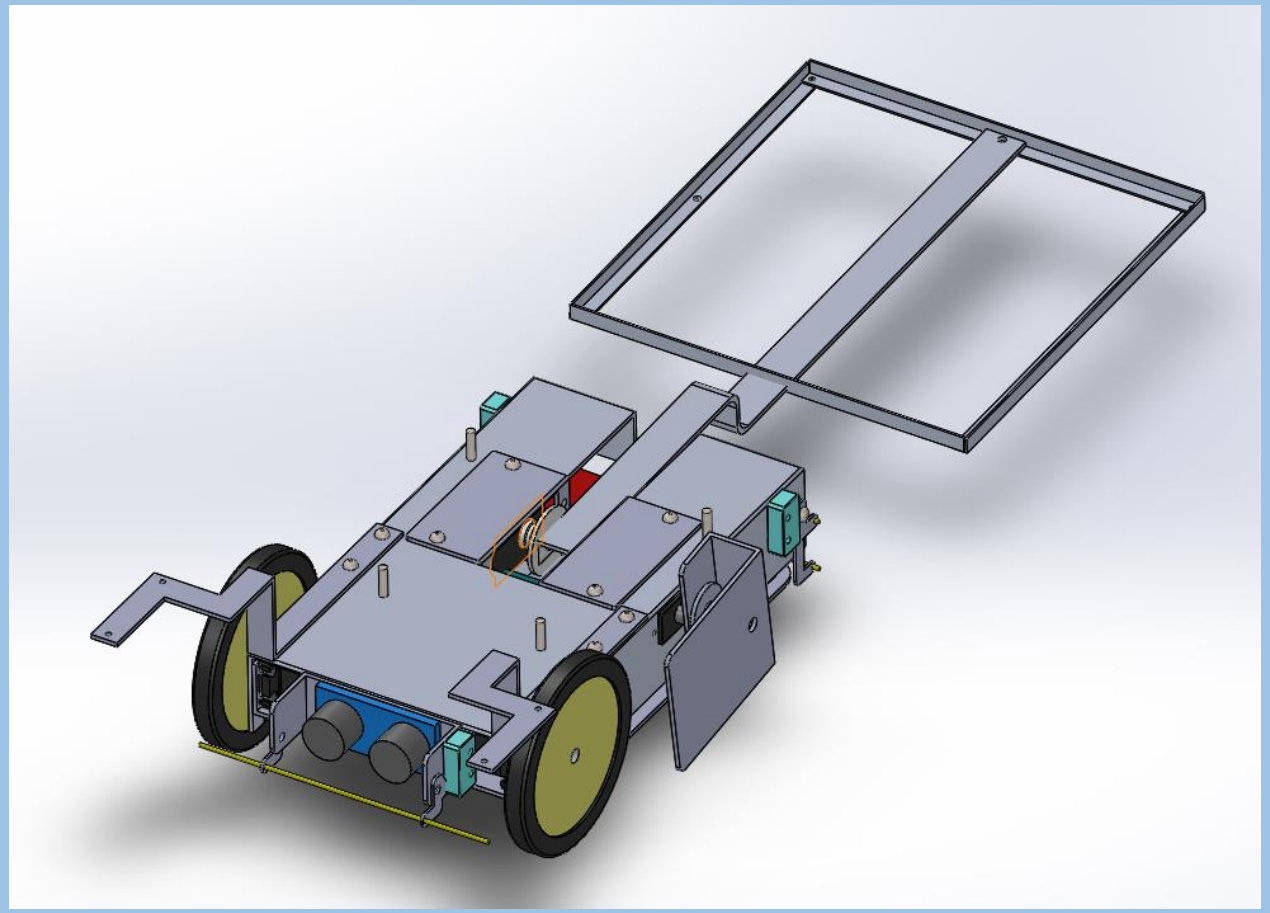
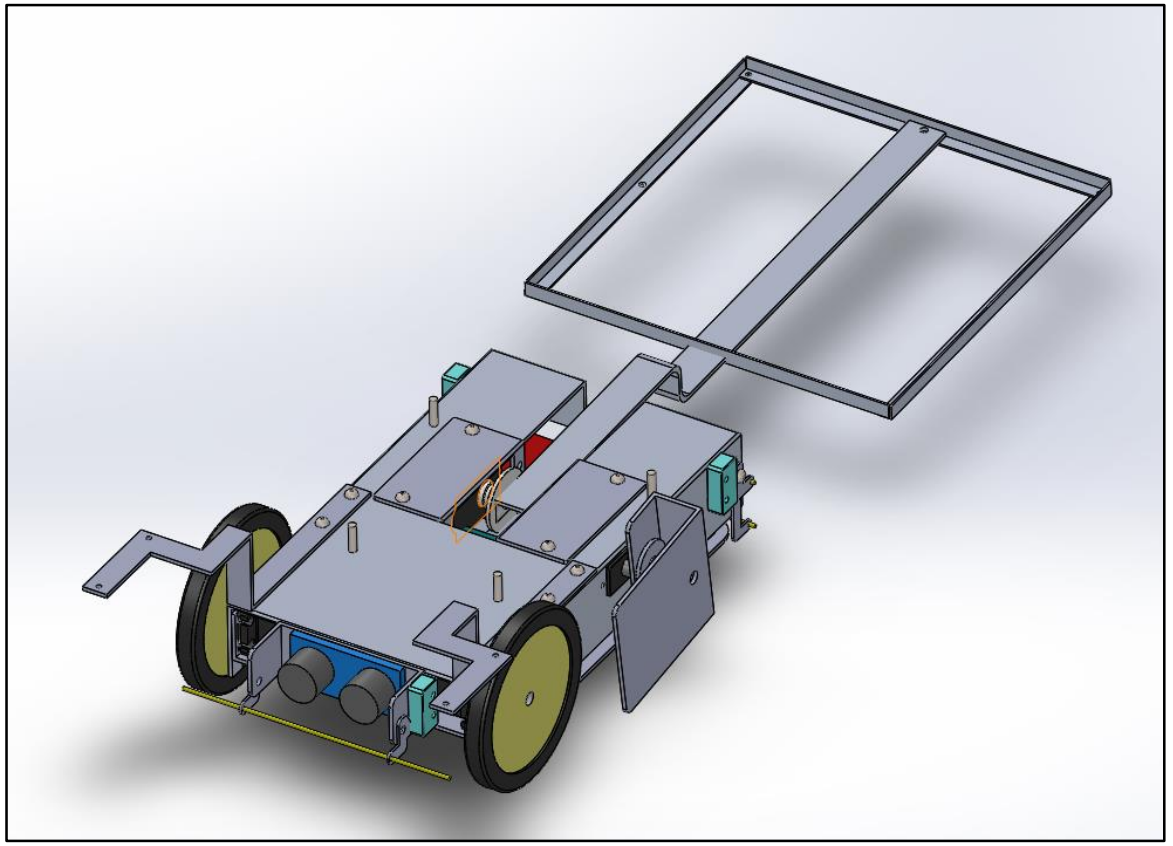
Autonomous Retrieval Robot for Search and Rescue



Our Design

- Differential Drive (Skid Steering)
- LIDAR Distance Scanning
- Sticky Trap and Moment Arm
- Ramp Clamps and Flanges



What is Great About the Design

- Capture Mechanism
- Searching Using LIDAR
- Chassis
- Tilt-Compensated Compass

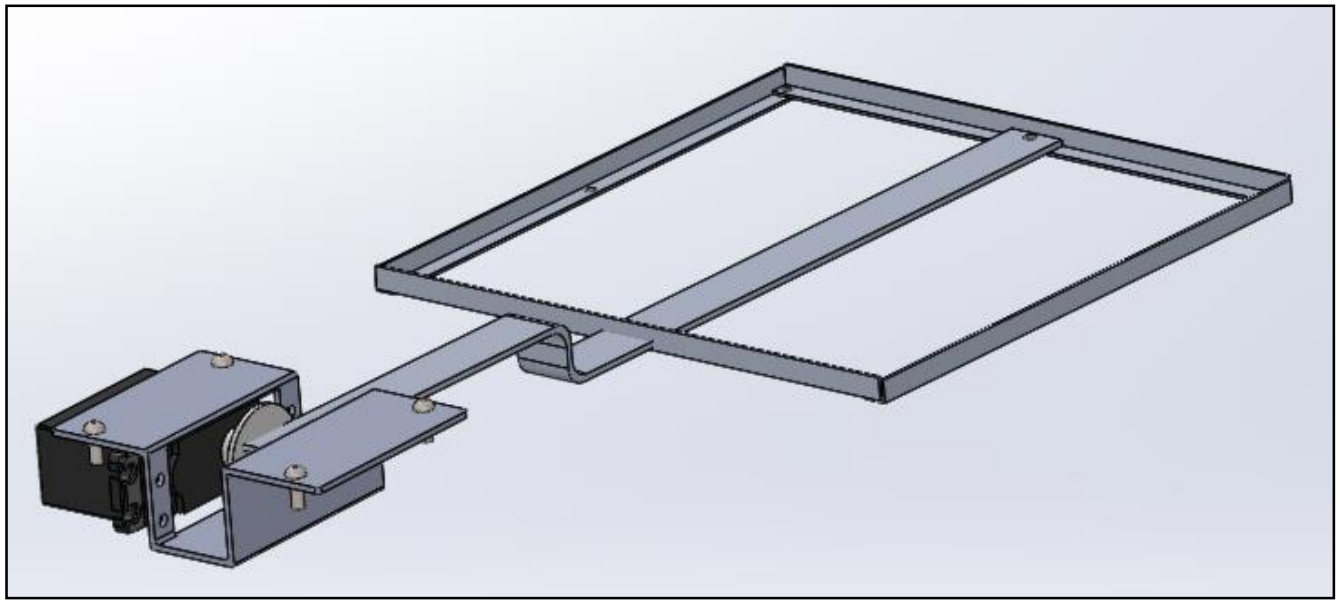


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Photo Source: http://www.wdyl.com/

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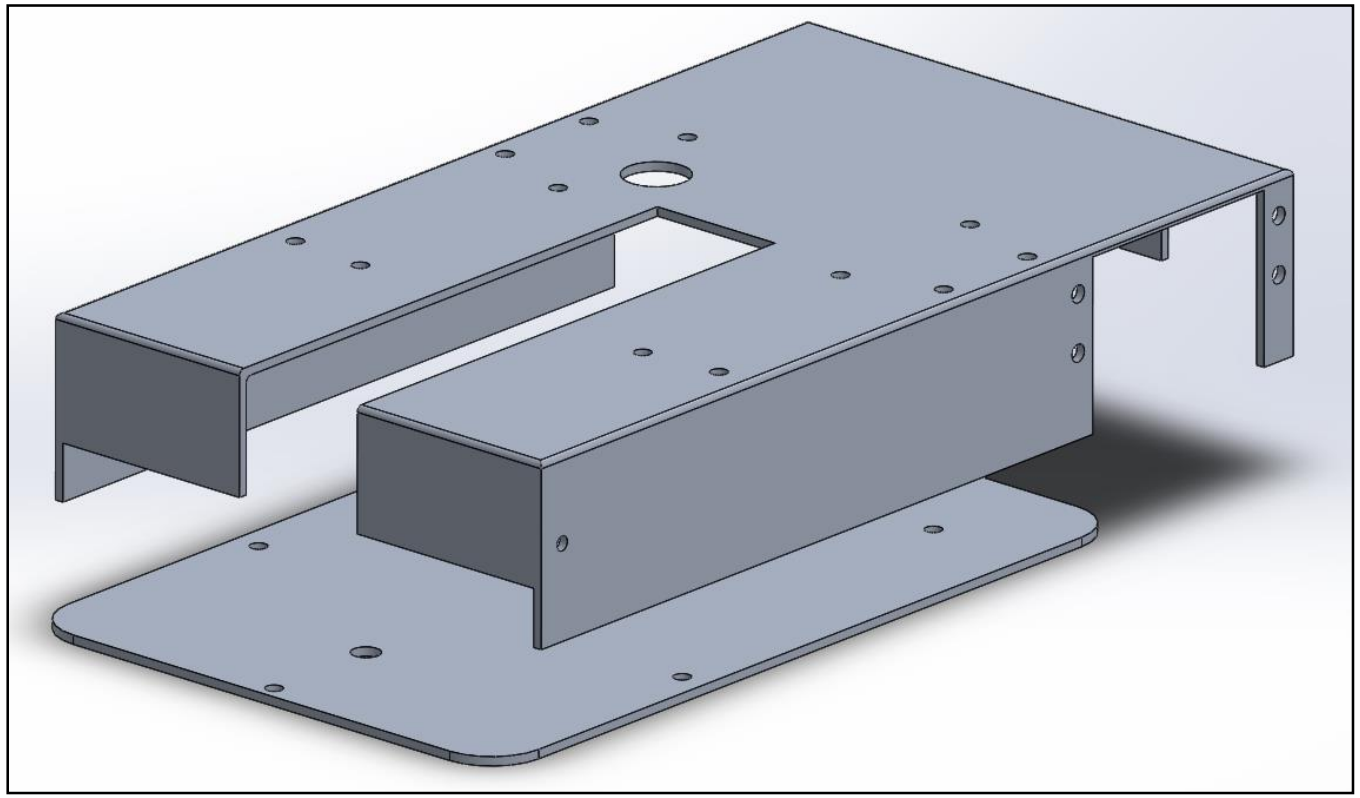

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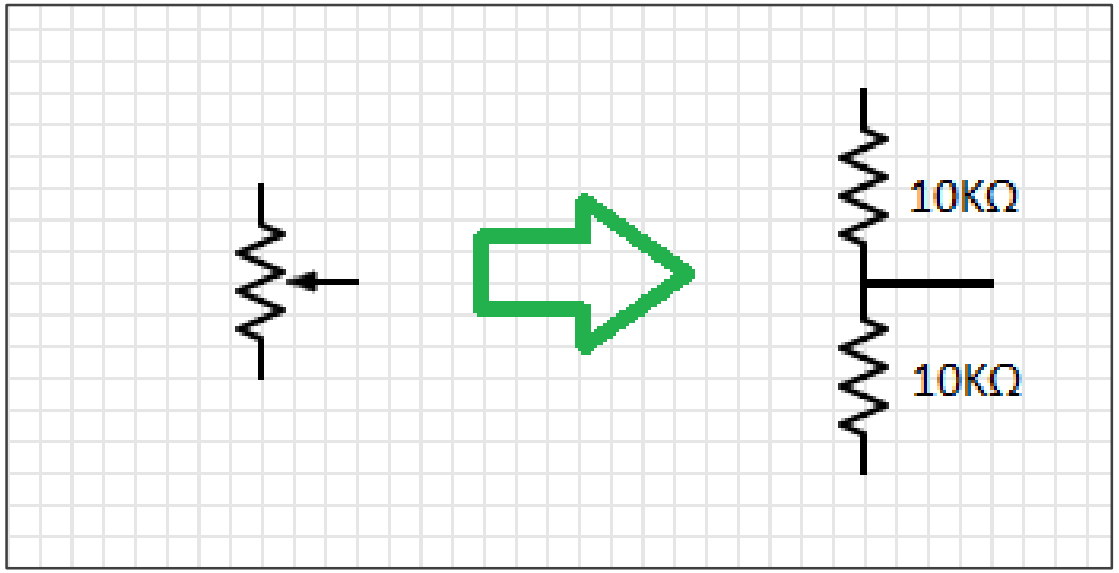
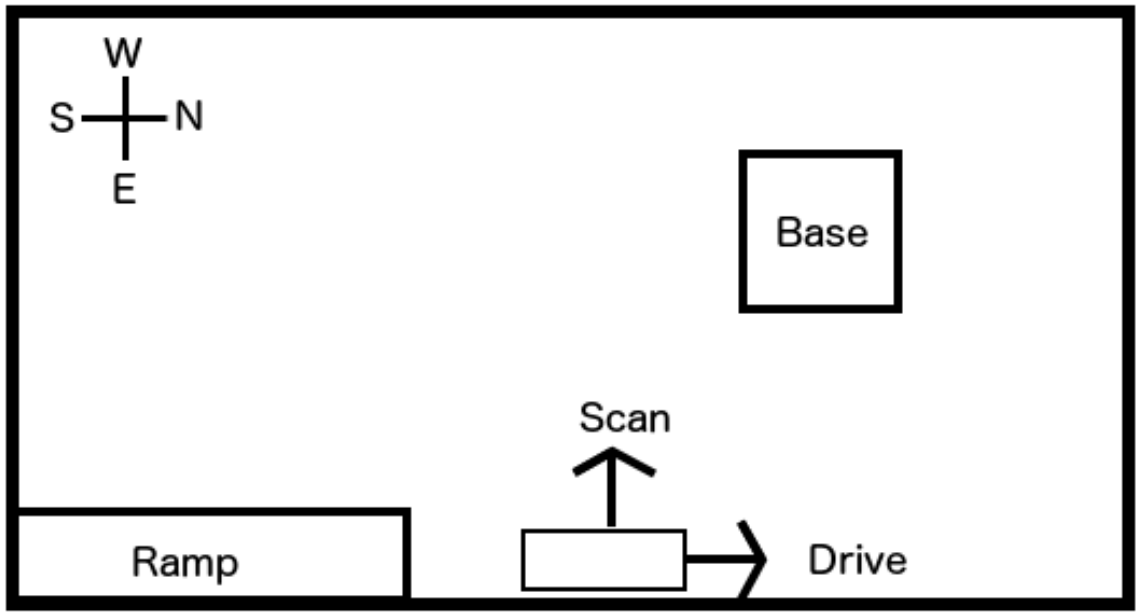
Photo Source: http://en.wikipedia.org/wiki/Compass

What Worked

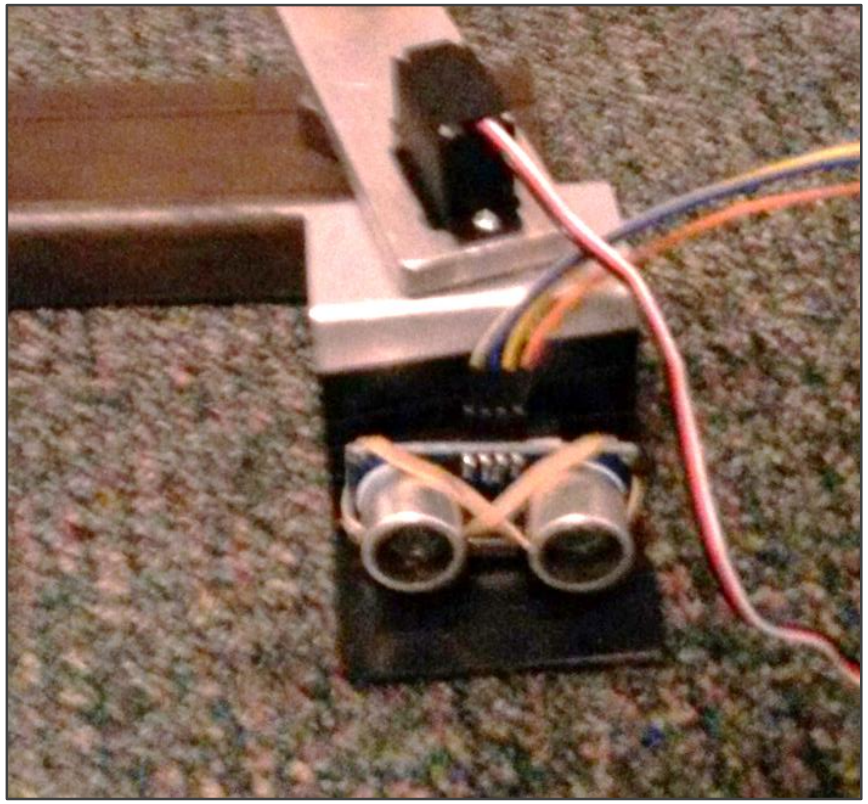
- Modified Servo Drive System
- Searching Algorithm





What Did Not Work

- Ultrasonic Distance Measurement
- DIY LIDAR Distance Sensor
- Slipping Down The Ramp



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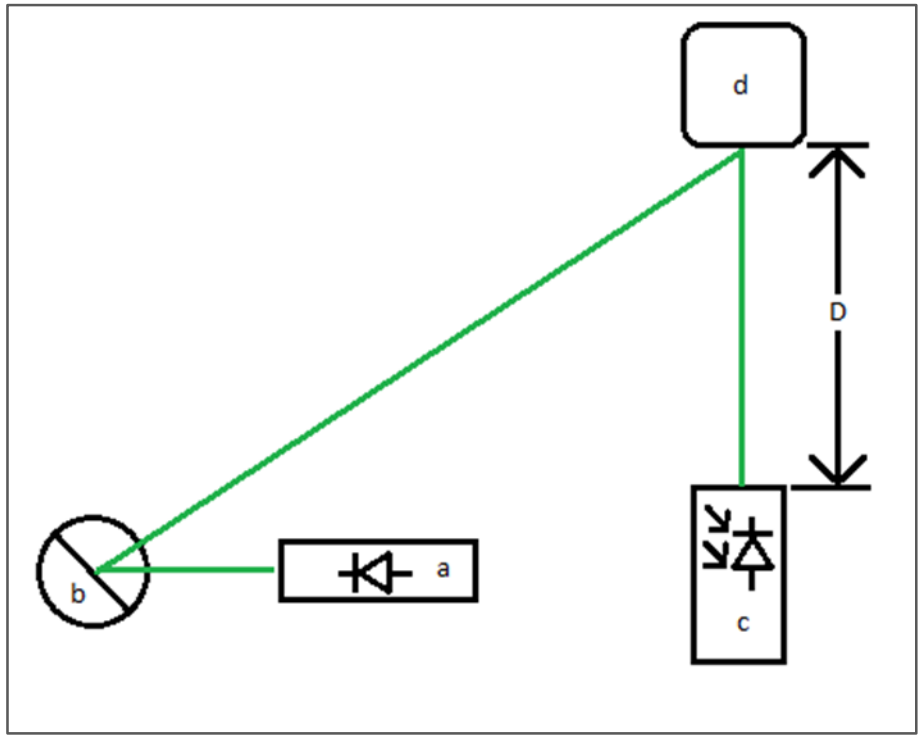

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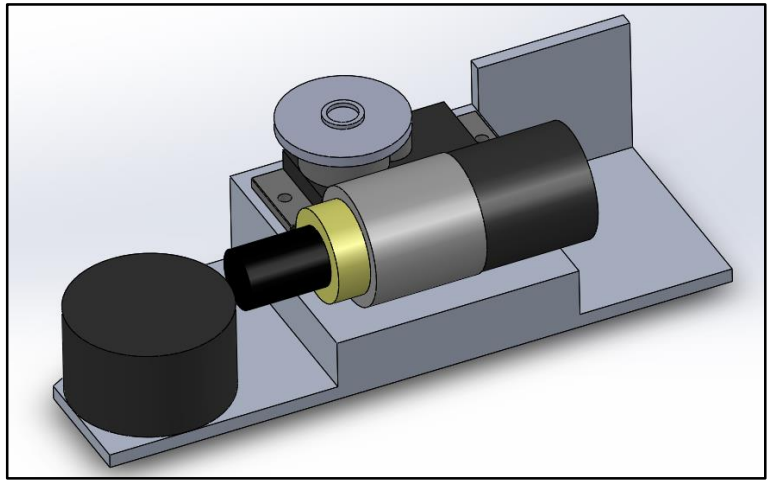
Solutions to Problems Encountered

Problem:
Unable to build custom LIDAR

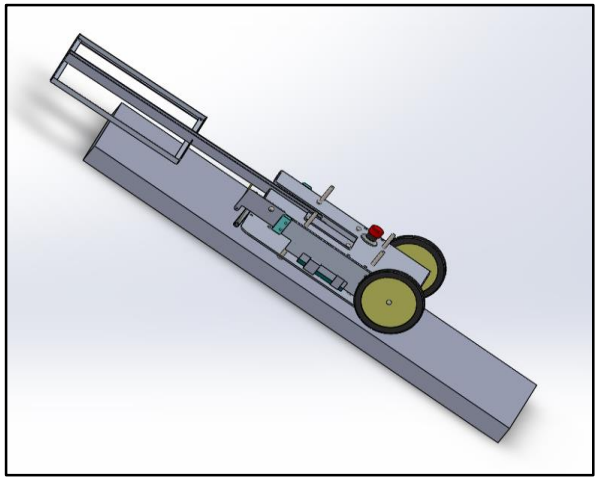


Solution:
Purchased commercial LIDAR

Solutions to Problems Encountered

Problem:

Insufficient friction to drive up the 45 degree ramp



Solution:

Added clamps to the robot to increase friction