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

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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. Finish Mid-semester presentation slides and get ready to present on Friday.
2. Group meeting ECB 1036 Wed. 8pm to prepare presentation.

Carla:
1. Complete electrical circuit on smaller circuit board and sauder
2. Run device on electrical circuit (need either 9V batt, or 9V DC adaptor, or lug power supply to air supply)
3. Find the right capacitor and resistor/potentiometer match-ups to achieve a descent pounding speed range
4. Get Christine’s AutoCAD drawings online

Christine:
1. Update IronCAD drawing of prototype
2. Determine height of the insulating chamber from the base
3. Find out how EXPO funding is distributed

Ryan:
1. Circuit work with Carla

Sara:
1. Determine the dimensions and shape of insulating chamber
2. Research sealants needed during construction of insulating chamber

Summary of Accomplishments:
1. Drawings submitted to the shop for the grinding chamber
2. Midsemester Presentation last Friday
3. Electrical, testing, and future work slides
4. Circuit troubleshooting, fixed a short with the correct connection
5. Found that Menards connector does not work with ECB spiked fittings
6. Updated IronCAD drawing of prototype

Team and Individual Goals for Next Week:
Team:
1. Complete design notebooks and turn in to BME office.

Carla:
1. Rebuild or fix circuit on small board
2. Operate prototype with circuit and batteries or 9V DC adaptor

Christine:
1. Make minor corrections to AutoCAD drawings in response to questions from the ME machinist

Ryan:

Sara:
1. Determine the dimensions and shape of insulating chamber
2. Research sealants needed during construction of insulating chamber

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: Midsemester Presentation Given, Design Notebooks Turned In.

Difficulties:
1.) Circuitry still not quite right on small board, although it works on protoboard. I had the circuit working, cut the short circuit wire, but then I (Carla) tried to pull out the remnants of the wire and must have damaged some other connection in the circuit. It may just be easier to rebuild, as the connections are right, so it is mapped out already.
2.) There is still only 1 key to design lab.

Weekly Hours:
Christine: 4 hours
Carla: 8 hours
Ryan: ? hours
Sara: 5 hours

Total Hours:
Christine: 28 hours
Carla: 31 hours
Ryan: 17.5 hours
Sara: 24 hours