Quadruped Project

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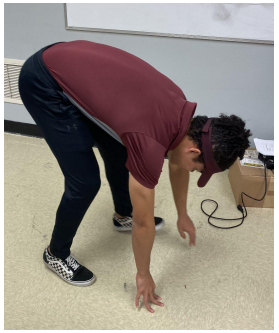
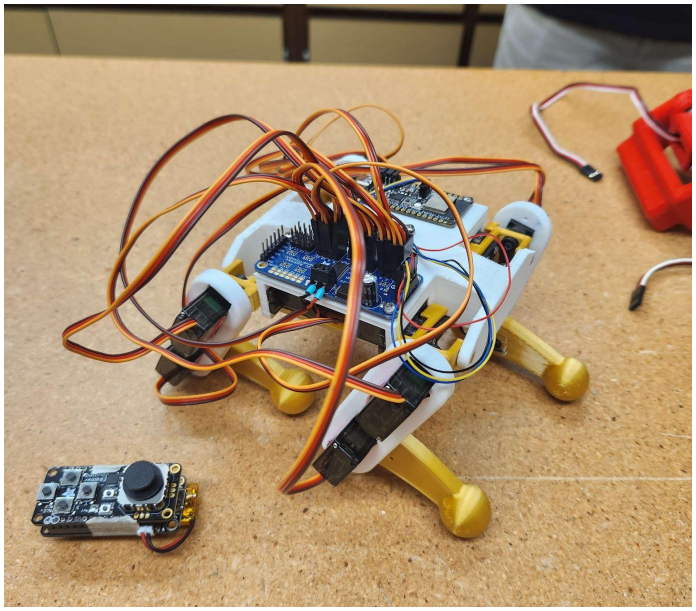
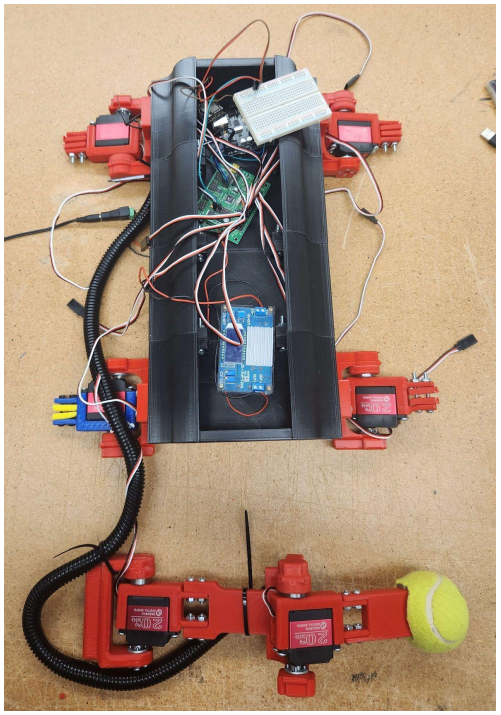
Inspiration

- Build a robot with the capability to balance and maneuver on four legs.
- The goal of this project is to explore the mechanical design and physics behind walking robots
- Pioneer A&M's SPOT



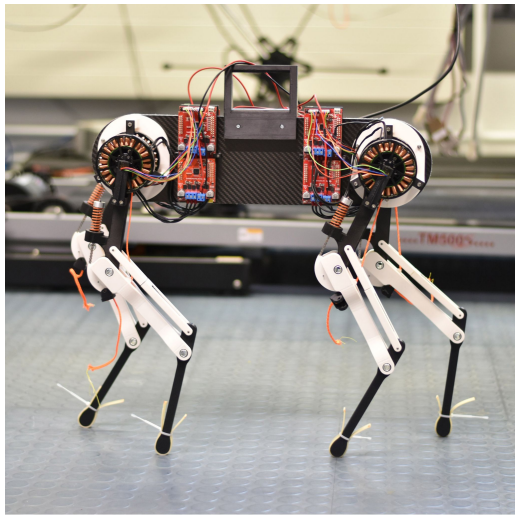
Prototype





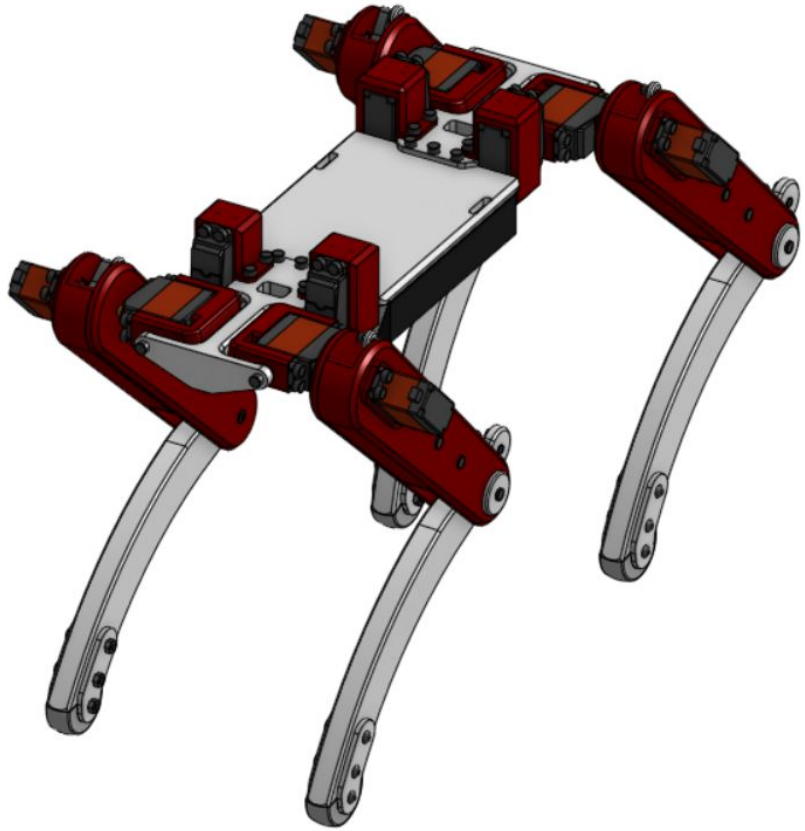
Design

The goal is to closely mimic existing robots

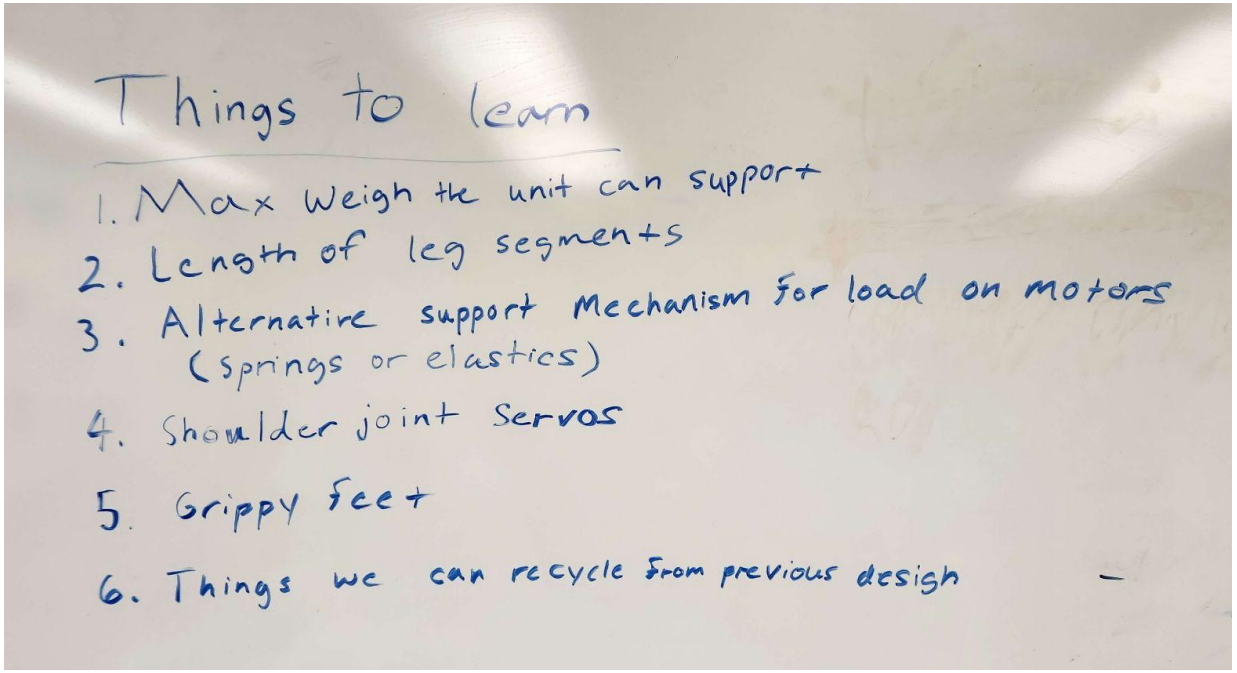


Robot Wild list

1. Walk on 4 legs
2. 2 times full robot weight supported ~~on each leg~~
3. Modular design
4. Wireless Capability
5. Aesthetically Pleasing
6. Under $500
7. Must be Safe
   (Power Switch + other stuff)
8. Made in OnShape

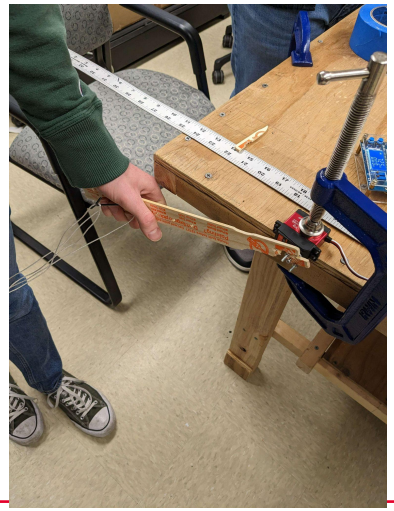


Testing

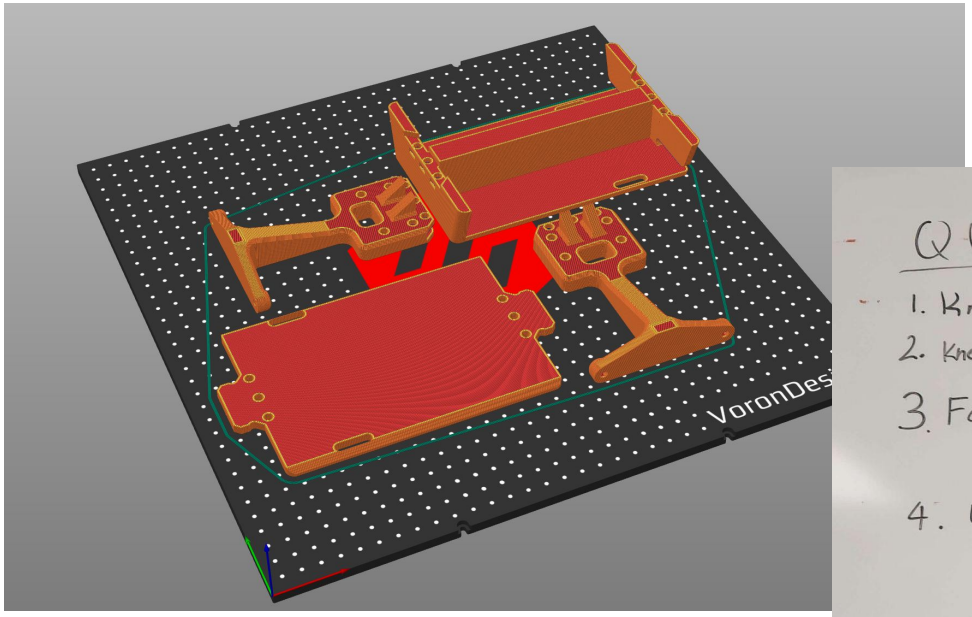

Things to learn
1. Max weigh the unit can support
2. Length of leg segments
3. Alternative support Mechanism for load on motors (springs or elastics)
4. Shoulder joint Servos
5. Grippy feet
6. Things we can recycle from previous design

Testing

- Tested components from the previous unfinished design
- Lots of physics and math



Prototype



QUAD Leg

1. Knee joint faces back
2. Knee servo in upper leg segment
3. Foot shape/material: Ball/silicon
   ↳ 3D print mold
4. Lower leg segment
   ↳ PETG
   ↳ Copy Spot Shape
5. Upper leg segment
   ↳ Knee servo – Drives knee joint with rod
   ↳ Shoulder servo attached
      ↳ Shoulder–leg attachment

Plans for break:

- Leg Design (Work together/Individual)
  ↓ keep us updated if designing alone

Future Plans

Manufacture and assemble the robot

Iterate on the current design

Develop control software