Heated Diagnostic Radiology Examination Table

Week 6 – February 27 to March 6, 2009

Team Members:

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Problem Statement

A frequent patient complaint is that current x-ray tables are hard and cold. A pad can be used to eliminate the first complaint; however the temperature of the table cannot be altered on standard tables. A heated exam table or attachment that has a temperature control to give patients added comfort during exams, needs to be developed. The materials used need to be radiolucent and may not obscure the body part being imaged. A mechanism must be implemented that eliminates the possibility of patient injury such as burn.

Last Week's Team Goals

i. Decide on component alternatives and finalize component matrix.
ii. Meet with advisor.
iii. Meet with professional concerning x-ray attenuation and materials.
iv. Test attenuation of various materials (tubing, matting, fluid) with client.
v. Finalize mid-semester power point presentation.
vi. Begin work on mid-semester report.
vii. Prepare design notebooks for submission.
viii. Obtain shop permits.

Summary of Accomplishments

i. All group members prepared a rough draft of their assigned segment of the mid-semester power point presentation. The presentation was split up as follows: Tyler - Problem statement, background, design specifications; Joel – heating, future work; Paul – x-ray attenuation, proposed design; Joey – Padding, tubing. Our advisor Mitch Tyler reviewed our presentation for content and format. Mitch Tyler provided several good suggestions for improvement. As a group we met to make changes and finalize our presentation. We are scheduled to present tomorrow, Friday March 6th from 12:29 to 12:41 P.M.

ii. Tyler and Paul had a meeting with Dr. John Vetter, and expert on X-Ray attenuation. Dr. Vetter provided very useful insight concerning X-Ray attenuation as related to our design. Dr. Vetter suggested that our approach was feasible and suggested the use of a an X-Ray "phantom" during testing. Dr. Vetter indicated that temperature, fluid flow, and contrast introduced by the tubing and padding would likely not be issues. Dr. Vetter offered to assist in testing with a few days notice.

iii. Joel and Joey traveled to the client's Verona clinic to test the X-Ray attenuation of several types of tubing and padding. Fine cell PET padding was determined to be the most radiolucent. Testing of tubing was inconclusive and will be conducted again with proper use of an X-ray "phantom". Testing of X-ray attenuation will be the determining factor in what materials will be included in our design.

iv. We have begun to consider alternatives for fluid, heating and pumping, research is ongoing.

v. We have spent time preparing and practicing for the presentation of our project. This includes power point compilation, image editing, and rehearsals.

vi. All team members have submitted applications and are in the process of acquiring a student shop pass. This will allow us the opportunity to use the student shop in the development of our prototype.

This Week's Goals

i. Schedule a time to test radiolucency and contrast of tubing using "phantom".
ii. Finalize mid-semester report
iii. Turn in peer reviews and design notebooks.
iv. Meet with advisor.
v. Begging planning prototype construction/ordering of necessary materials.
vi. Finalize heating and pumping units.

Project Difficulties

N/A

Activities

2.27.2009	Team: Meeting with advisor, brainstorming, and mid-semester report task assignments.	2.5 hours
3.1.2009	Team: Work on mid-semester presentation/design discussion	1.5 hours
3.4.2009	Team: As a group made changes to mid-semester presentation as outlined by advisor.	1.5 hours
3.4.2009	Joey: Radiolucency testing of materials with client.	1.5 hours
3.4.2009	Joey: Slide compilation and editing.	.5 hours
3.5.2009	Joey: Individual presentation rehearsal and preparation.	1.5 hours
3.2.2009	Paul: Meeting with Dr. Vetter to discuss design and radiolucency.	1 hour
3.4.2009	Paul: Finished Solid Works diagram of design.	1 hour
3.5.2009	Paul: Calculated required thicknesses to eliminate contrast of padding and tubing.	2 hours
3.5.2009	Paul: Individual presentation rehearsal and preparation.	1.5 hours
3.5.2009	Paul: Updated website.	.5 hours
3.2.2009	Joel: Scheduling with Dr. John Vetter and client.	.1 hours
3.4.2009	Joel: Radiolucency testing of materials with client.	1.5 hours
3.5.2009	Joel: Individual presentation rehearsal and preparation.	1.5 hours
3.2.2009	Tyler: Meeting with Dr. Vetter to discuss design and radiolucency.	1 hour
3.2.2009	Tyler: Investigate other heating fluids.	1 hour
3.5.2009	Tyler: Wrote progress report.	.75 hours
3.5.2009	Tyler: Individual presentation rehearsal and preparation.	1.5 hours

Tentative Project Schedule

	January		February				March				April				May
Task	23	30	6	13	20	27	6	13	20	27	3	10	17	24	1
Project Research	X	X	X	X	X	X									
Brainstorming/Work on Design		X	X	X	X	X									
Prototype															
I. Ordering															
ii. Expected Shipping															
iii. Work on Design/Building															
iv. Testing															
v. Re-design															
vi. Re-test															
Deliverables															
i. Progress Reports	X	X	X	X	X	X									
ii. PDS		X	X	X	X	X									
iii. Mid-Semester Presentation						X									
iv. Mid-Semester Report															
v. Final Poster Presentation															
vi. Final Report															
Meetings															
i. Group	X	X	X	X	X	X									
ii. Advisor		X	X	X	X	X									
iii. Client		X				X									
iv. Semester Wrap-Up w/ Advisor															
Website	X	X	X	X	X	X									

Expenses

Date:	Item:	Cost:	Comments: