

Final Presentation: Team Ookla

Victor H. Acuna Carabes
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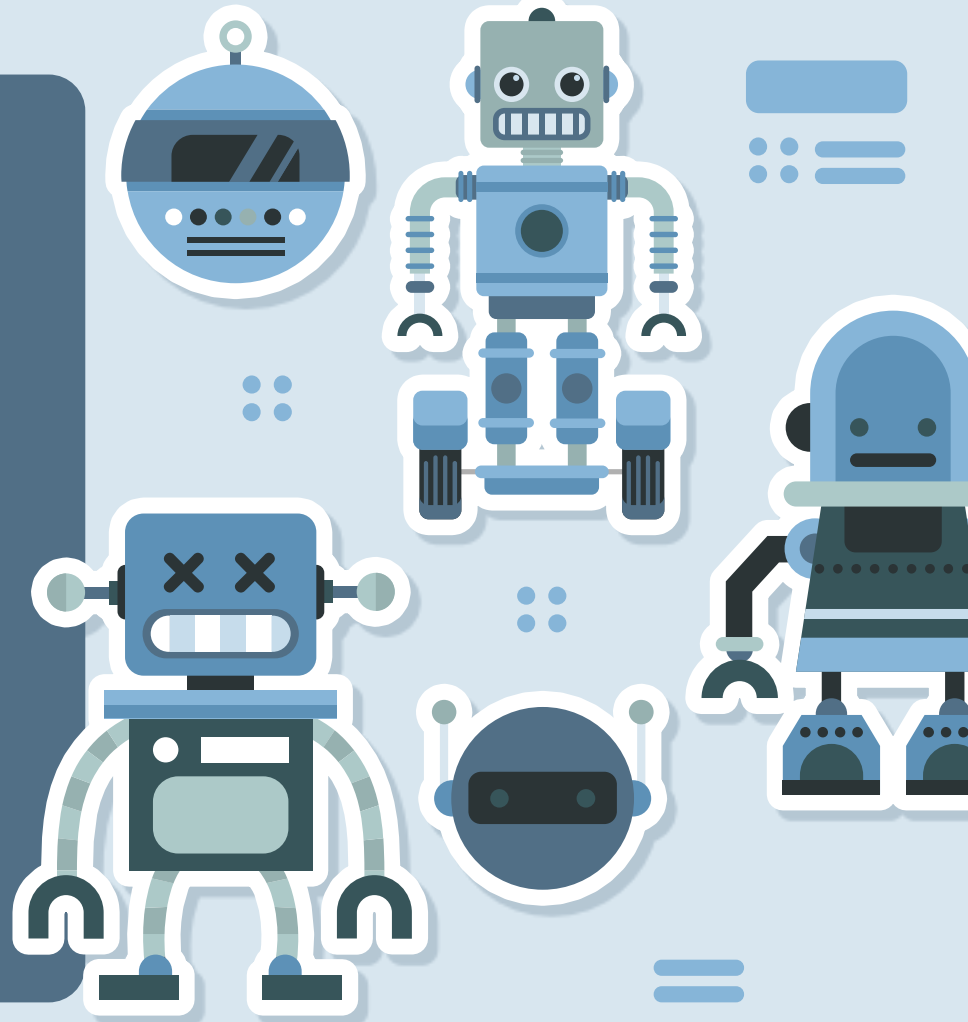
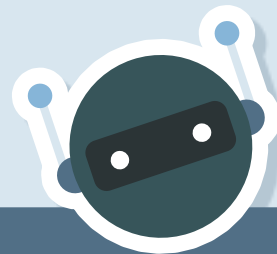
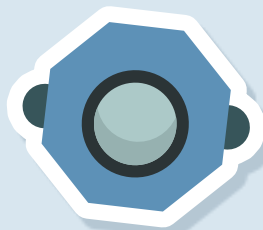




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The coolest feature of iRobot.



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An overview our the design process. We will also provide a demonstration of how iRobot works!



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There is a website?!?



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What we learned and what can we do to make it better in the future?





Team Structure

Victor Acuna

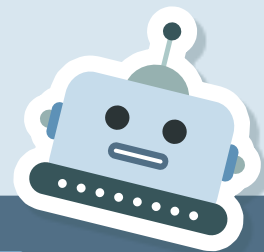
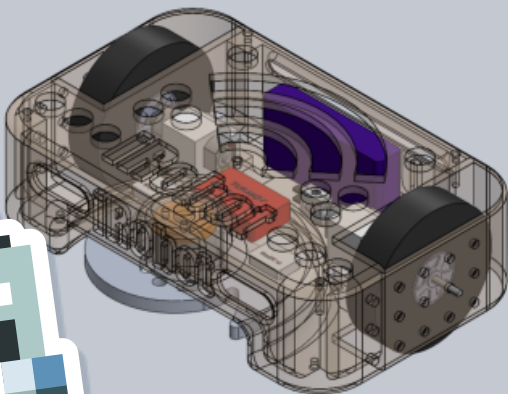
- Project Manager
- Research Manager
- Electronics Manager
- Technical Manager
- Lab Book Manager

Erick Rosas Gonzalez

- Project Manager
- Communications Manager
- Research Manager
- Electronics Drafter
- Lab



Overview



Weight

1.17 lbs.

Weapon Type

Horizontal Spinner

Dimensions

8" x 5" x 2.15"

Major Design Components

It is a gas giant and has several rings



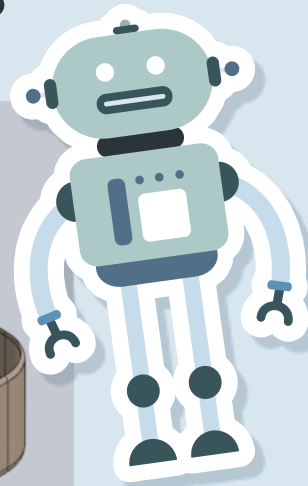
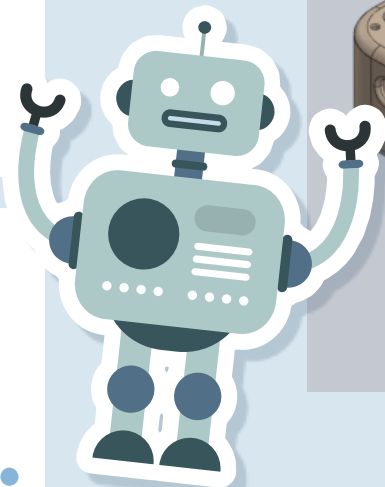
Cooler Bot Feature: Holes and Fillets

■ Lighter

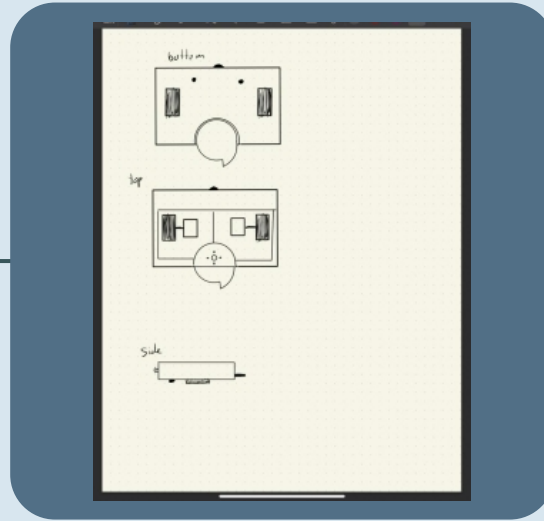
Adding multiple holes and fillets means our bot will remain underweight.

■ Bigger

The holes and fillets allowed for us to make iRobot as big as possible! If it ever exceeded the weight limit, we would just add more holes.

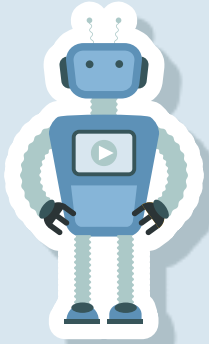
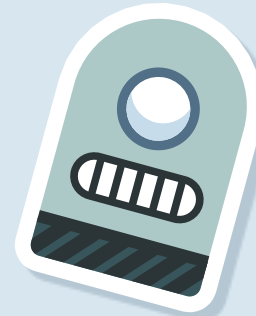
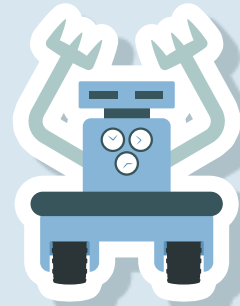


Design Process



Sketch

Not the greatest sketch... we were initially going for a tank-like look.

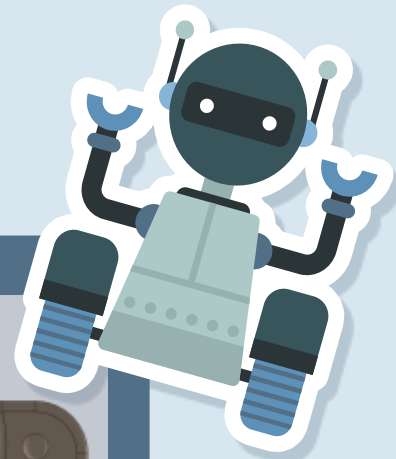
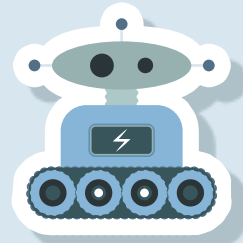
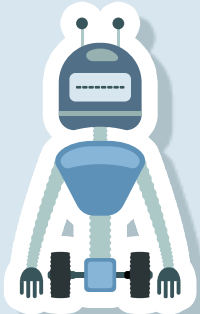


Design Process

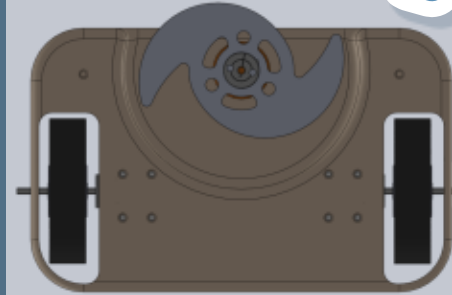
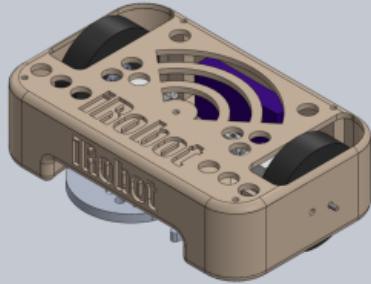


iRobot 1.0

- Barely any holes.
- Weapon thickness was 0.5 inches.
- Used 3D printed spheres instead of #4-40 screws on the left, right, top, and bottom side.
- Wheels not centered.
- Almost exceeded weight limit (~1.24 pounds).

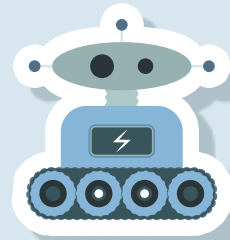
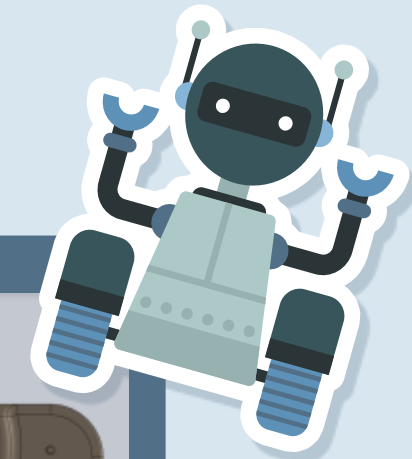
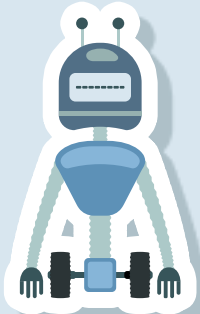


Design Process



iRobot 2.0

- More holes added to reduce weight.
- Weapon thickness now 0.25 inches.
- Used #4-40 screws on the side now
- Wheels are now centered with the help of a motor mount stand.
 - Removed iRobot logo on bottom as it was inconvenient.
 - Weight now ~1.23 pounds.

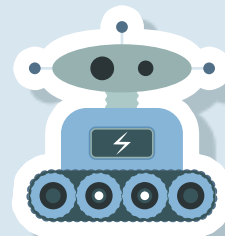
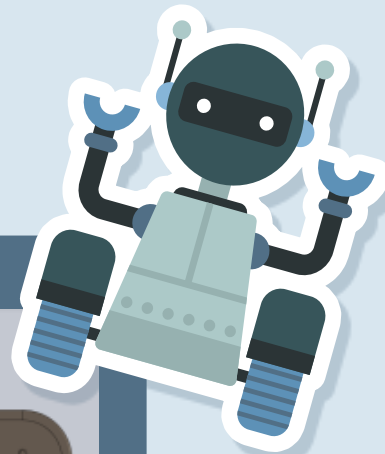
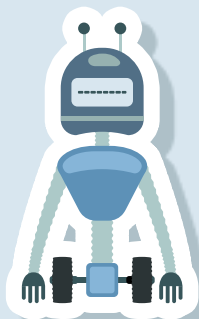


Design Process

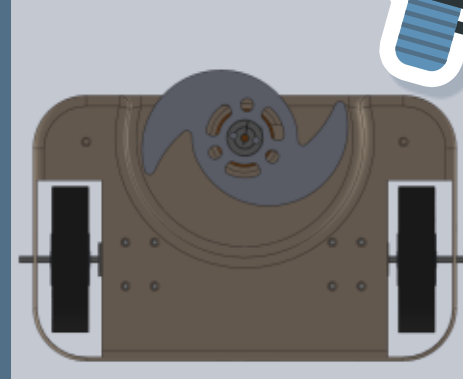


iRobot 3.0

- Even more holes added to reduce weight.
- Weight now ~1.17 pounds.

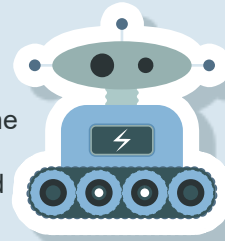
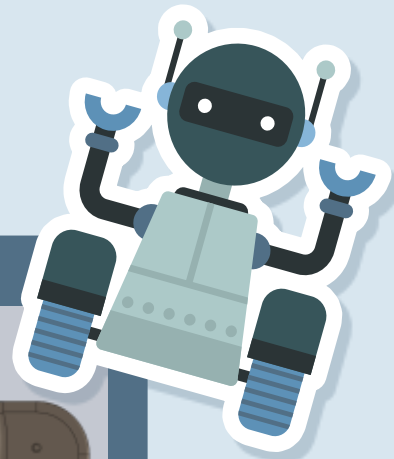
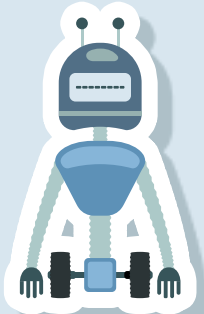


Design Process



iRobot 4.0

- Length got increased by 1" as the wheels kept touching the chassis walls.
- Hole added on the back to make up for the weight added
 - with the extra 1" in length.
 - Weight now ~1.20 pounds.



**Demonstration
Time!**



iRobot.com

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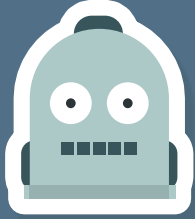
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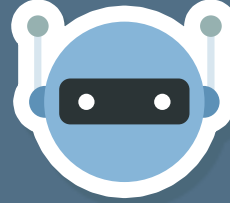
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Future Considerations



What We Learned?

- How to solder.
- How to 3D print
- How to CAD model.
- How to build a combat robot (overall).



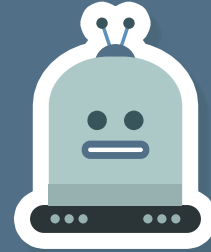
Aluminum Shield

Add an aluminum shield around the chassis for more protection.



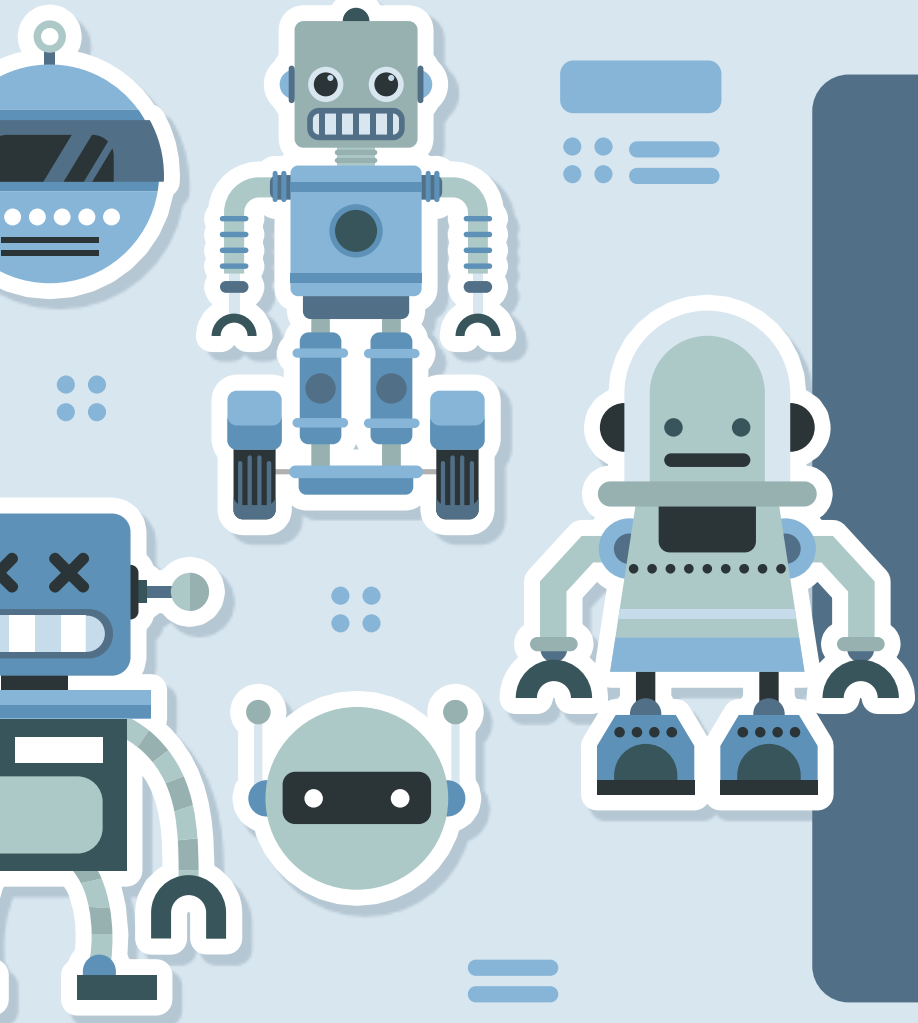
Ramp

Add a ramp around the base of the robot to lure the robot to the weapon.



Vertical Spinner

Try to experiment with a vertical spinner to see if it has more effect on the opponent with our current design.



Thank you!

Does anyone have any questions?