NAIL-IT

By Christopher Hsing
Benjamin Shih
Louis Teng
Nick Vujcic

Commercial

Injury Statistics

- In 2005 – 2120 hammer related injuries at work reported
  - 3.8% wrists
  - 17.0% hands
  - 46.2% fingers

Source: Bureau of Labor Statistics

Project Description

- Purpose
  - Hammer Safety
  - Lightweight and Portable
  - Ease of Use

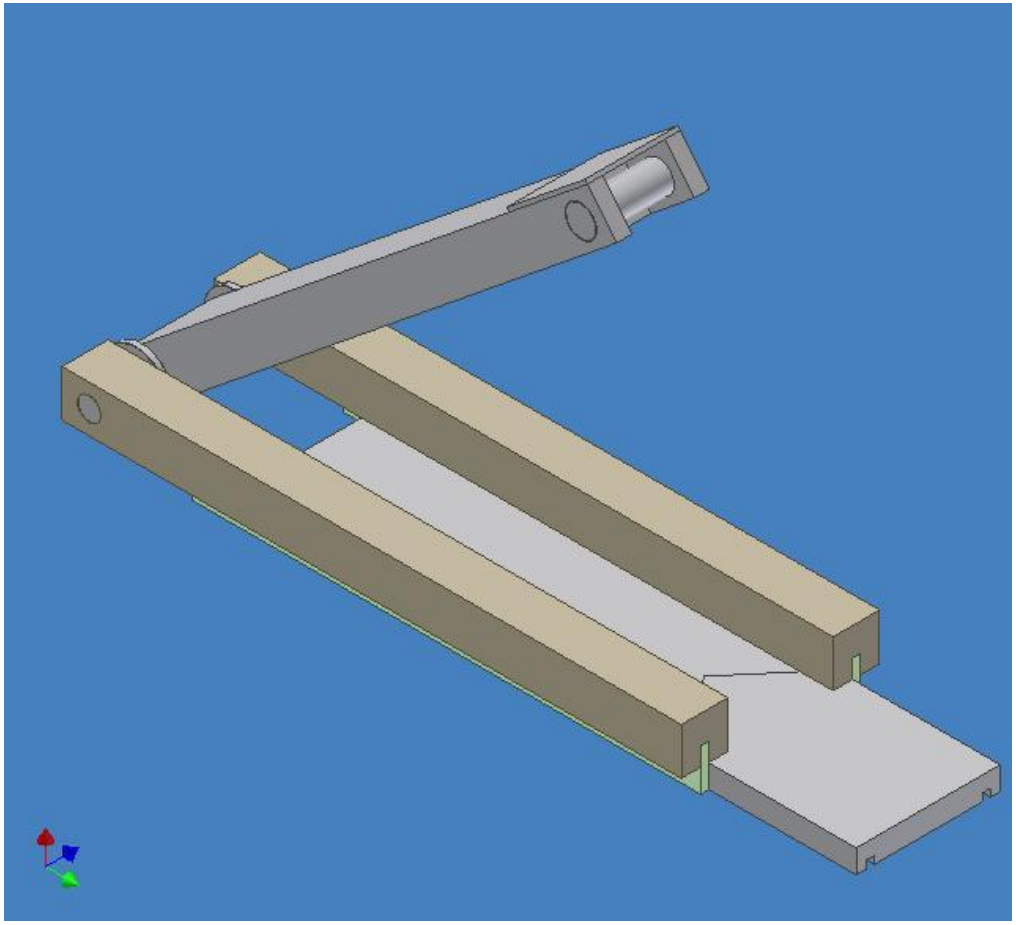
Marketability

- Of the polled population:
  - 43.9% problems striking nail
  - 32.6% injure themselves
  - 42.4% expressed interest

Materials and Costs

Item	Approximate	Quantity/Dimensions
Spring	$0.15	3
Aluminum Dowel	$0.20	1
Plastic Wheels	$0.02	4
Steel Dowel	$0.25	1
Plastic	$1.00	7.825x.75x.125, 2.25x1x.125, .125x1.75x1.75
Copper Dowel	$0.25	1
Wood	$5.00	10x.5x2.5, 10x3x1
Nail/Screw/ Washers	$0.15	
Hot Glue	Negligible	
Prototype Cost	$7.38	All materials are provided by the R/E Lab
Actual Cost	$9.38	Metal instead of wood to make the device last longer
We plan to sell the device for $12.00		Actual Vendor: Home Depot

Diagram



Demonstration

Testing

- Nail-It vs. Regular Hammer
  - Accuracy of Strikes
  - Angle of Nail

Data/Results

Accuracy of Driving in Finishing Nails with the Nail-It		
Nail Size	Number of Accurate Strikes (out of 5)	Percentage
2D	5	100%
4D	5	100%
6D	4	80%
8D	4	80%
Average	4.5	90%

Angle of Finishing Nails Parallel to Direction of Strikes Using Nail-It	
Nail Size	Angle After 5 Strikes
2D	90°
4D	89°
6D	89°
8D	86°
Average	88.5°

Data/Results Cont.

Accuracy of Driving in Finishing Nails with a Hammer					
Nail Size	Number of Accurate Strikes (out of 5)				Percentage
2D	5	3	5	5	90%
4D	5	4	5	5	95%
6D	5	3	5	5	90%
8D	5	5	5	5	100%
Average	5	3.75	5	5	93.75%

Angle of Finishing Nails Parallel to Direction of Strikes Using Hammer				
Nail Size	Angle After 5 Strikes			
2D	87°	80°	88°	87°
4D	89°	83°	88°	86°
6D	87°	83°	86°	89°
8D	88°	85°	87°	84°
Average	87.75°	82.75°	87.25°	86.50°

Discussion of Problems

- Building
- Hammer
- Size
- Portability
- Accuracy and Driving Nail

Recommendations for Future

- Heavier/Denser “Hammerhead”
- Convenience of Device
- Quality of Material

Credits

Many Thanks To:

- Our parents
  - For driving us around Rockville
- Mr. Templin
  - For approving our design
- Mr. Kaluta
  - For helping us resize our device
- Dr. Witte
  - For her continuous support and advice

Questions