20	Connector Peg-Cross Axle (6562)	6562	3
21	3M Connector Peg (32556)	32556	2
22	NXT Light Sensor	-	1
29	Bush (3713)	3713	2
30	Bush 1-2 (4255c)	4255c	2
32	Cross Axle 16M (50451)	50451	2
38	Cross Block 90 Deg (6536)	6536	1



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DRAWN	NAME	DATE	TITLE:	
GFrickey	GFrickey	27FEB25	LEGO Card Scanning Robot	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			SIZE DWG. NO. REV	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			B Cardbot 04	
COMMENTS: GarrettFrickey.com/cardbot			SCALE: 1:1	WEIGHT: SHEET 8 OF 18

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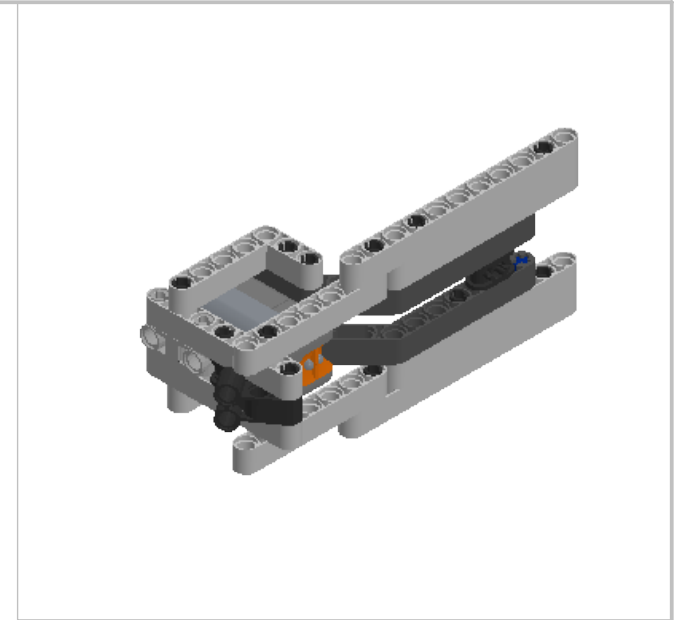
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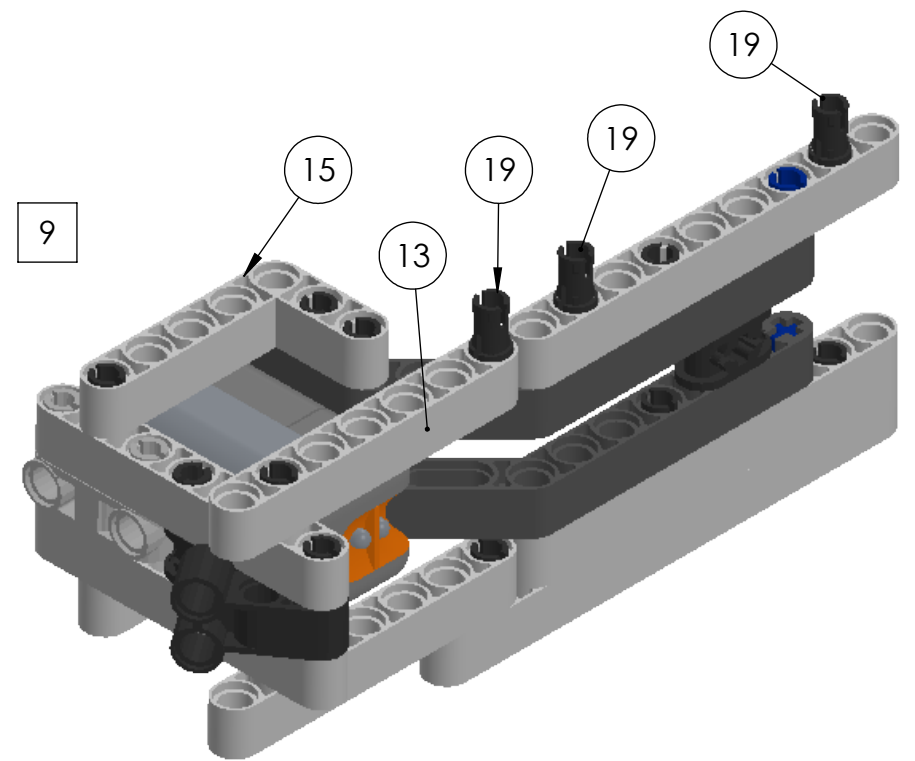
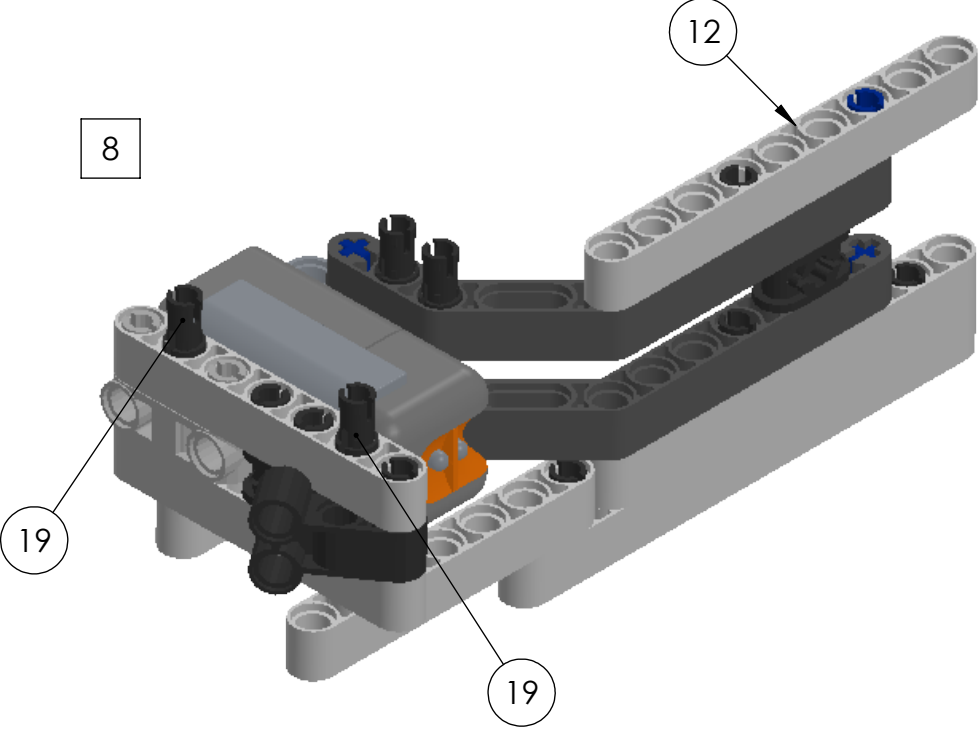
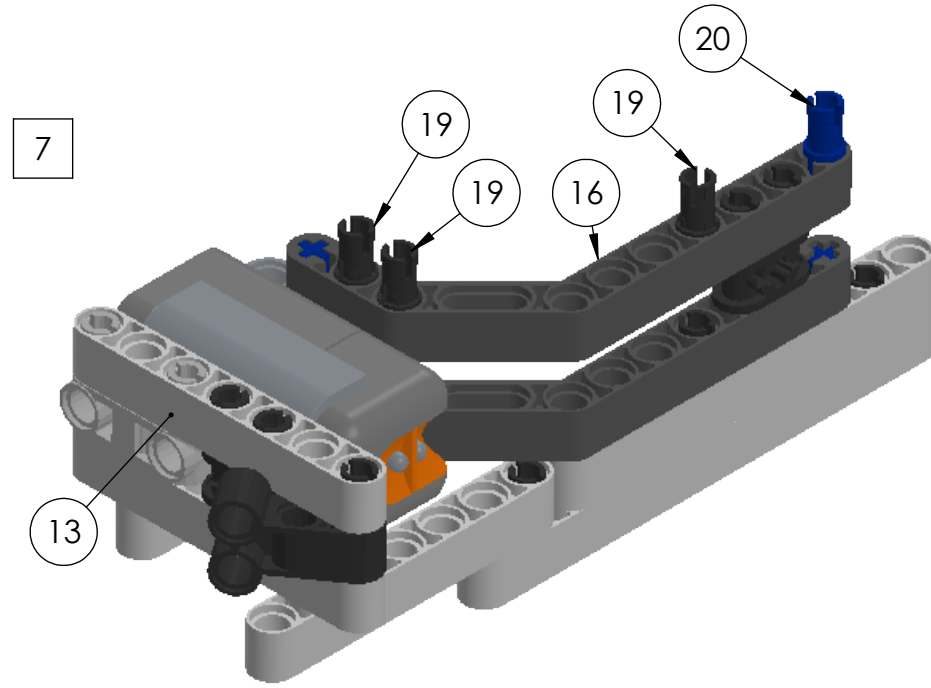
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ITEM NO.	DESCRIPTION	PART NO.	QTY.
10	Module Bush (32128)	32128	2
11	Technic, 11M Beam (64290)	64290	2
12	Technic, 9M Beam (40490)	40490	2
13	Technic, 7M Beam (32524)	32524	4
15	Technic, Ang. Beam 3x5, 90deg (32526)	32526	2
16	Double Angular Beam 3x7 45 deg (32009)	32009	2
17	Beam 3M x 4 Snaps (48989)	48989	1
18	Technic Crossblock 2x3 (32557)	32557	1
19	Connector Peg w. Friction (2780)	2780	15
20	Connector Peg-Cross Axle (6562)	6562	3
21	3M Connector Peg (32556)	32556	2
22	NXT Light Sensor	-	1
29	Bush (3713)	3713	2
30	Bush 1-2 (4255c)	4255c	2
32	Cross Axle 16M (50451)	50451	2
38	Cross Block 90 Deg (6536)	6536	1



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	NAME	DATE		
DRAWN	GFrickey	27FEB25		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE: LEGO Card Scanning Robot	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
			REV	04
SCALE: 1:1			WEIGHT:	SHEET 9 OF 18

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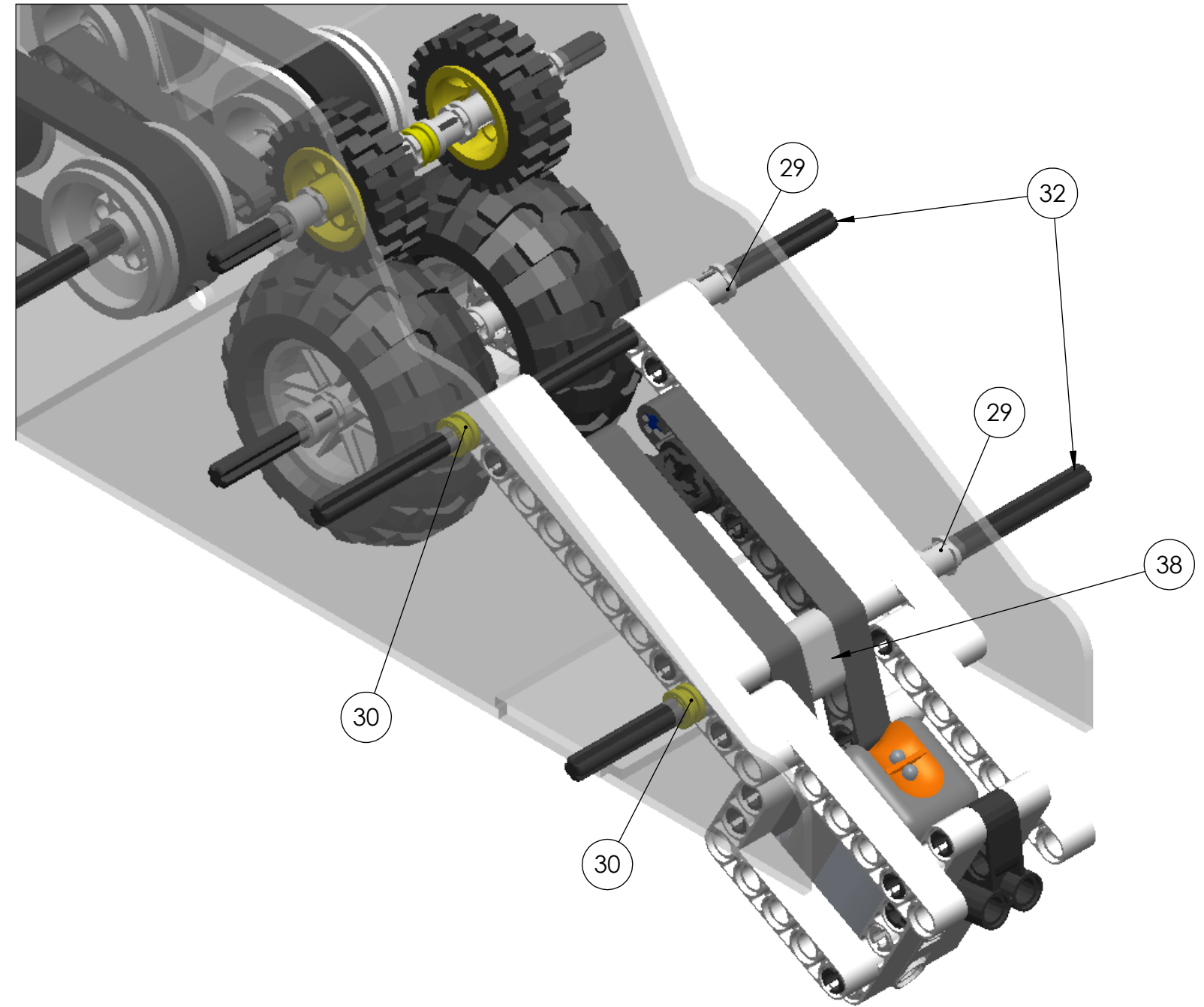
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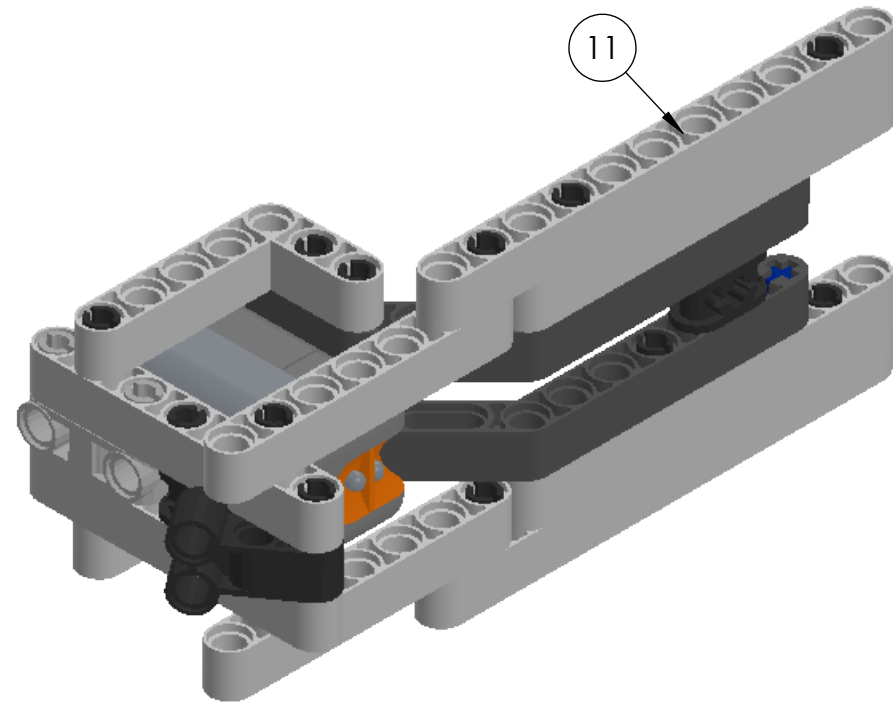
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ITEM NO.	DESCRIPTION	PART NO.	QTY.
10	Module Bush (32128)	32128	2
11	Technic, 11M Beam (64290)	64290	2
12	Technic, 9M Beam (40490)	40490	2
13	Technic, 7M Beam (32524)	32524	4
15	Technic, Ang. Beam 3x5, 90deg (32526)	32526	2
16	Double Angular Beam 3x7 45 deg (32009)	32009	2
17	Beam 3M x 4 Snaps (48989)	48989	1
18	Technic Crossblock 2x3 (32557)	32557	1
19	Connector Peg w. Friction (2780)	2780	15
20	Connector Peg-Cross Axle (6562)	6562	3
21	3M Connector Peg (32556)	32556	2
22	NXT Light Sensor	-	1
29	Bush (3713)	3713	2
30	Bush 1-2 (4255c)	4255c	2
32	Cross Axle 16M (50451)	50451	2
38	Cross Block 90 Deg (6536)	6536	1

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DRAWN	NAME	DATE	TITLE:		
GFrickey	GFrickey	27FEB25	LEGO Card Scanning Robot		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			REV		
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.	04
COMMENTS:			B	Cardbot	
GarrettFrickey.com/cardbot			SCALE: 1:1	WEIGHT:	SHEET 10 OF 18

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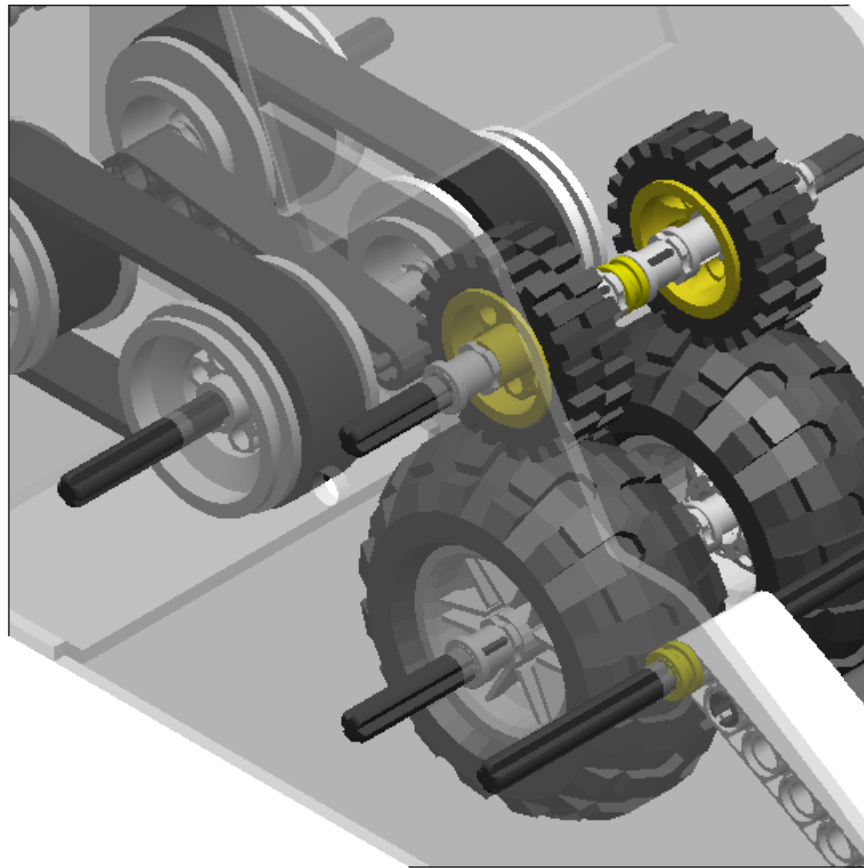
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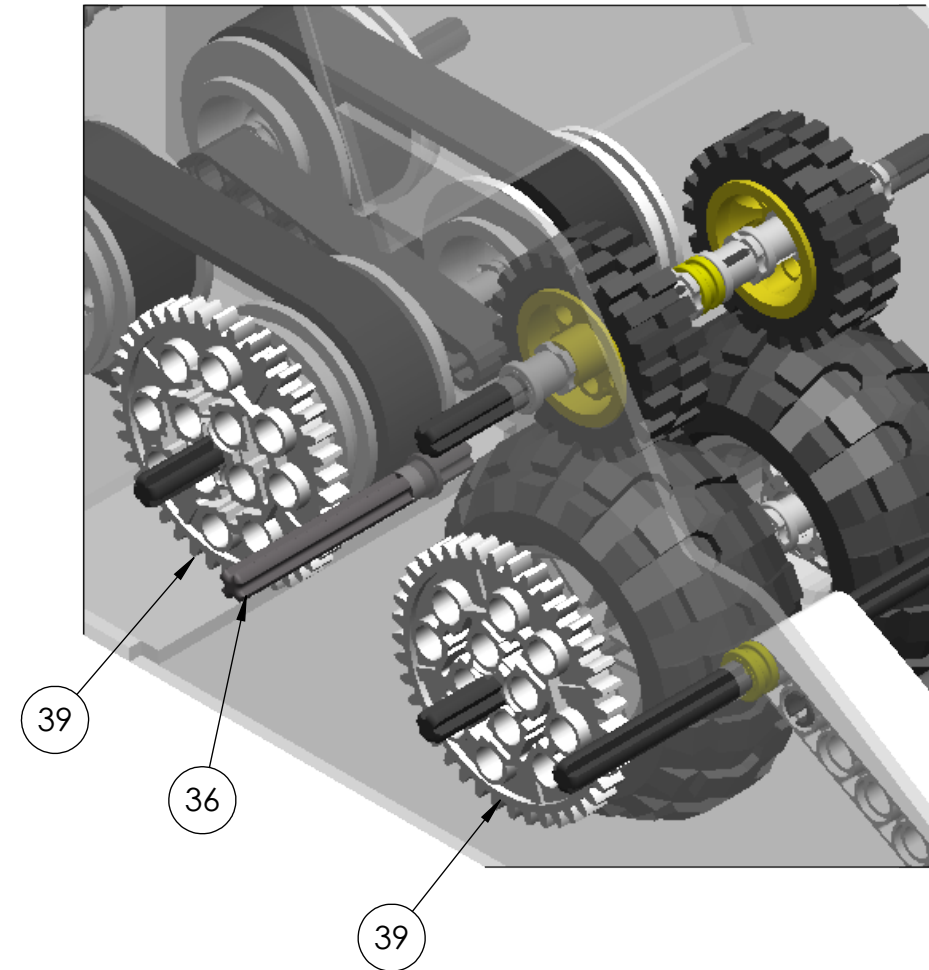
ITEM NO.	DESCRIPTION	PART NO.	QTY.
30	Bush 1-2 (4255c)	4255c	3
33	Cross Axle 8M with End Stop (55013)	55013	1
35	Beam Bent 53deg 3 and 7 holes (32271)	32271	1
36	Double Cross Axle 5.5M (32209)	32209	1
39	Gear 40 Tooth (3649)	3649	2
40	Gear 20 Tooth Double Bevel (32269)	32269	1
41	Gear 24 Tooth (3648)	3648	1
42	Gear 8 Tooth (3648)	3648	1

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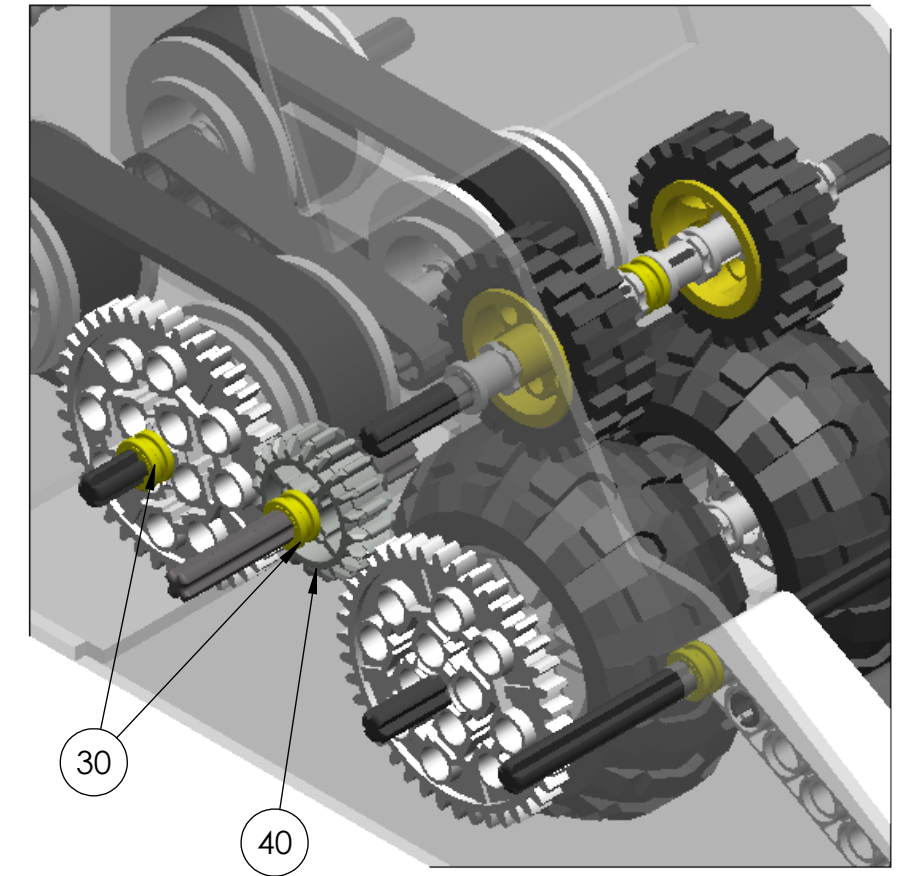
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	NAME	DATE		
DRAWN	GFrickey	27FEB25		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE: LEGO Card Scanning Robot	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
			REV	04
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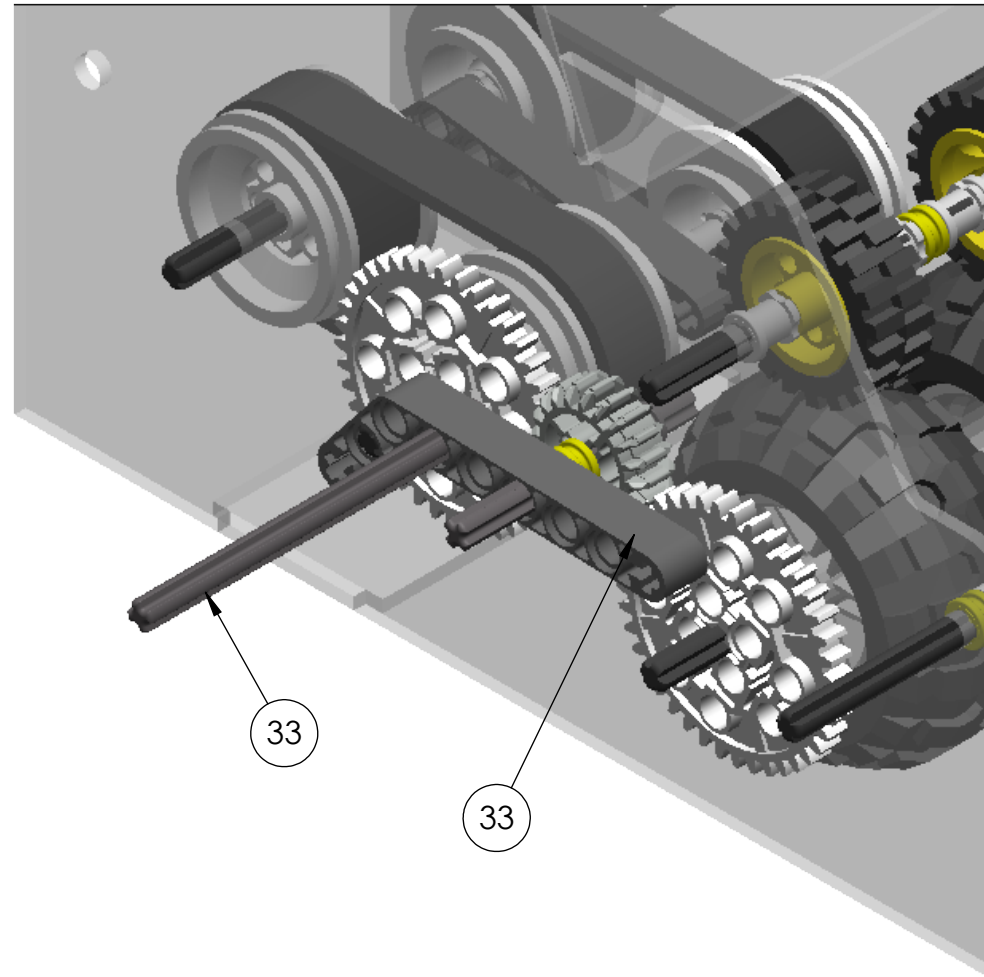
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ITEM NO.	DESCRIPTION	PART NO.	QTY.
30	Bush 1-2 (4255c)	4255c	3
33	Cross Axle 8M with End Stop (55013)	55013	1
35	Beam Bent 53deg 3 and 7 holes (32271)	32271	1
36	Double Cross Axle 5.5M (32209)	32209	1
39	Gear 40 Tooth (3649)	3469	2
40	Gear 20 Tooth Double Bevel (32269)	32269	1
41	Gear 24 Tooth (3648)	3648	1
42	Gear 8 Tooth (3648)	3648	1

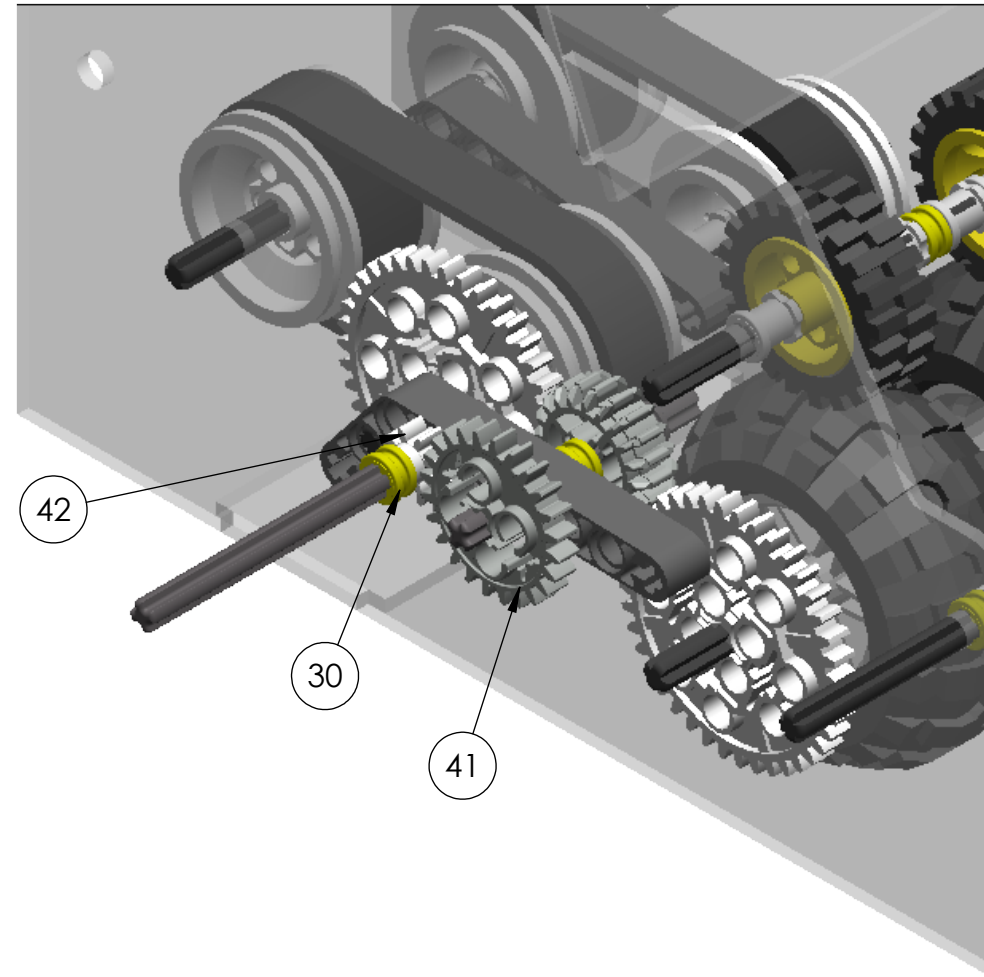
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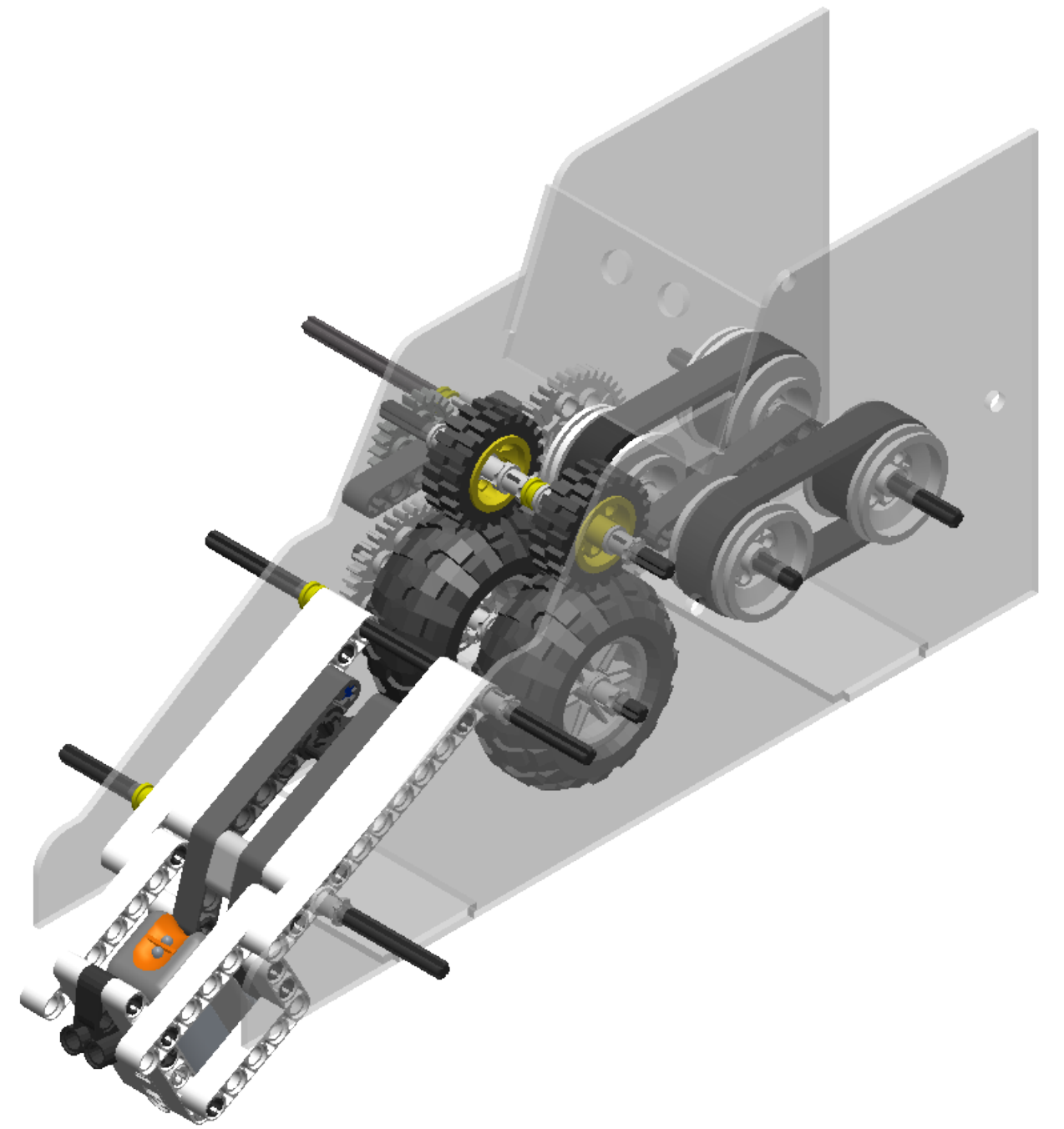
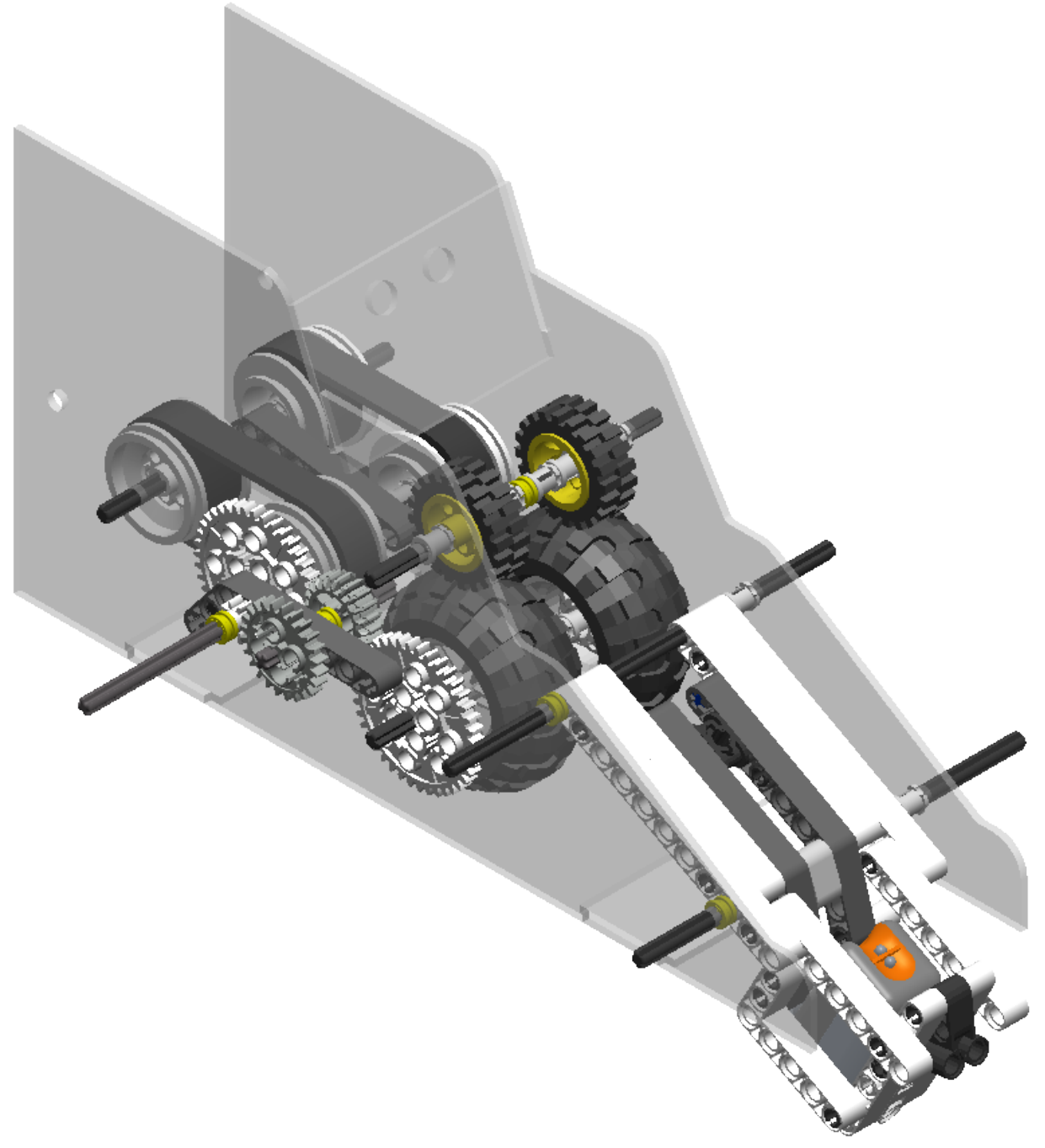
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DRAWN	GFrickey	27FEB25		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE: LEGO Card Scanning Robot	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
			REV	04
SCALE: 1:1			WEIGHT:	SHEET 12 OF 18

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	NAME	DATE		
DRAWN	GFrickey	27FEB25		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE: LEGO Card Scanning Robot	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
			REV	04
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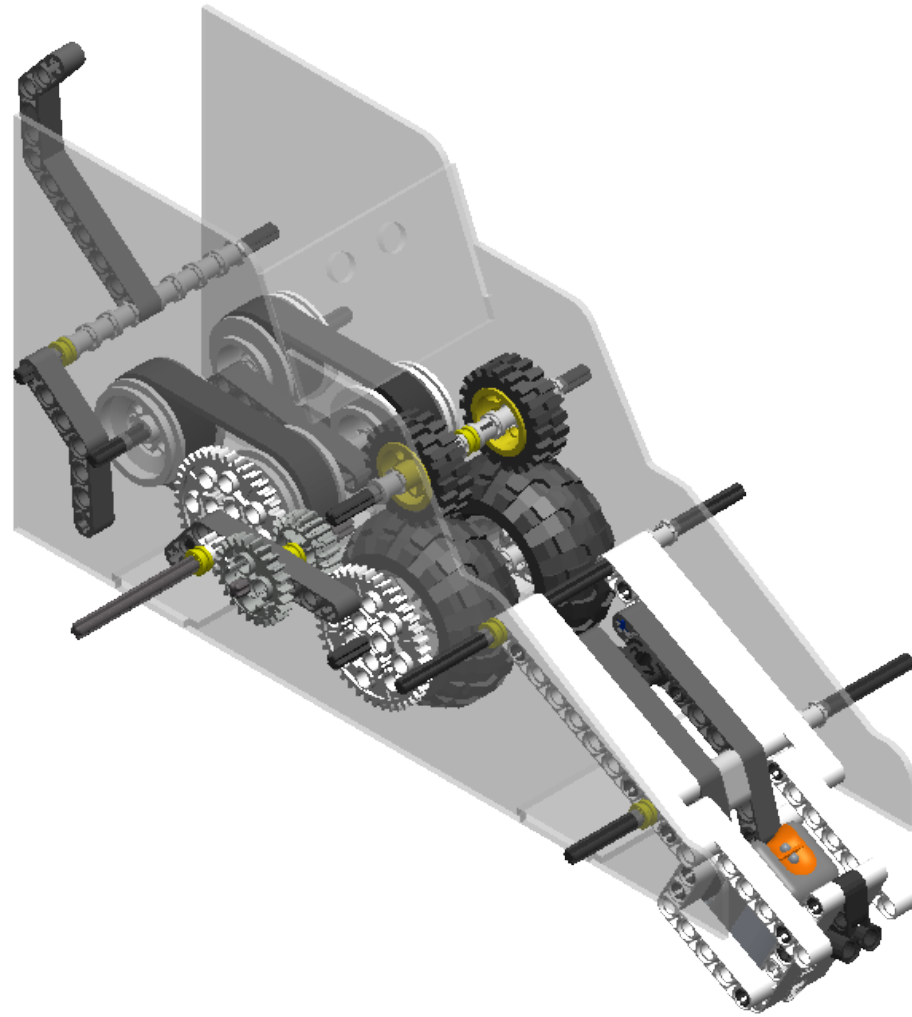
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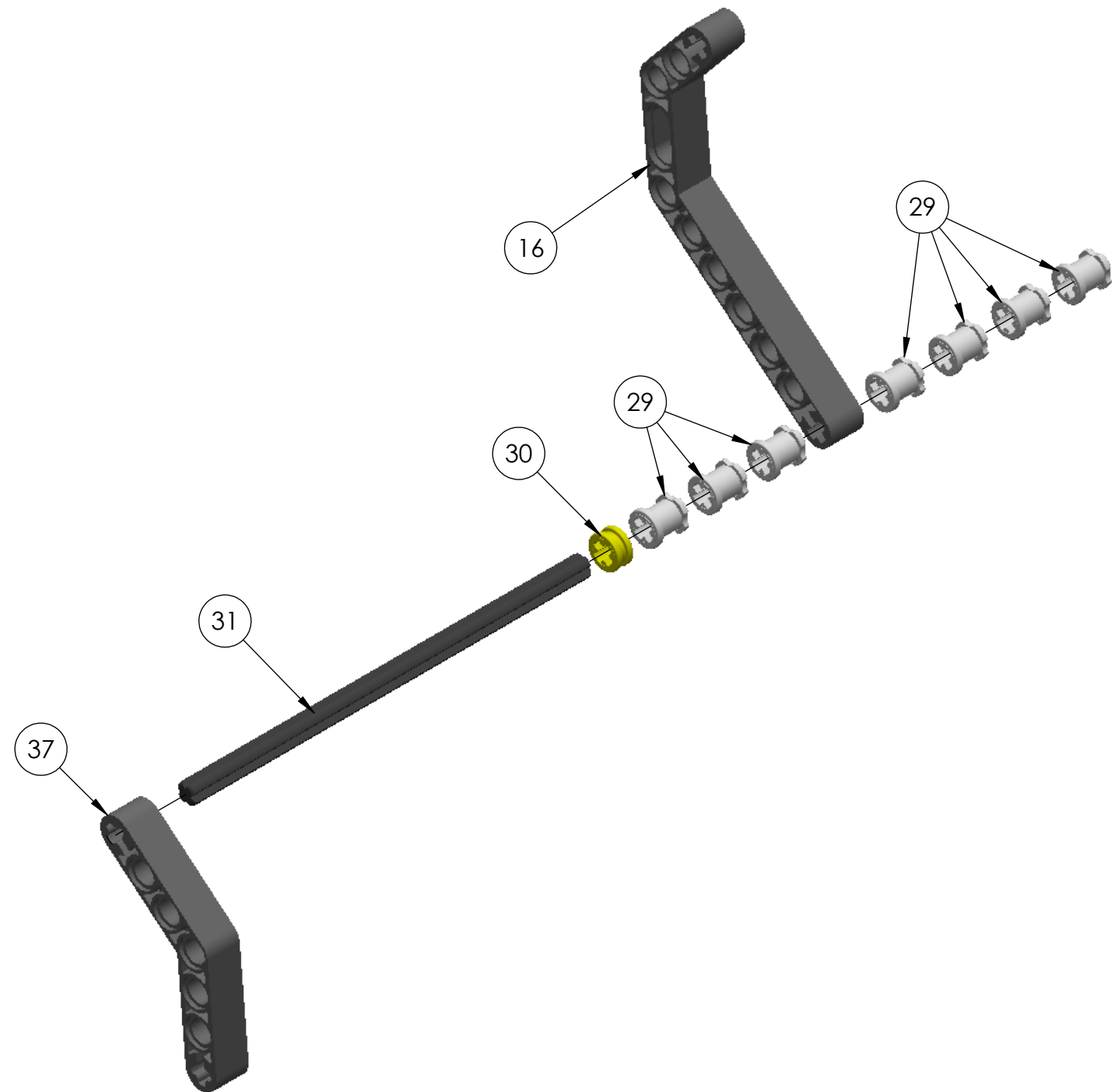
ITEM NO.	DESCRIPTION	PART NO.	QTY.
16	Double Angular Beam 3x7 45 deg (32009)	32009	1
29	Bush (3713)	3713	7
30	Bush 1-2 (4255c)	4255c	1
31	Cross Axle 12M (3708)	3708	1
37	Angular Beam 4x4 (32348)	32348	1

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DRAWN	NAME	DATE	TITLE:		
GFrickey	GFrickey	27FEB25	LEGO Card Scanning Robot		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			REV		
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.	04
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot	
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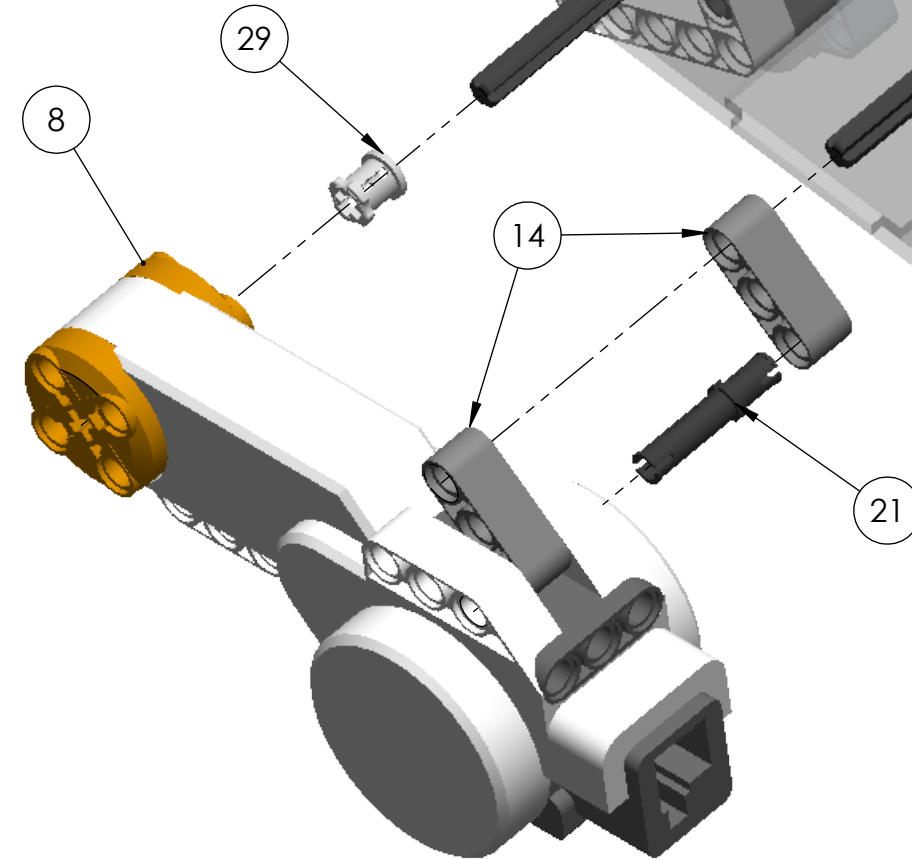
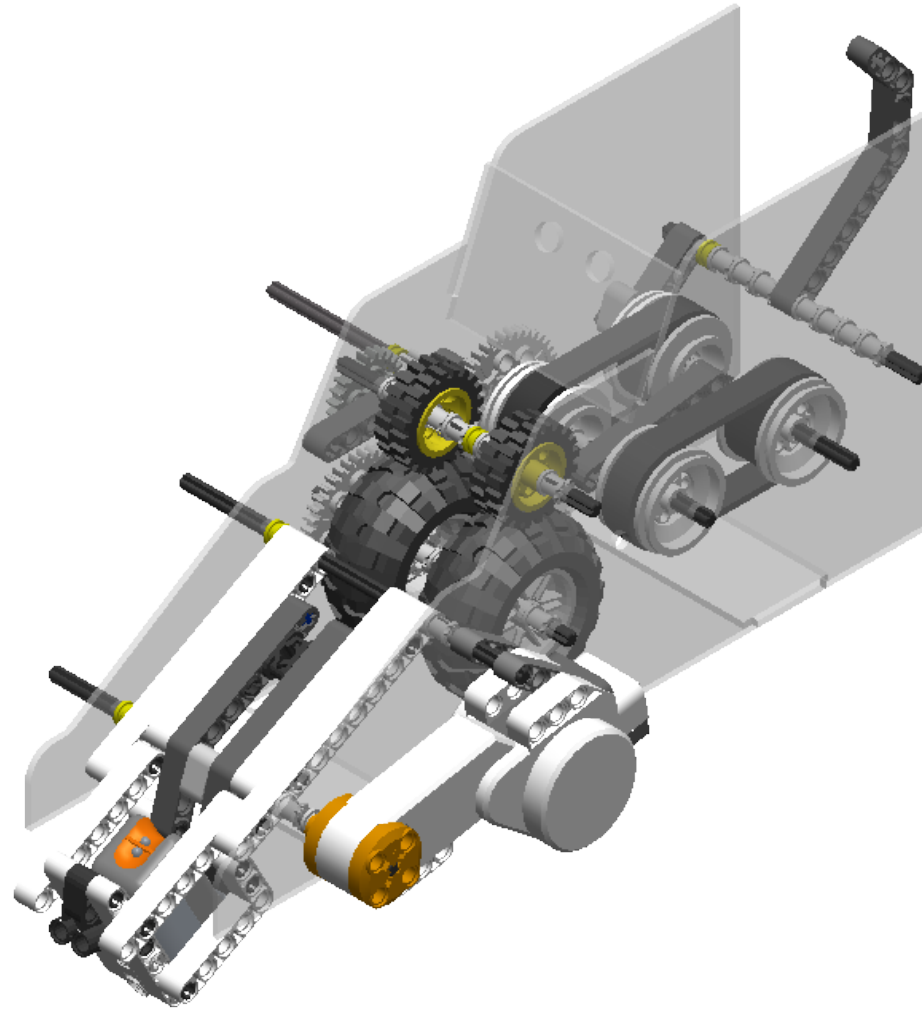
3

2

1

ITEM NO.	DESCRIPTION	PART NO.	QTY.
8	NXT Servo Motor	-	1
14	3M Beam (32523)	32523	2
21	3M Connector Peg (32556)	32556	1
29	Bush (3713)	3713	1

B



B

A

A

DRAWN	NAME	DATE	TITLE:	
GFrickey	GFrickey	27FEB25	LEGO Card Scanning Robot	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			SIZE	DWG. NO.
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			B	Cardbot
COMMENTS: GarrettFrickey.com/cardbot			REV	04
SCALE: 1:1			WEIGHT:	SHEET 15 OF 18

4

3

2

1

4

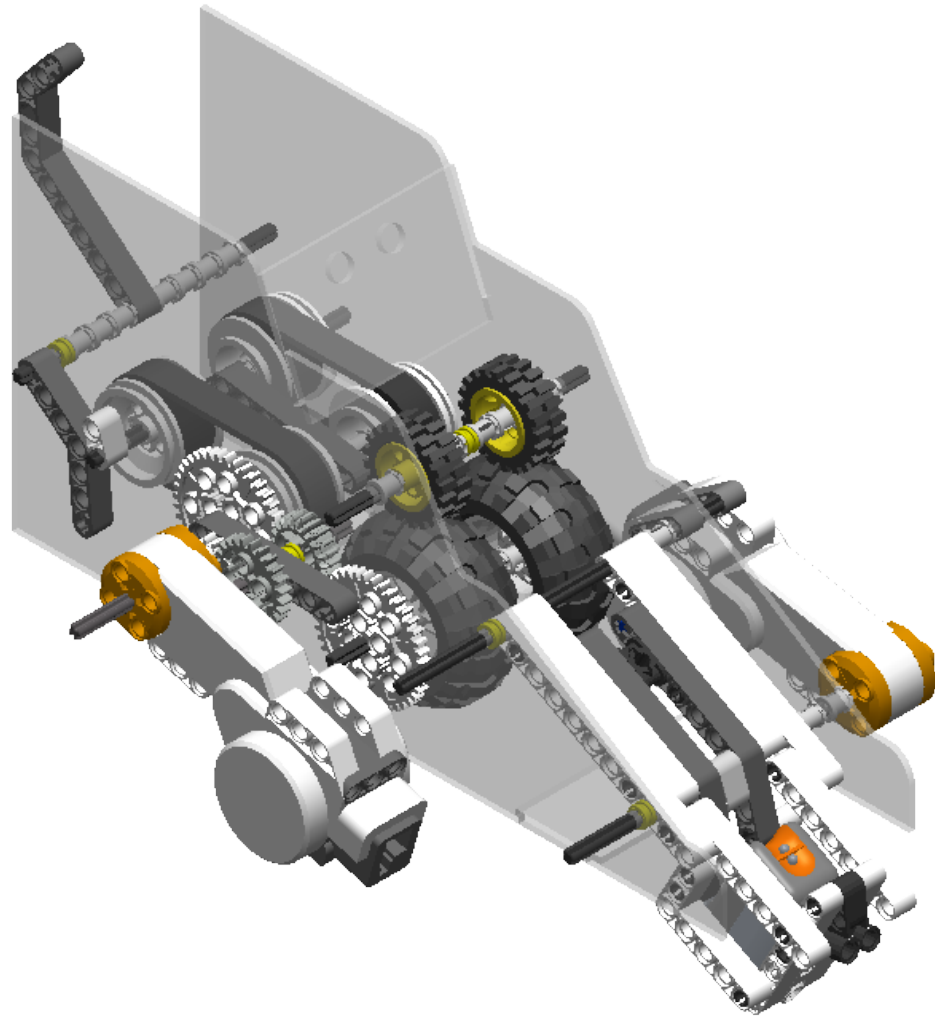
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2

1

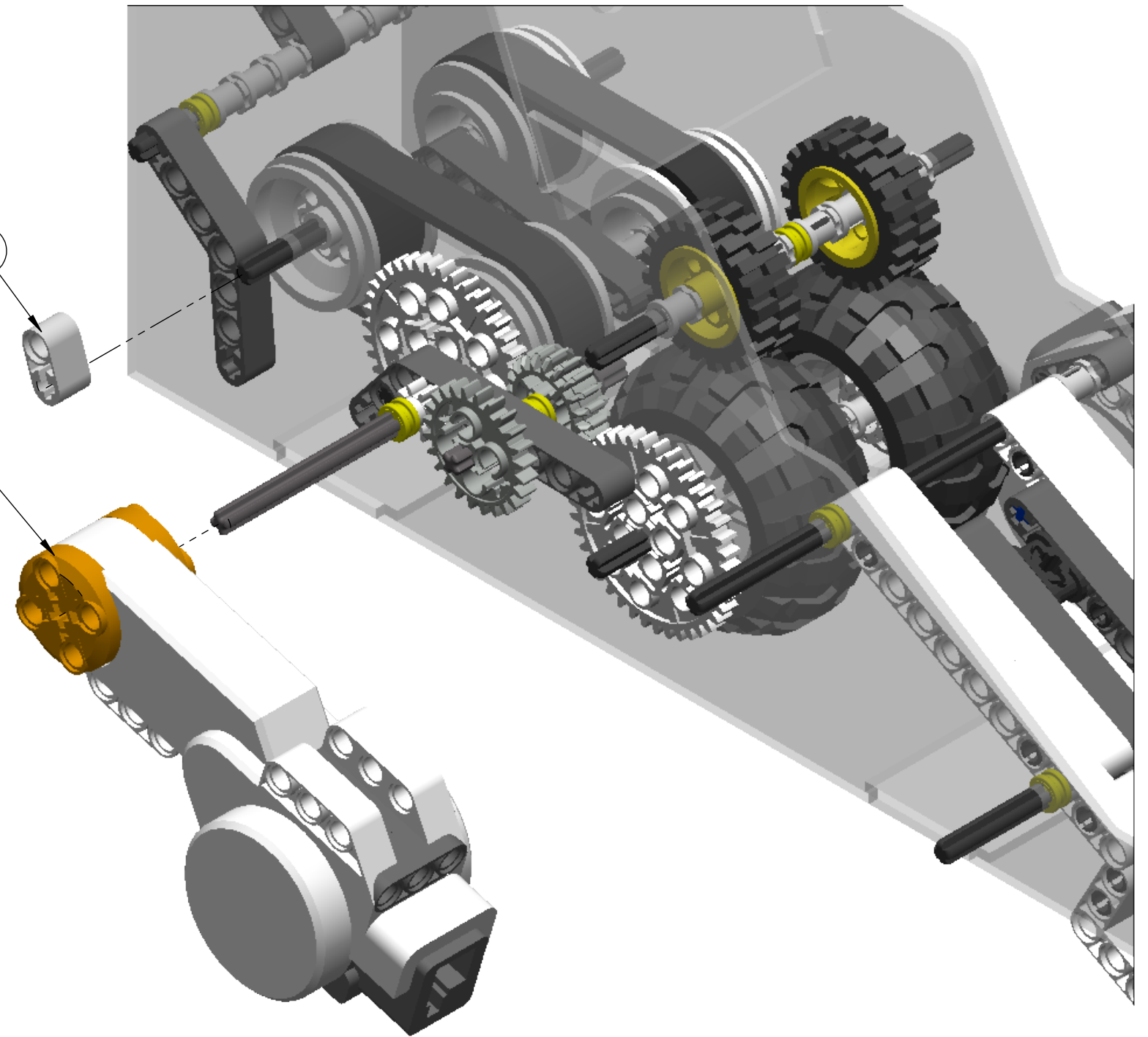
ITEM NO.	DESCRIPTION	PART NO.	QTY.
8	NXT Servo Motor	-	1
38	Cross Block 90 deg (6536)	6536	1

B



38

8



B

A

A

	NAME	DATE		
DRAWN	GFrickey	27FEB25		
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			TITLE: LEGO Card Scanning Robot	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			SIZE	DWG. NO.
COMMENTS: GarrettFrickey.com/cardbot			B	Cardbot
			REV	04
SCALE: 1:1			WEIGHT:	SHEET 16 OF 18

4

3

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1

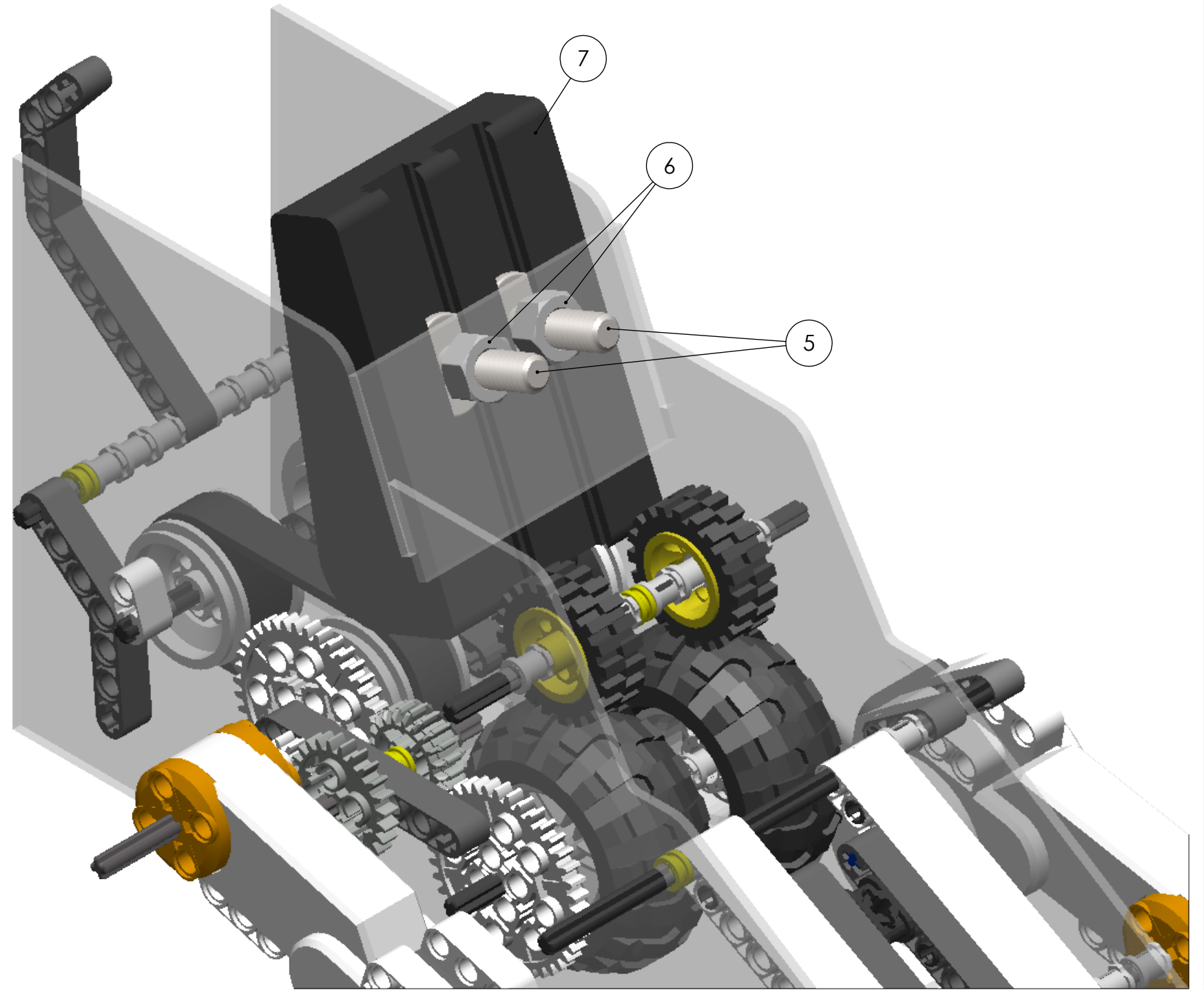
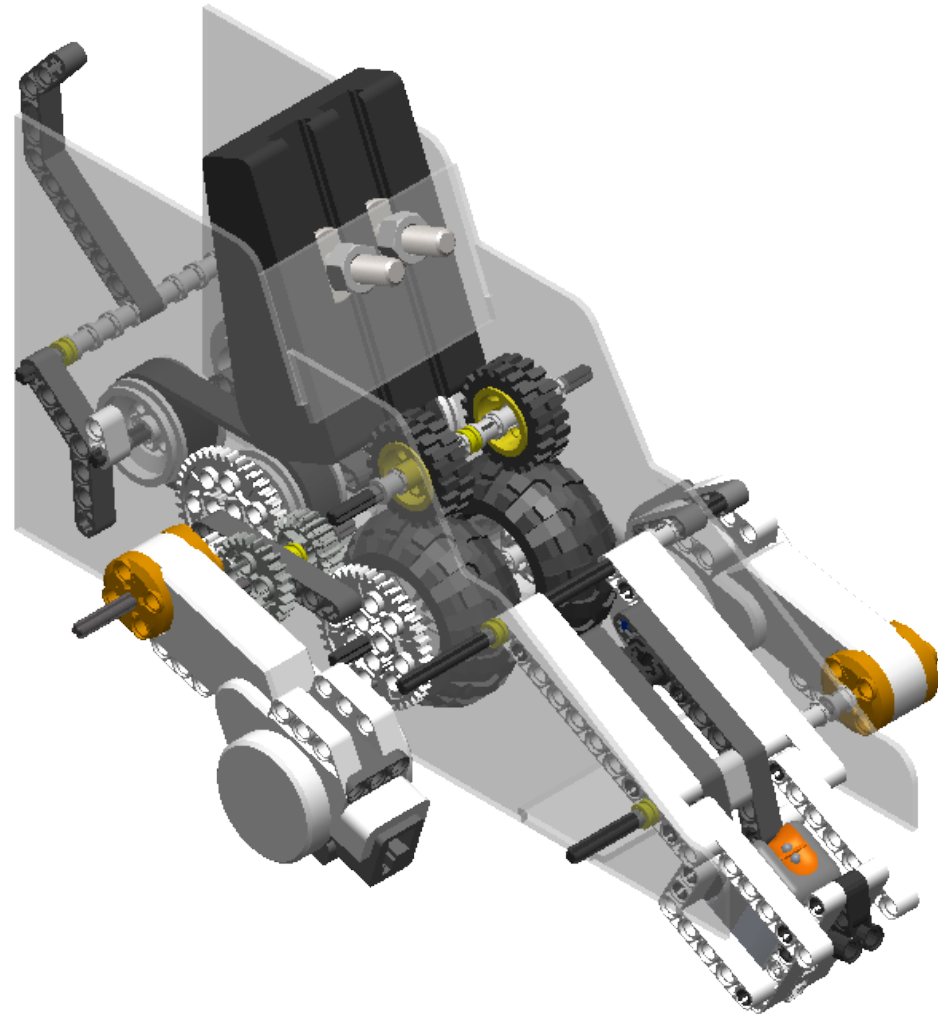
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1

ITEM NO.	DESCRIPTION	PART NO.	QTY.
5	T-Slot Bolt, 5/16-18, 1 in.	-	2
6	Steel Hex Nut, 5/16-18	-	2
7	Adjustment Rail (3D Printed)	-	1



DRAWN	NAME	DATE	TITLE:	
GFrickey	GFrickey	27FEB25	LEGO Card Scanning Robot	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			SIZE DWG. NO. REV	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			B Cardbot 04	
COMMENTS: GarrettFrickey.com/cardbot			SCALE: 1:1	WEIGHT: SHEET 17 OF 18

4

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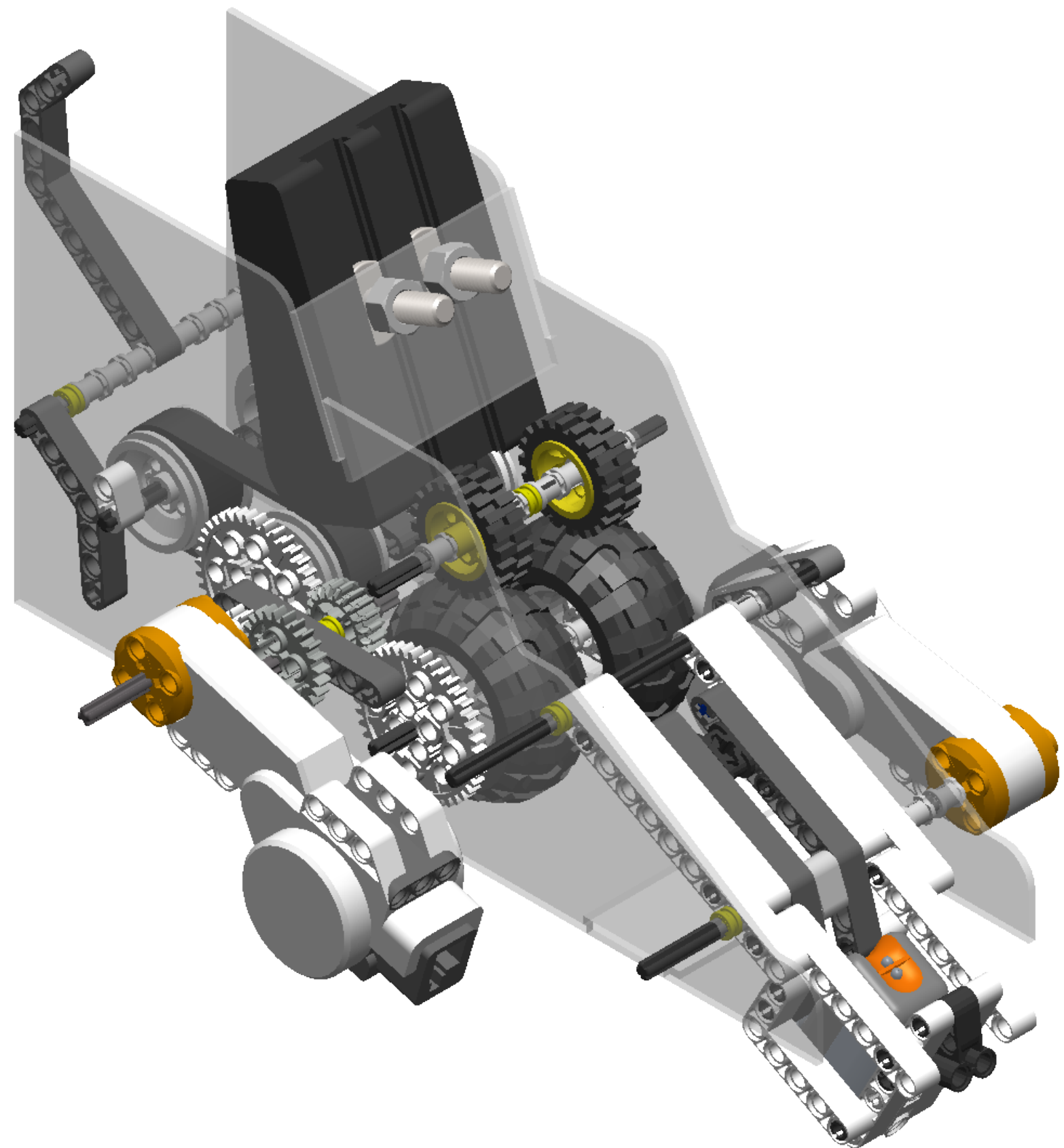
1

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All done!

Refer to assembly video on website for remaining build instructions

	NAME	DATE		
DRAWN	GFrickey	27FEB25	TITLE: LEGO Card Scanning Robot	
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM]			SIZE DWG. NO. REV	
INTERPRET GEOMETRIC TOLERANCING PER ASME Y14.5-2018			B	Cardbot 04
COMMENTS: GarrettFrickey.com/cardbot			SCALE: 1:1	WEIGHT: SHEET 18 OF 18

4

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