

# Ekwang: Wrapping leaves to feed needy families

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#### Problem

meant for leaves or are not the proper size other foods, but these devices are not devices in the current market to wrap typically spent just for wrapping enough food to wrap. 30 to 40 minutes are diaspora, Ekwang is a time consuming In Cameroon, other parts of Africa and the to handle turnip leaves leaves for a family dinner. There are



# **Background Information**

- Ekwang is a staple food eaten electricity (Bone, 2019). primarily in Cameroon, a country in the middle of a civil war and with no stable
- Consists of a root that is mashed and
- Takes 15 20 seconds per wrap by wrapped in a turnip-like leat
- hand Eaten at least once a week



#### Goals

consistently wrap the mash in turnip greens Develop a low cost manual and electrical wrapping device that can quickly and

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Specifications and	<u>Results</u>	
Description	Desired Values	Measured Values
Weight of wrap (average)	18 g +/- 2g	16.5g
Total weight of appliance	<2 lbs	11 lbs
Energy efficiency (power usage)	<25W	22.85W max
Speed of wrapping leaves (<20s per wrap)	≤10 s	8.48 s
Repeatable & predictable motions	200 wraps with no jams	25 wraps with no jam
Ease of assembly	<5 pieces to assemble	24 pieces
Compactable into	Fits into 12" x 8" x 4" box	17" x 8" x 8.3"
Prevents against overheating	Circuit <50°C <sup>1</sup>	20.5°C
Wrap diameter	$\leq 2 \text{ cm}$	2.22cm
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## Methodology

- Researched the current food-wrapping products and processes available in the market
- ÷ Set a brainstorming period to allow team members to come up with original design ideas
- \* Selected from the proposed designs, the design which had a potential for both electric and manual modes of operation and developed a proof of
- Selected and tested for feasibility a second design idea, following unsatisfactory test results of the first design choice concept prototype to test the feasibility of the wrapping mechanism

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- \* Built an initial prototype of the second design idea after a successfu feasibility test
- ÷ Before arriving at this presented prototype, 3 design iterations were performed (after the initial prototype) with major design changes on both the mechanical and electrical versions

### Discussion

Market strategy: Simplifying the consumer demand. preparation processes to meet a high

	Dolmer rolling machine	Manual Modified	Electrical Modified
Turnip Leaf	No	Yes	Yes
Product Size (Inches)	14x3.9x2.9	9x5.4x3	17x8x8.3

## Future Work

Target groups

Generaal West Africa Families

- Motor and Sensor could be better
- Design could be streamlined for coordinated with each other.
- construction with less number of components.
- Wrapping mechanism could be precision in design. fine-tuned with more nuanced

#### <u>References</u>

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