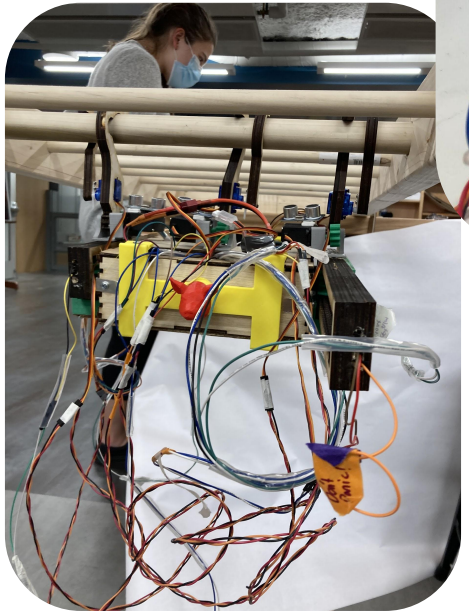
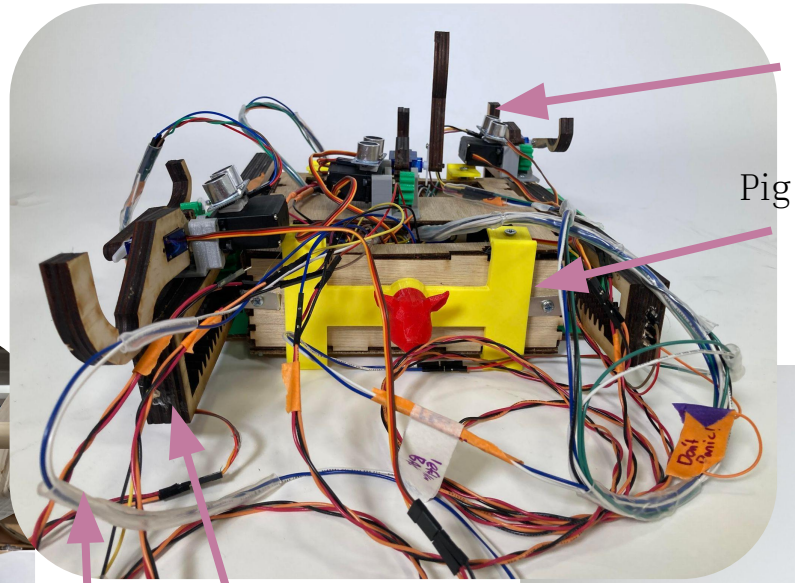
Spider-Pig 2

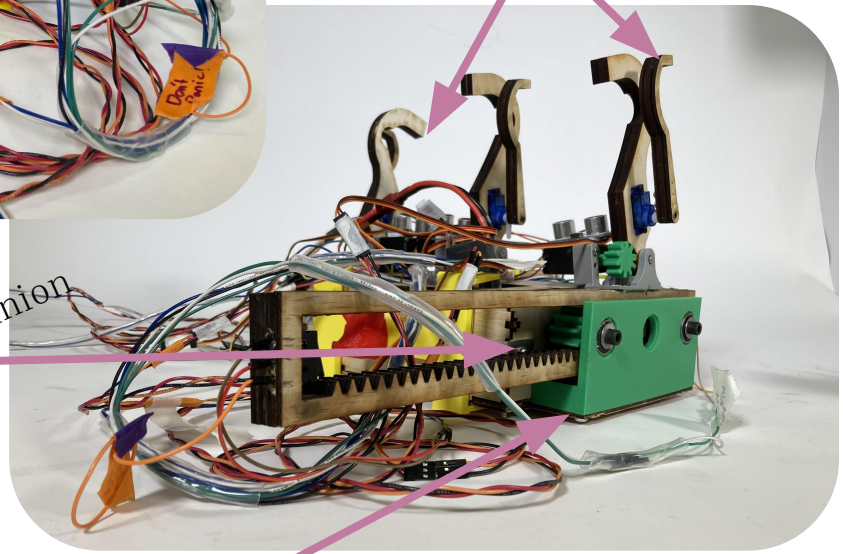
Into the Roboverse

Mischael Anilus,
Audrey Balaska,
Stephanie Bentley, and
Allison Moore

Overall Assembly







Center Hook

Pig Clamps

Hook on each arm

Limit Switches

Mad Wires

Rack and Pinion

Ball bearing Rack Holder

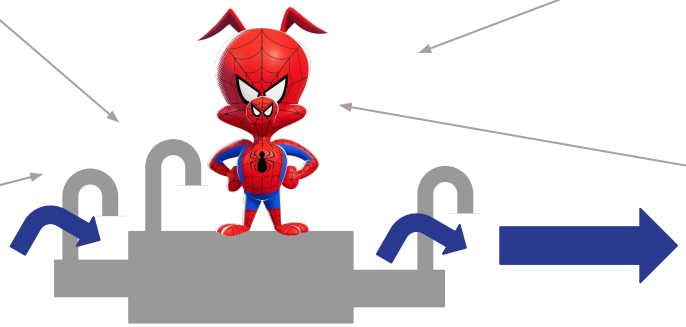
Presented by Allison

Creativity and Innovation

Planar Motion

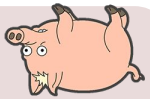
Modular Design

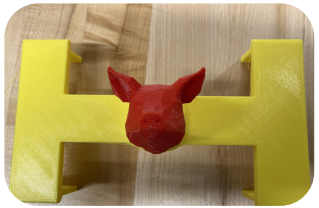
Static Weight Transfer



2-points of contact at all times

PIG!

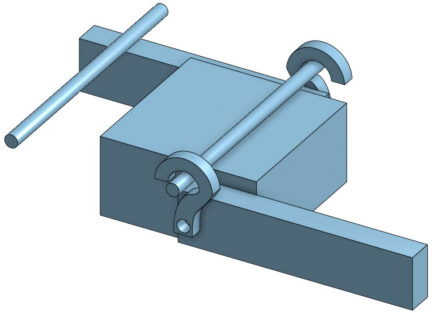




Presented by Audrey

Original Breakdown of the Intended Motion

1



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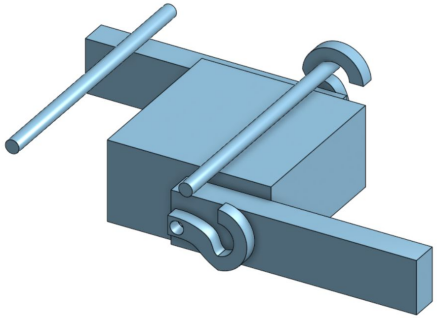

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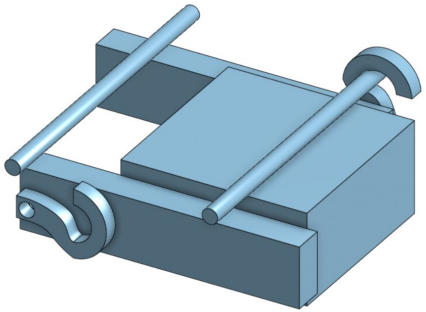

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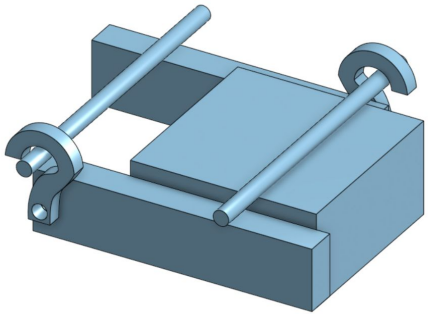

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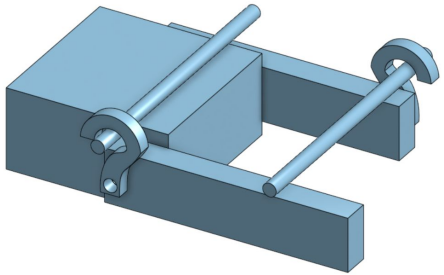

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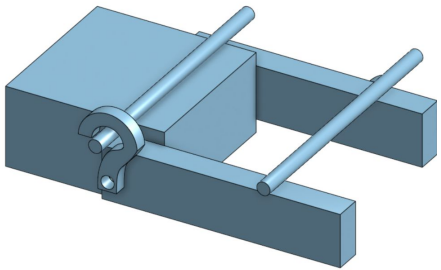

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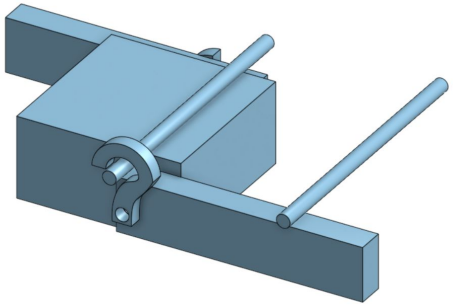

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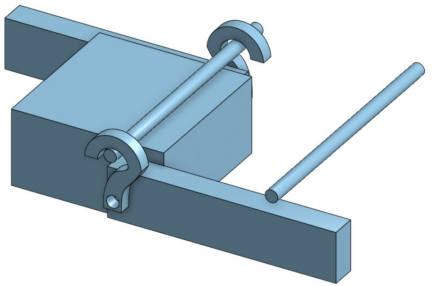

Presented by Mischael

Original Breakdown of the Intended Motion

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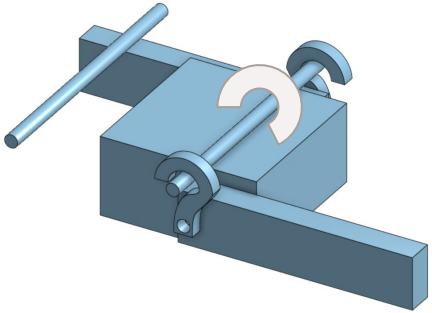

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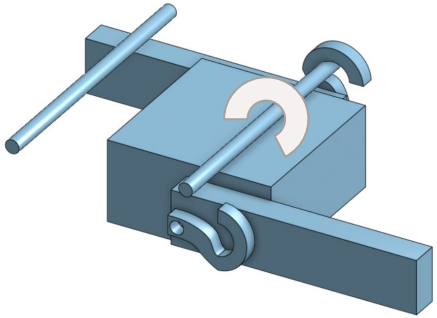

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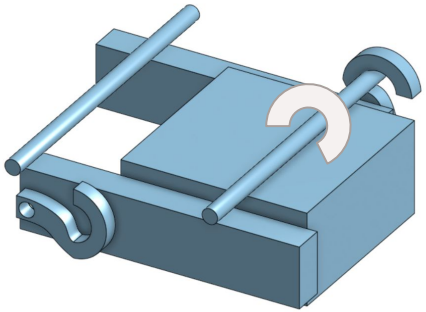

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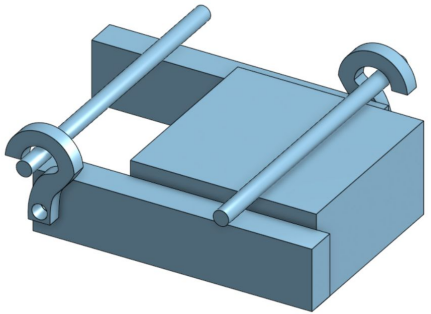

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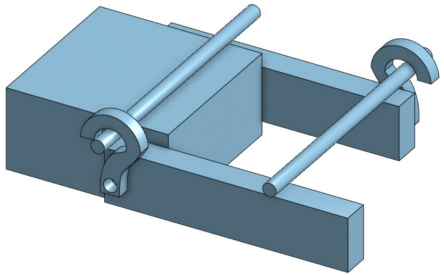

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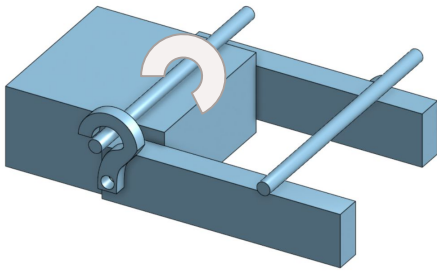

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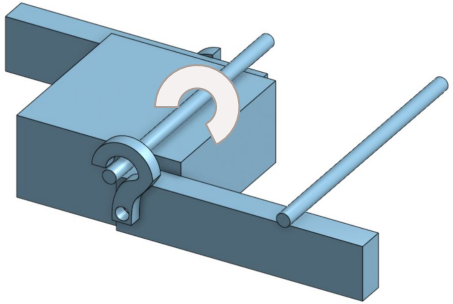

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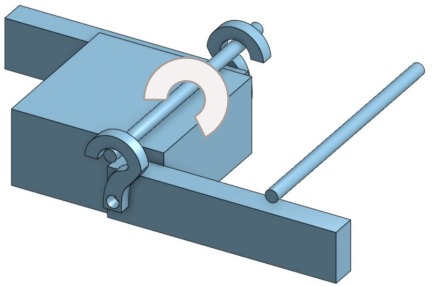
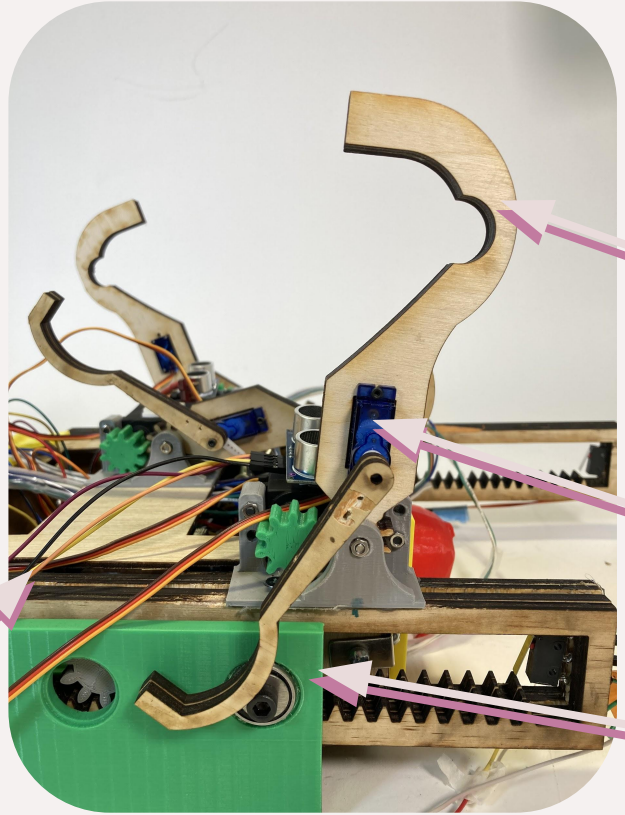


Presented by Mischael

The Hardware - Hook Subassembly



Larger hook to hang on bar

Smaller Servo of small hook

Smaller Hook to clamp bar in place

Gear-System to offset motor strain

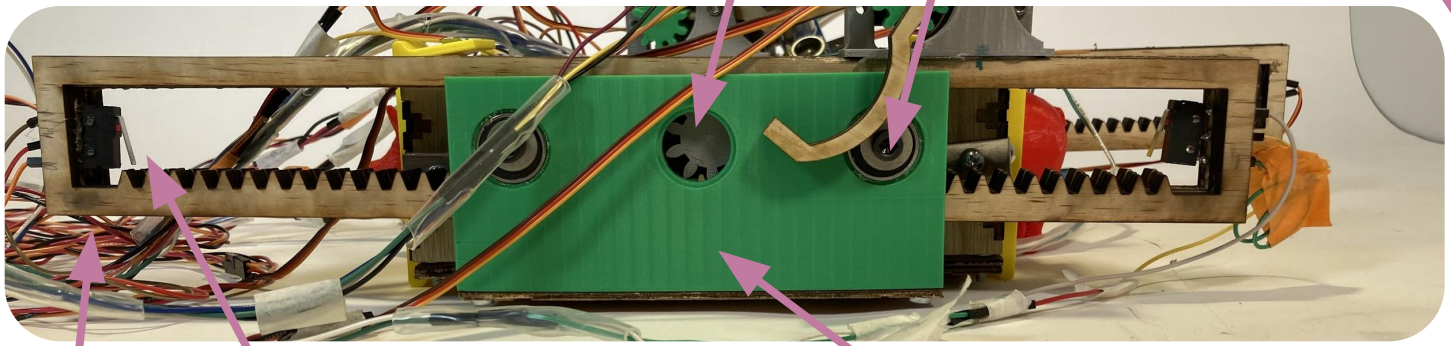
Presented by Audrey

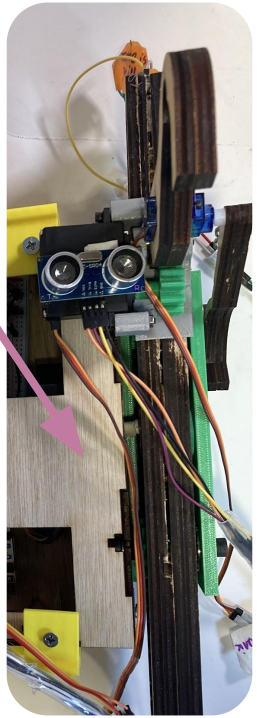
The Hardware - The Rack & Pinion Arms

Gear controlled by Stepper Motor

2 gears acting as support for rack

Motor inside box with hole to connect to gear





Rack

Limit Switch
Detects when rack reaches its end

Track for the rack (with marbles not visible)

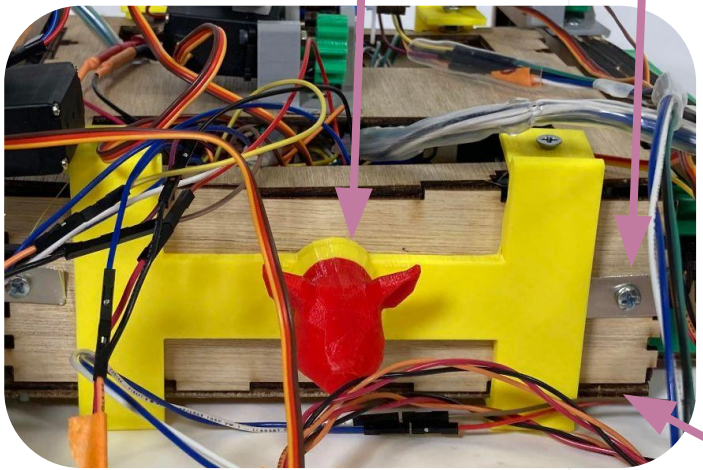
Presented by Mischael

The Hardware - Body

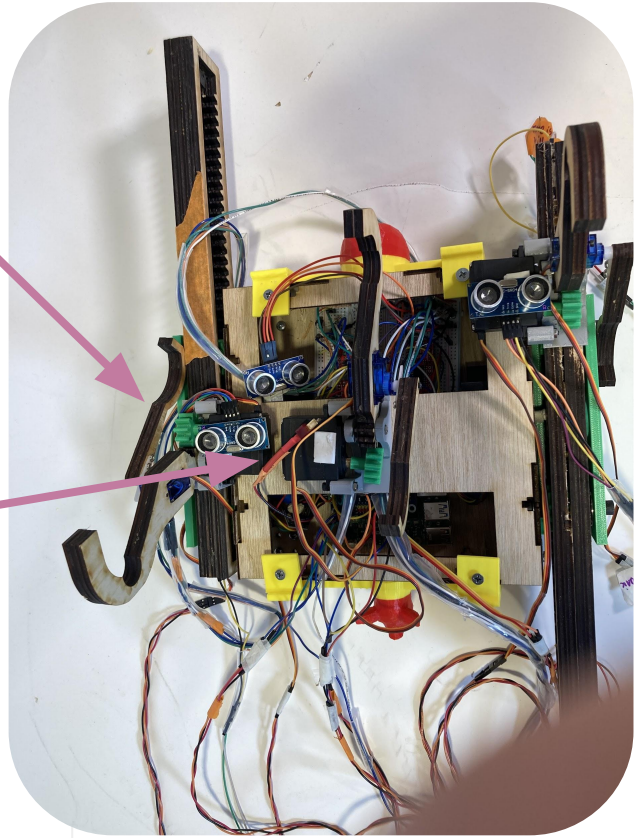
Holes to access electronics

Pig (for emotional and vertical support)

Hinges to connect box sides (allow for quick removal of walls)



Center Arm Mount

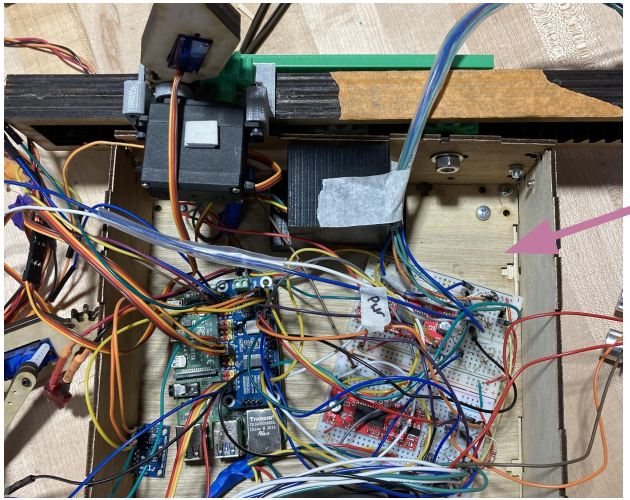


Additional base underneath to connect box to track

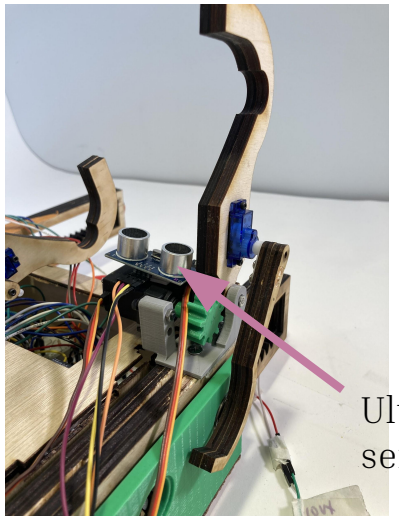
Presented by Allison

Electronics

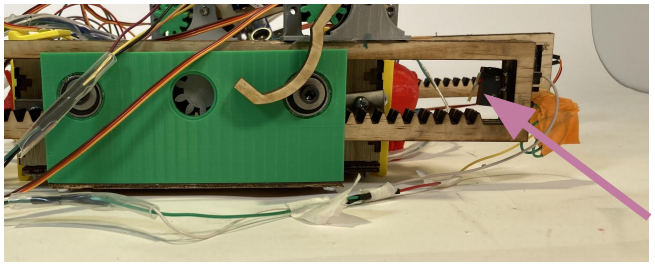
Presented by Stephanie



Raspberry Pi,
2 Motor Drivers,
3 large servos,
3 small servos,
2 DC motors

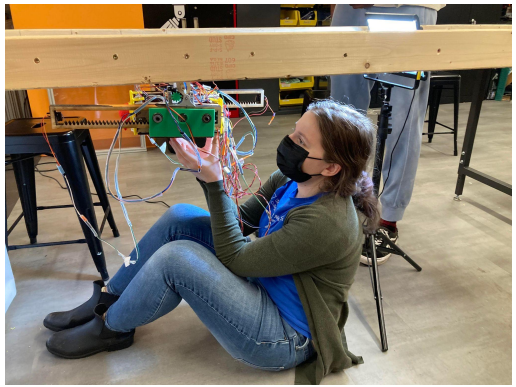


Ultrasonic sensor



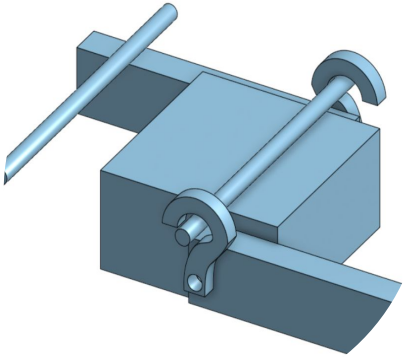
Limit switch

System in Motion (Videos!)



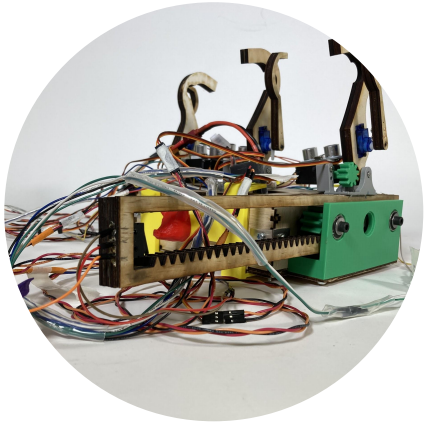
Presented by Stephanie

Thank You!



Proposal

CAD



Final Prototype