

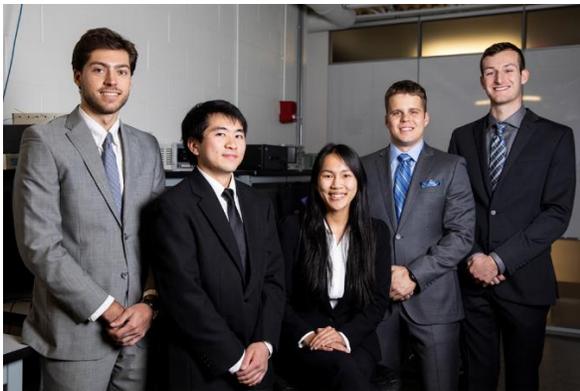
Jameed Dehydrator

Team:

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Clinic Advisor: Dr. John Wentz

Sponsor: Jordanian Women's Co-Op



Project Summary

The University of St. Thomas is in collaboration with a Women's Co-operative to find a more efficient method of dehydrating jameed. Since jameed is currently only dried in the dry months of summer, these conditions must be replicated for year-round production.

Jameed is a sought-after food source that is currently dried naturally. This food is a heavily salted yogurt produced with goat's milk. It is used in many local dishes, specifically mansaf.

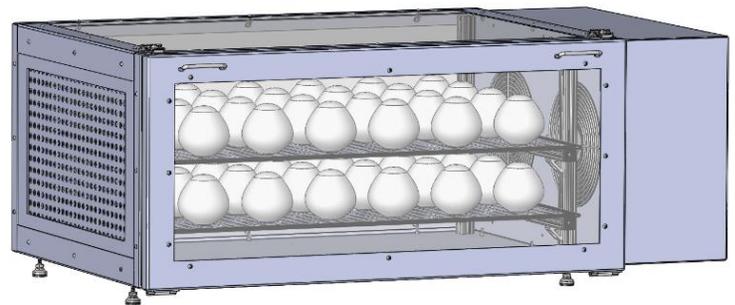
Design Goal

The goal of this design was to produce the first working prototype that will dry jameed under the design constraints listed. This prototype will be disassembled and shipped to the Women's Co-Operative to be reassembled in Jordan. There it will receive the final customer testing and

critique by being implemented in the jameed production. Following that critique and feedback, a new senior design team will improve this design for the Women's Co-Operative. The improved design will bring it closer to a manufacturer ready prototype that can be produced in Jordan.

Design Steps

The design concept was first put through a Finite Element Analysis in ANSYS to understand the nature of the air flow in the prototype. Simultaneously, an experimental analysis of drying jameed was performed. It was concluded airflow and temperature had the largest effect on the overall drying process. Another ANSYS simulation was created and the results pointed the design to the SolidWorks model below. This model will hold the required 10 kg of jameed.



Design Constraints

- Fully dry 10 kg of jameed in 3 days
- Machine weight does not exceed 40 kg (movable by two people)
- Machine can be moved through a standard doorway
- Machine interface with the Jordanian electrical grid (230 V and 50 Hz)
- All parts manufacturable and available in Jordan
- Overall price to reproduce the machine between 500-1000 USD
- The design needs to be able to increase overall size and production, without conflicting the production rate