

Progress Report: Week 9

## Tissue Sample Preparation Device for Biochemical Analysis

### Team Members:

Sara Alford (Team Leader)  
Christine Koranda (Communications Rep.)  
Carla Maas (BWIG)  
Ryan Roth (BSAC)

### Client:

Jeff Ross and Charles Tessier  
University of Wisconsin - Medical School  
Department of Oncology

Advisor: Paul Thompson

Date: March 26 - April 1, 2003

Problem Statement: To design a device that completes the preparation process done manually to prep a tissue sample for biochemical analysis. The device should freeze the tissue (with liquid nitrogen), and grind it to a powder. Sample should be easily collected.

### Restatement of Team and Individual Goals:

#### Team:

1. EXPO Display Work
2. Determine hours each of us at display for EXPO

#### Carla:

1. Find and order elbow fitting and ball-socket joint for mount
2. Reassemble or fix smaller version of circuit
3. Get batteries for the circuit (9V total, add in series) unless I hear otherwise that Ryan has DC adapter
4. Write up electrical info for final paper
5. Reassemble prototype (solder solenoid valve into circuitry and plug, also safety ground)

#### Christine:

1. Pick up grinding chamber on Friday

#### Ryan:

#### Sara:

1. Determine the dimensions and shape of insulating chamber
2. Trip to Home Depot or Menards to get a sealant.

### Summary of Accomplishments:

1. Developed schedule for final weeks of semester
2. Meeting scheduled for EXPO preparation work next Sunday
3. Small version of circuit is working: rebuilt and fixed capacitor direction

4. Solenoid, 9V DC adaptor, relay, and circuit all connected and functioning
5. Delaying purchase of elbow fitting and ball-socket joint until we get bill for machine shop and last semester credits
6. Determined mounting design for sample chamber
7. Finalized sample chamber specifications with Bill Hagquist and picked up sample chamber and metal insulating chamber.
8. Insulation search started - haven't found something like we are looking for.

Team and Individual Goals for Next Week:

Team:

1. EXPO Display Work - Meeting next Sunday Afternoon
2. Hours for EXPO
3. Pictures for display

Carla:

1. Reinforce solder connections, the circuit is a little shaky especially at the ground connections.
2. Design some safety device for covering the exposed ends of the 120 VAC wires to the relay
3. Help with overall assembly (where electrical parts go after everything else connected, and L-bracket placement)
4. Update webpage

Christine:

1. Update AutoCAD drawings with dimension changes
2. Update IronCAD drawings with design changes
3. Determine height for mounting sample chamber and have it mounted with L-brackets.

Ryan:

1. Help with overall assembly with electrical parts.
2. Help with mounting of the sample chamber and placement of L-brackets.

Sara:

1. Search for a better fitting polystyrene foam piece for container.
2. Add insulation to prototype
3. Determine hours each people can work for EXPO and make schedule to send out.

Project Schedule:

- Week 1: Group chose same project, client was contacted.
- Week 2: Divided tasks, patent proposal, prototype work
- Week 3: Patent, EXPO proposal, prototype working, chamber design
- Week 4: Patent Meeting, Chamber Design, Circuit Timer
- Week 5: Drawing for head and chamber, Circuit Timer
- Week 6: Presentation, Drawings for chamber, circuit building

Week 7: Midsemsester Presentation Given, Design Notebooks Turned In.

Week 8: Spring Break, Machining Parts.

Week 9: Circuit Work, EXPO Preparation, Insulation work

Difficulties:

~Still only 1 key for design lab

~ Christine will be gone on Friday at the Tau Beta Phi conference

~ Finding window insulation but not moldable or circular like we desire. Need to check out a craft store - so Sara needs a car and time to

get off campus.

Weekly Hours:

Group: 1 hour

Christine: 2 hours

Carla: 2.5 hours

Ryan: 3.5 hours

Sara: 2 hours

Total Hours:

Christine: 32 hours

Carla: 35.5 hours

Ryan: 22 hours

Sara: 28 hours