PURDUE MECHANICAL ENGINEERING

COCOA POWER


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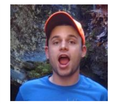
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FINANCIAL ANALYSIS

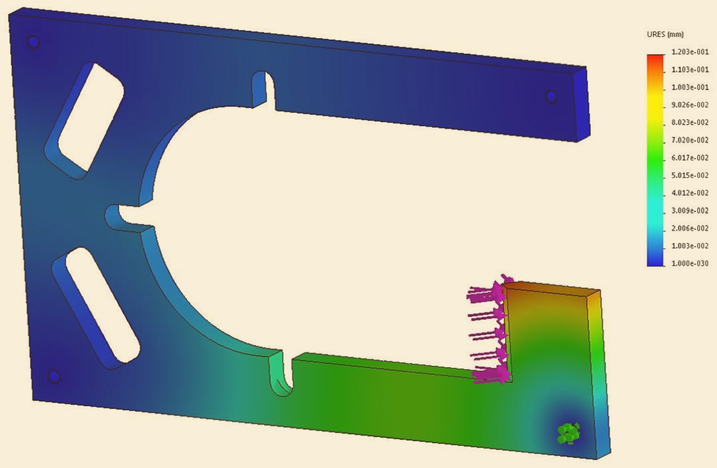
Items	Quantity	Cost
Bolts	4	$0.69
Washers	8	$0.35
Nuts	4	$0.53
Snap Utility Blades	30 (3 Used at a Time)	$2.49
[1"x12"x8'] Pine Board	1	$13.29
L-Brackets	2	$0.99
Sealant	1	$3.98
	Total Price:	$28.29

Number of Cocoa Pods Tested: **21**
Cost of Cocoa Pods: **$548.46**

TESTING

FEA Analysis on the Cocoa Cracker revealed the design exceeded design criteria for load distribution and fatigue resistance under full range of conditions.

Applied Load	50 lbs
Average Cutting Force	4.76 lbs
Average Cracking Force	8.62 lbs
Maximum Deflection	0.12 mm



MISSION STATEMENT

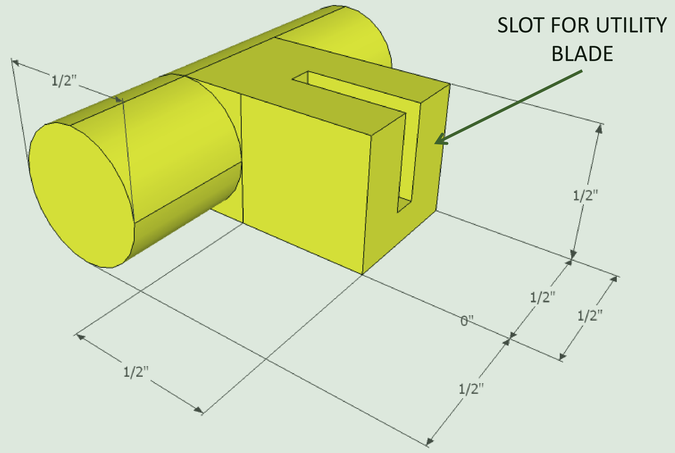
To develop an efficient and safe device that eases the opening of cacao pods in a manner that will improve harvesting rate, promote fair-trade tactics, and have the ability to be implemented in 3rd world countries.

REQUIREMENTS

1. Portability: Capable of Moving Across the Plantation
2. Safety: Safer Than a Machete
3. Time Efficiency: Capable of Opening 5,000 pods/day
4. Low Cost: To Be Used in 3rd World Countries
5. Low Assembly Time: Simple Construction


COCAO POD (HAND FOR SCALE)

COCAO CRACKER (NOT TO SCALE)



Critical to the functionality of the design, three 3D-printed blade-holders are utilized to hold commercially available utility blades. These blade-holders, when compressed between the wood planks, aid in scoring the Cocoa pod. Scoring is essential to easily cracking the pod open.