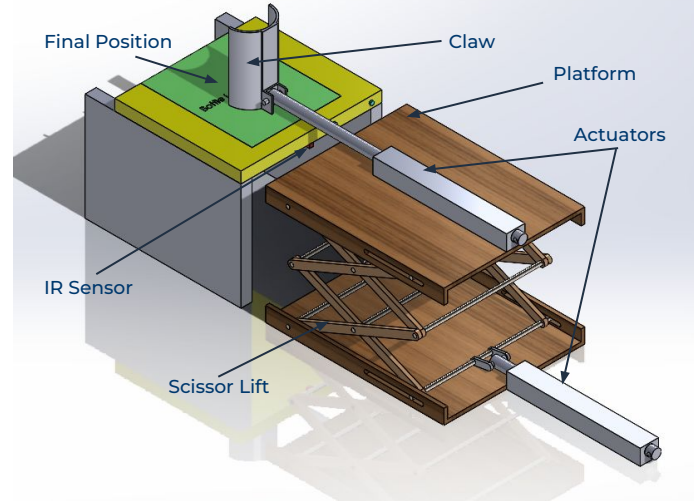




# 17D: Bottle Lift and Transfer

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**Executive Summary**  
Successfully Lift and Transfer an  
unopened-16-oz water bottle  
from a starting height of no more  
than 2 inches to a platform 8 to 12  
inches high.

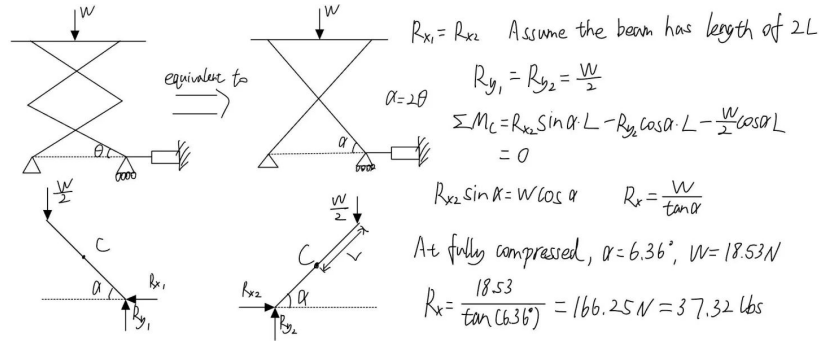


CAD Design and Expected Final Position

## Hardware Performance

| Linear Actuator: <a href="#">Sovic 4"</a>        |            |
|--|------------|
| Stroke Length                                    | 4"         |
| Maximum Load                                     | 55 lbs     |
| Input Voltage                                    | 12 V DC    |
| Max Current                                      | 1.5 A      |
| Battery: <a href="#">Talentcell Rechargeable</a> |            |
| Capacity   | 3000mAh    |
| Output Voltage                                   | 12 V       |
| Max Current Output                               | 3 A        |
| Sensors: <a href="#">Generic IR Sensors</a>      |            |
| Detection Range                                  | 2-30 cm    |
| Input Voltage                                    | 3.3V / 5V  |
| Detection Angle                                  | 35 Degree  |
| Accuracy   | +/- 0.2 cm |

## Engineering Analysis



## Key Features

- Linear Actuator
- IR Sensor
- Scissor Lift

## Future Improvements

- Gripping mechanism to hold the water bottle
- Bearings to reduce friction at rotation

## References/Acknowledgments

*Scissor Lift Jack Review & Equations* by Show Canada. Inc and etc.