



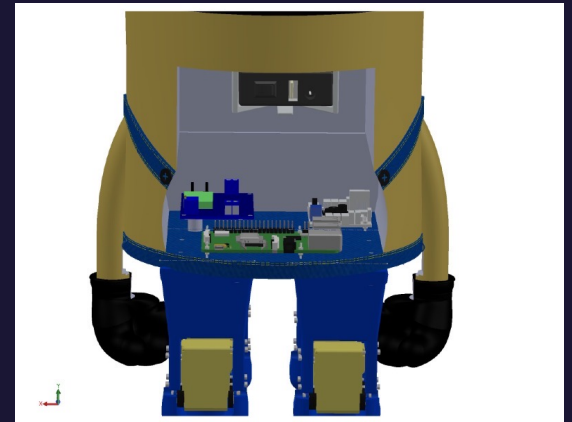
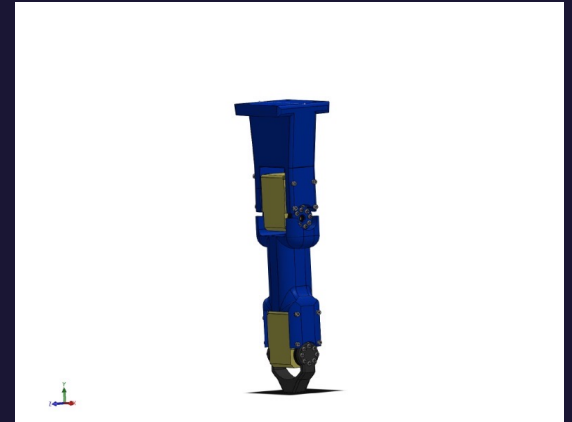
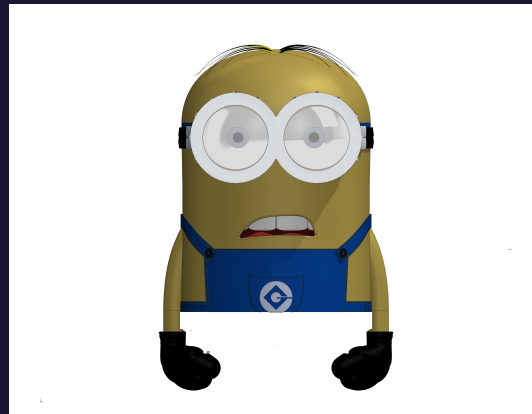
Robotics Studio MECE 4611
Spring 2024
Assignment III
Nicolino Primavera (ncp2136)
Submission: 2/19/24 at 7:30pm
Grace hours: 100:35 – 19:30 = 81
Bob the Minion
General Robot Rendering

GrabCAD Designs – References

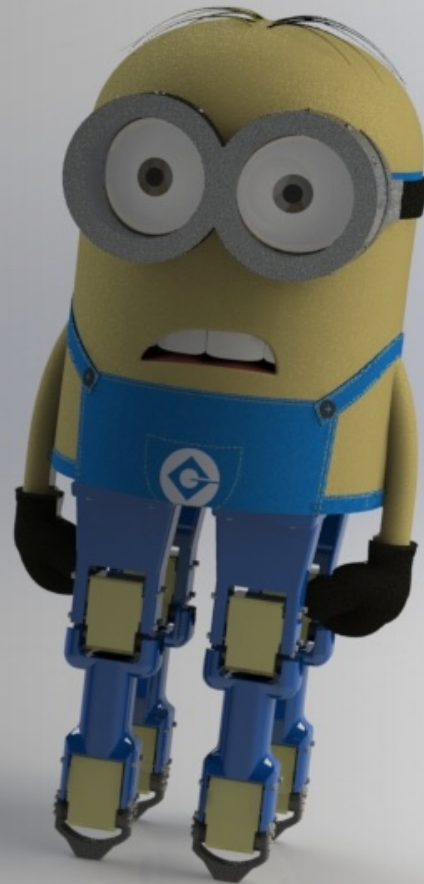
- LX-16A Metal Servos: <https://grabcad.com/library/lewansoul-lx-16a-bus-servo-1>
- Small Servo Controller Board: <https://grabcad.com/library/lewansoul-lx16a-controller-board-1>
- Battery Pack: <https://grabcad.com/library/talentcell-rechargeable-12v-3000mah-lithium-ion-battery-pack-1>
- DROK DC Converter: <https://grabcad.com/library/drok-dc-converter-5-3-32v-to-1-2-32v-1>
- Raspberry Pi 3A+: <https://grabcad.com/library/raspberry-pi-3-4>
- Motor Harness: <https://grabcad.com/library/robot-skeleton-and-modular-motor-harness-1>
- Thigh Link: <https://grabcad.com/library/leg-piece-2>
- Foot: <https://grabcad.com/library/lewansoul-lx-16a-motor-connector-1>
- Motor Wheels: <https://grabcad.com/library/motor-shaft-adapter-for-lx-16a-1>
- Spacers: <https://grabcad.com/library/standoff-male-male-m1-6-1>
- Thermoplastic inserts: <https://www.mcmaster.com/94180A307/>
- 12mm Screws: <https://www.mcmaster.com/91292A834/>
- 8mm Screws: <https://www.mcmaster.com/91292a832>
- 6mm Screws: <https://www.mcmaster.com/99461A921/>
- 4mm Screws: <https://www.mcmaster.com/99461A918/>
- Battery Holder: <https://grabcad.com/library/talentcell-battery-holder-24v-lithium-ion-battery-pb240a1-1>
- Minion: <https://grabcad.com/library/minion-3>

Key Components/Parts

- Legs (4)
 - Hip - Thigh - Foot
- Minion - Aesthetic Design
- Electrical Components



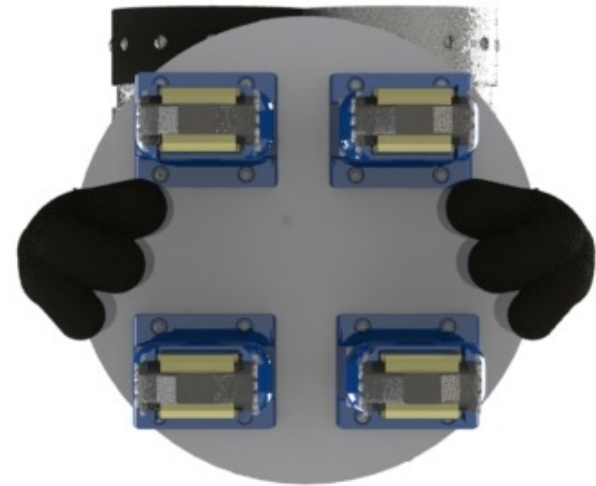
Photorealistic Rendering



Photorealistic Rendering



Photorealistic Rendering



Photorealistic Rendering in Perspective

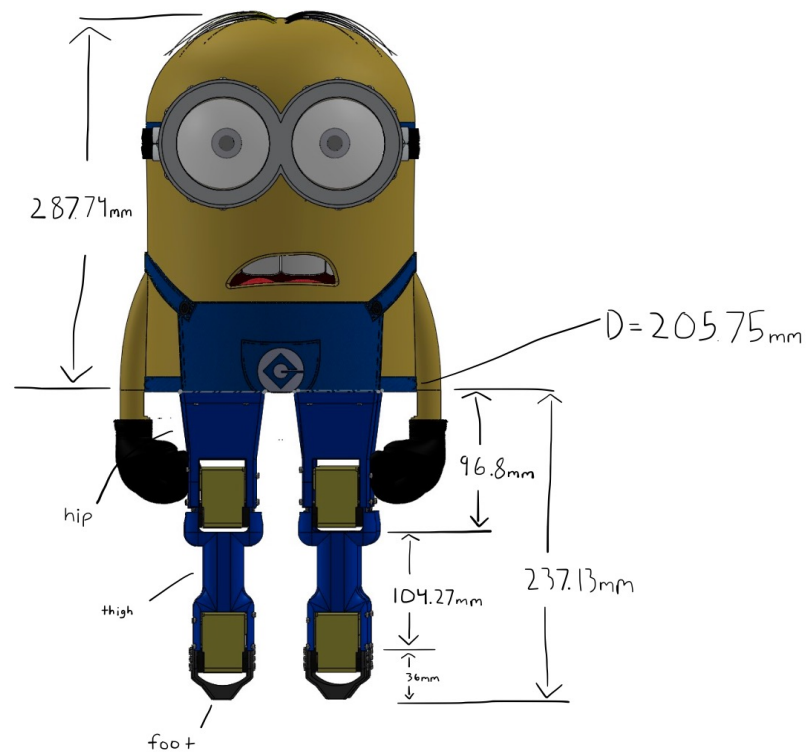


Bill of Materials (BOM)

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Minion - Scaled by 0.36 uniformly - to use for final		1
2	newlegSliderHolder		4
3	Servo Motor.stp	Rhino converted to STEP	8
4	91292A834	18-8 Stainless Steel Socket Head Screw	48
5	Motor Adapter (LX-16A)		8
6	Shaft Adapter (LX-16A)		8
7	Thigh		4
8	91292A832	18-8 Stainless Steel Socket Head Screw	32
9	99461A921	Phillips Rounded Head Thread-Forming Screws	132
10	Lawansoul lx 16a servo connector		4
11	94180A307	Tapered Heat-Set Inserts for Plastic	80
12	Battery		1
13	battery holder	Rhino converted to STEP	1
14	servo controller board		1
15	Standoff M1.6 M-M H 5mm	Rhino converted to STEP	8
16	RASBERRY PI v6 v4.step		1
17	dc power converter		1



Main Dimensions



Rubric Checklist

1. 5 Points Title slide complete (Slide 25)
2. 5 Points overall aesthetics, layout and formatting of the slides (All Slides)
3. 10 Points posting some rendering of your robot on the discussion board at least 24h in advance of deadline, and commenting constructively and positively on at least three other's postings (show screenshots) (Slides 35 - 36)
4. 10 Points 3D Renderings in perspective (Slide 31)
5. 10 Points all key components included and labeled (Slide 27, 33)
6. 10 Points organic shape (no straight edges) (Slide 29)
7. 10 Points photorealistic rendering (Slide 25, 28, 29, 30)
8. 10 Points animation
9. 10 Points exploded view
10. 10 Points key specs listed including speed, weight
11. 10 Points multiple poses shown (Slide 29)
12. 10 Points detail close-up shown (Slide 27)
13. 10 Points side views with main dimensions (Slide 33)
14. 10 Points Bill of materials (Slide 32)

Comment (constructively) on at least three other's postings

ed MECE 4611 S1 - Ed Discussion

Search

Comment ---

Add comment

Melis Jensen 7 hours ago

Great design and rendering! I'm excited to see the parallel motor system brought to life in the coming weeks.

Comment ---

Add comment

Nico Primavera Now

Really cool leg design!

Comment Edit Delete ---

Add comment

You have already written an answer to this question. Write another?

Write another answer

ed MECE 4611 S1 - Ed Discussion

Search

Comment ---

Add comment

Nico Primavera 3m

really cool design!

Reply Edit Delete ---

Melis Jensen 7h

This is an awesome leg linkage system design. I'm very excited to see the motion of the linkages with the motors concentrated on top! Also great rendering!

Reply ---

Yuxian Zhang 1d

The realistic rendering and animations are great. But what I'm wondering is if it really stabilizes the upper body to stay still while moving like it does in the animation. But no doubt it's beautifully designed.

Reply ---

Dominik Nasdowski 2d

I really like the realistic rendering! Are you planning on covering the electronics parts on top due to aesthetics or safety reasons?

Reply ---

Lichun Ji 2d

I like your design of its leg and also the animation! But I think it might be hard to maintain the balance? Because the battery seems pretty ahead and it is heavy, while PLA is very light material.

Reply ---

ed MECE 4611 S1 - Ed Discussion

Search

Comment ---

Add comment

Zelin Tao 20h

Your design looks very sleek. I'm curious, how do you plan to ensure that the robot's feet have enough friction and contact area to maintain balance?

Comment ---

Add comment

Nico Primavera Now

Nice leg designs!

Comment Edit Delete ---

Add comment

You have already written an answer to this question. Write another?

Write another answer



Nico Primavera
Now in **CAD design**



STAR



WATCHING

1

VIEW



Hi all,

Attatched is my detailed CAD. Please let me know if you have any comments or reccomendations!

ED Discussion
Board post

