Weber State University Facts

• **25,000 students**
• **250 undergraduate degrees programs**
• **Engineering Technology Department**
  4 Year B.S. Degrees (ABET Accredited)
  – *Manufacturing Engineering Technology*
  – *Design Engineering Technology*
  – *Electronics Engineering Technology*
  – *Mechanical Engineering Technology*
Senior Project (Capstone)

- **Capstone experience**
- **Demonstrate how well they have mastered the technical skills**
- **Mastery of communication, human relations and management skills**
- **Takes two semesters:**
  - First semester to plan, research, and design
  - Second semester to fabricate
• AQUAPONICS SENIOR PROJECT: Aqua-Life
• Collaboration with Horimasa Ltd. Co and University of Hawaii
• FALL AND SPRING SEMESTERS 2013-2014
Aqua-Life team

- Two advisors and six students: one from EET, two from DET, and three from MFET
- First semester: research, plan, design, cost analysis
- Second semester: fabrication
- Budget: $10,000 (material only)
- Incentive $5,000 to Hawaii
- Produce an aesthetically pleasing system that is a combination of Aquaponics and VEGILAB technologies
Research

- Aesthetic
- Marketable
- User friendly
- Allow for meal size fish
- Focal point
Conceptual Design
Conceptual Design cont.
Top Three Final ideas
Final Design

Render vs Prototype
Fabrication cont.

- **Outsourcing:**
  - Sheet metal cutting
  - Aluminum cutting (discounts)

- **Students did everything else themselves at school**
Electronics

- Components
  - Grow Lights
  - Accent Lighting
  - Pumps
  - Compressor
  - Tank level Indicators
Budget

• Build cost: $10,000
• Actual total cost: $8,187.31
• Hours to make: 1000 hours approximately
• Overhead Rate: $91.00/hour
  – Prototype cost in industry $101,000.00 plus design cost
• Cost for unit 300 = $238
Satisfaction!

- Presentation at the East Meets West Aquaponics Symposium on May 10th at University of Hawaii
- The unit was shipped to Hong Kong
  - Office at Science and Technology Parks
What we learned

- **First senior project in the department that dealt with a company internationally**
  - We were lost
  - Everything was new

- **International agreement (contracts to sign)**
  - Involving school lawyers

- **IP (intellectual property)**
  - We don’t claim any
  - Publication is allowed as long as we let them know

- **Shipping**
  - Inexpensive way
Next time

• Go through Office of Sponsored Projects
  – Extra fees
  – Negotiation
  – Accountants and etc.

• Claim some IP for school benefit

• Decide details
  – Who is paying what and how and when
  – Left-over budget: pay back or keep?
  – Specific dates for little things
Q&A