



# Sugar Brick: The Manual Briquette Press

2.009 Blue Team B

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# Contents

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## # Development of the Design

- Iteration 0
- Iteration 1
- Iteration 2 – The Mockup

## # Validation of Design

- Compression
- Combustion

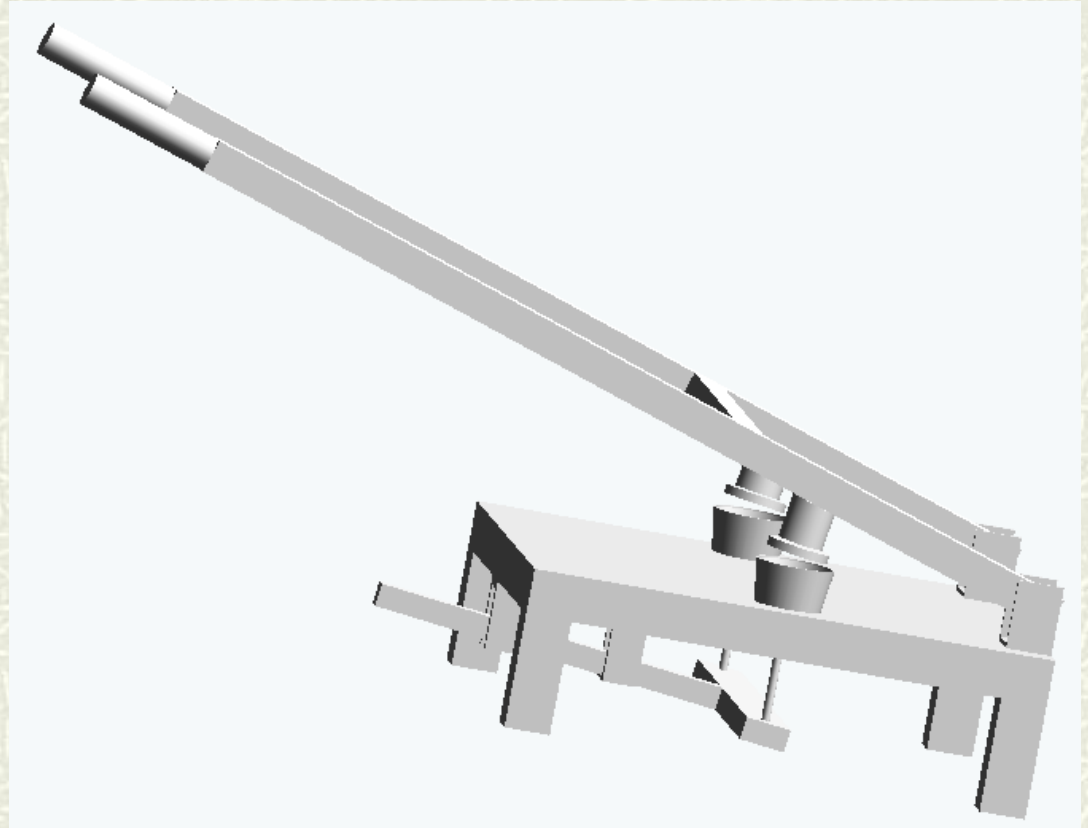
## # Critical Issues

- Listed issues and solutions
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# Development – Iteration 0

## # Problems

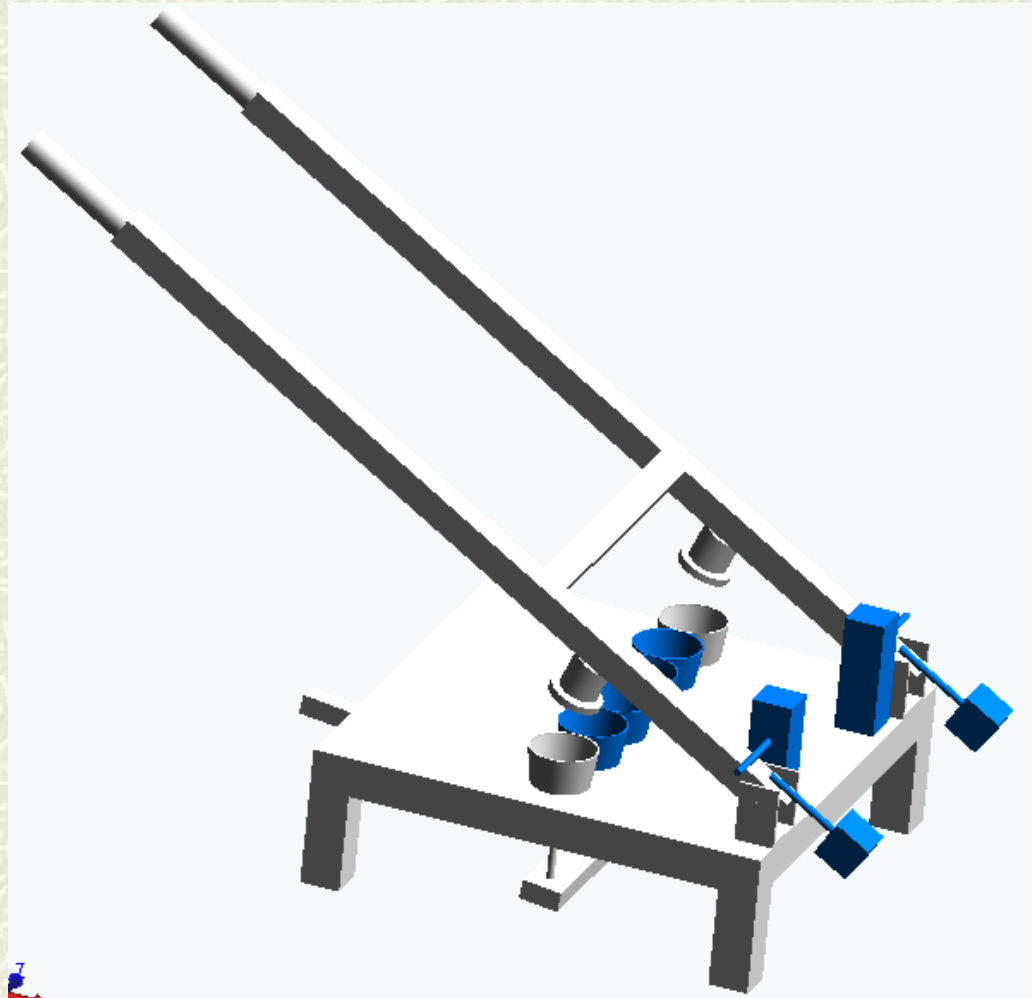
- Involves heavy use of arms
- Uncomfortable to use
- Requires “three” hands to operate
- Slow process



# Development – Iteration 1

## # Problems

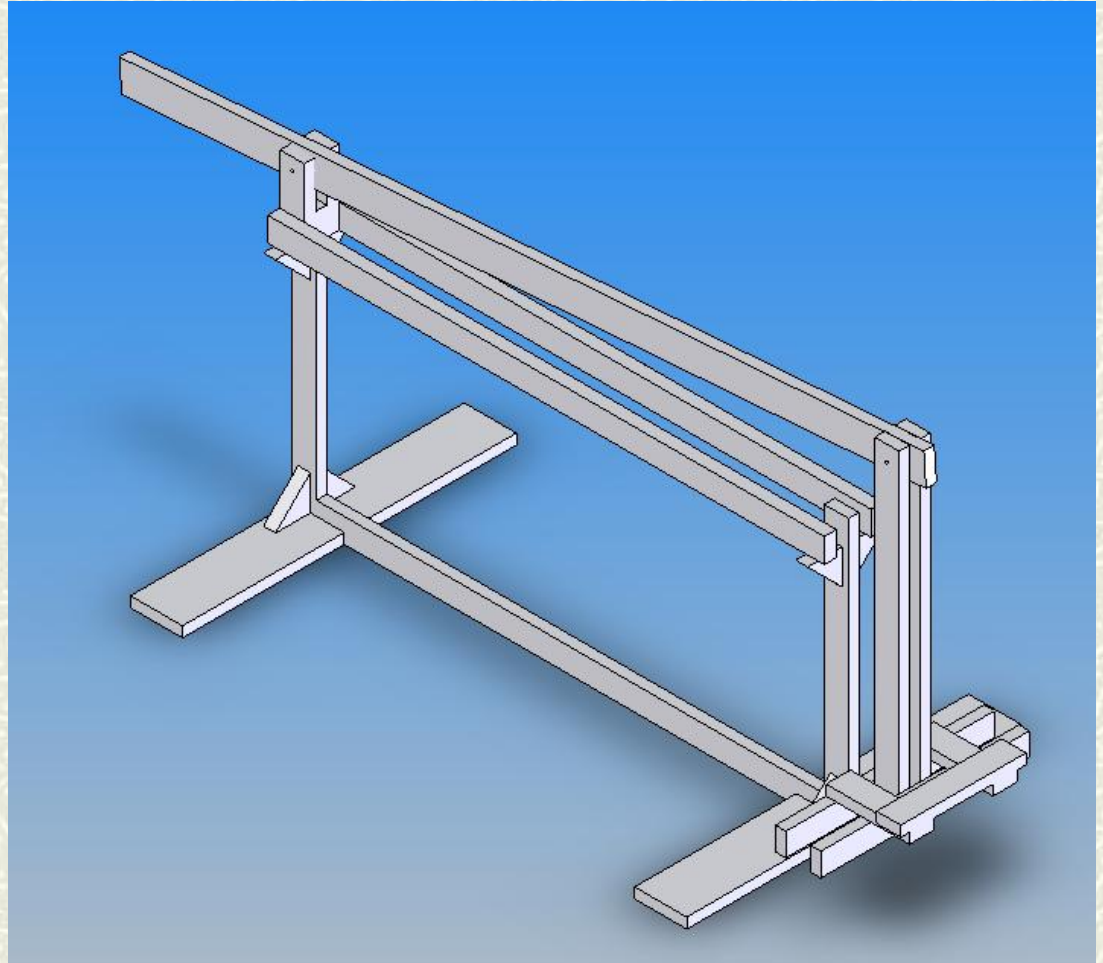
- Difficult to load
- Still relies on arms
- Painful repetitive motion



# Development – Iteration 2

## # Successes

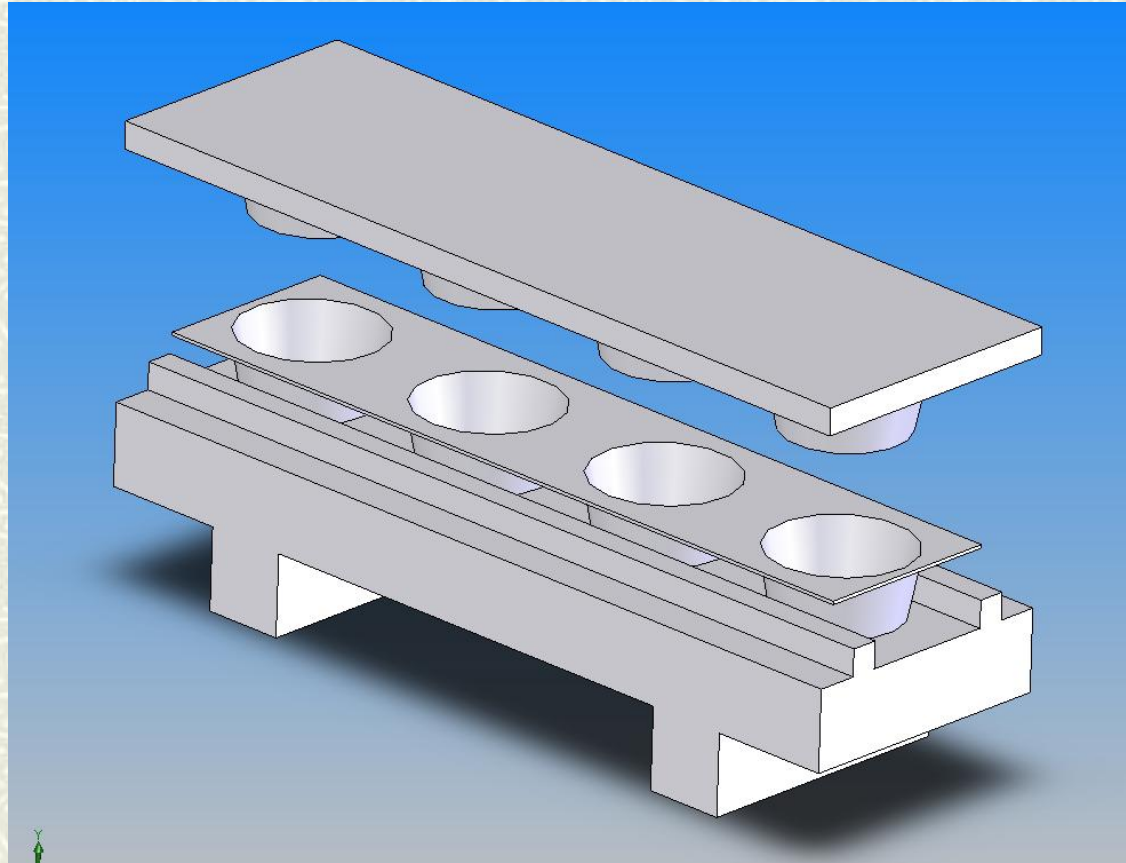
- Powered by foot/body weight
- Increased mechanical advantage
- Counterweight improves stability



# Development – Iteration 2 (2)

## # Successes

- Easier loading process
- Trays allow preparation of multiple batches
- Notches mark placement



# Validation – Compression

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# compression.avi

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# Validation - Compression (2)

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## # Results

- 47 psi for each briquette (8 briquettes) from 160 lb. man
- 25 seconds loading mixture
- 5 seconds of compression
- 30 seconds loading, unloading, and ejection

## # Improvements

- Too much draft angle
  - Loading
  - Cleaning
  - Optimize mixture
-



# Validation - Combustion



Wet mixture – machine compressed



Final mixture – machine compressed



Dry mixture – machine compressed



Final mixture – hand compressed

# Validation – Combustion (2)

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## # Results

- Needed to use lighter fluid
    - Used in Haiti
  - Machine-compressed burned the hottest
  - Hand-compressed died quickly
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# Critical Issues – Ease of Use

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## # Solutions

- Slide through tray
- Muffin tins
- Foot pedal

## # Further Investigations

- Heavy duty trays
  - Various step methods
  - Better Loading
  - One person operation
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# Critical Issues – Local Materials & Technology

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## # Solutions

- Simple geometry
- Modular Approach
- No complex Mechanisms

## # Further Investigations

- Using other readily available materials
  - Creating press from steel oil drum
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*Fin*

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# Thank you, goodnight and...

**GO SOX!!!**

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