



Fermentabot

Small-scale, digitally controlled fermentation
for recycling of food waste

Fermentabot Project Overview

Mechanical Specifications and Requirements

1) **Housing and storage**

- 1) Insulated food storage box and perforated food pans/cotton cloth

2) **An “Environmental Chamber”**

- 1) A device that can be attached/removed from the catering box and contains all the mechanical actuators such as heaters and fans.

3) **Air circulation heating/cooling system**

- 1) 12V Peltier Cooler
- 2) 12V heating element
- 3) 12V equipment-cooling fan

4) **Humidification system**

- External humidification cartridge
- Miniature ultrasonic fogging technology

5) **Control System**

- 1) Humidity and temperature control



Design Progress

- Internal slanted covers act as “condensation guards” to keep condensation from gathering on koji cloths
- Design of Environmental Chamber based on available materials at OpenAg (mostly acrylic sheets) and fabrication capabilities (laser cutter)
- Off-the-shelf components used whenever possible
- Asdads
- asdad

Photos of current prototype, multiple views



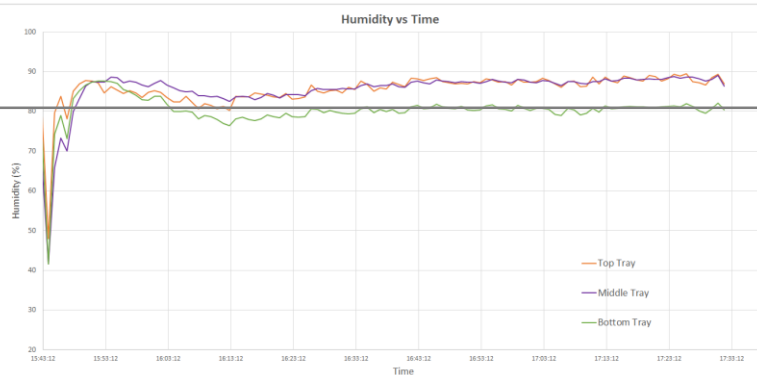
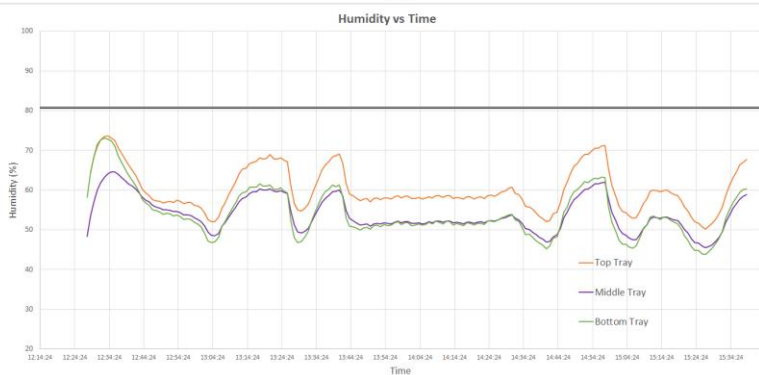
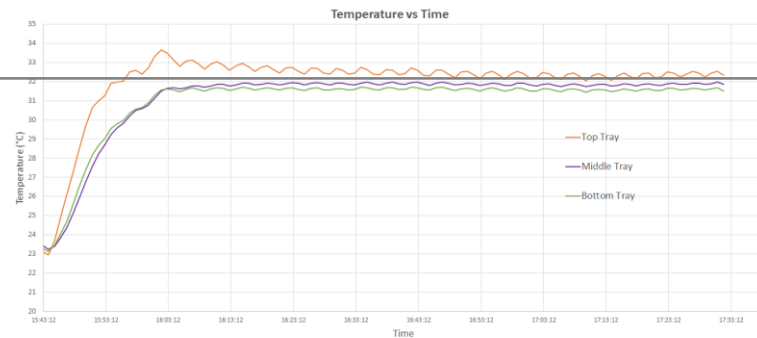
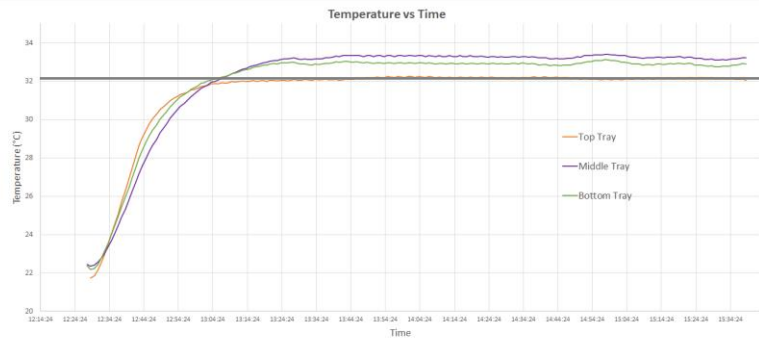
Design Details

1. Environmental Chamber
2. Piezo Cooler
3. Fan
4. Heater
5. Humidifiers
6. Temp/Humidity Control System

Pic of our first batch of koji

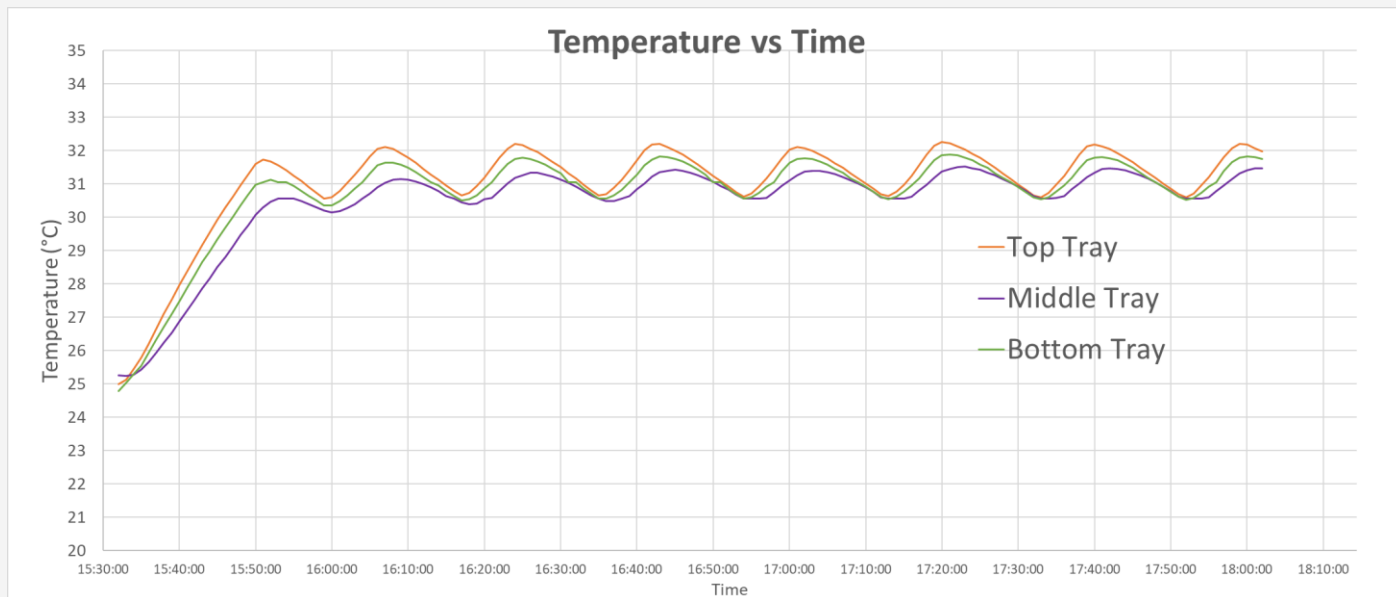
Testing Results

- Koji grown successfully at 32°C and 80% RH



Testing Results

- Ds
- Dsf
- Adasd
- Asdads
- asdad



Testing Results

- Temperature from 25°C (ambient) to 32°C in approximately 20 minutes
- ~0.5°C difference between each tray, based on air flow clearance inside
- Dsf
- Adasd
- Asdads
- asdad

Budget

Current and future spending estimates

- 1) Approximately 25% of the Fermentabot Project budget has been spent developing a fully functioning prototype
- 2) Next steps include
 - 1) Software and hardware development
 - 1) Creating, fabricating, and testing a circuit board
 - 2) Creating an online user interface that can control the Fermentabot and collect data via wi-fi
 - 3) Fabricating two more Fermentabot units for Basque

TOTAL PURCHASES:	\$ 2,160.93
Hours Worked (Eugene) (approx. 4.75 full time weeks)	187
TOTAL LABOR:	\$ 5,610.00
TOTAL BUDGET SPENT ON FERMENTABOT:	\$ 7,770.93

Thank You.

