

Canine Stereotactic Head Frame System – Group 8
October 31 – November 6, 2008
Progress Report 9

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Team Members: Lein Ma (Team Leader)
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Ali Johnson (BWIG)
Kim Kamer (BSAC)

Problem Statement:

In order to treat tumors in canines' head, the subject must be anesthetized and placed in the exact same position for every CT scan and radiation therapy in order to ensure that the tumor receives the correct dosage each time while minimizing harmful radiation to healthy tissue. While several devices are available for head immobilization, they are mostly invasive. The goal of this project is to develop a non-invasive stereotactic head frame to immobilize canines' head during a CT scan and radiation procedure. The device should also keep the canine's mouth open to allow access to the sinuses and jaws while providing enough room for an endotracheal tube to pass. The device should be adjustable to all sizes of canines and reusable.

Last Week's Goals:

- Determine design that incorporates frame
- Meet with professors about possible materials and adjustable parts
- Order carbon fiber to experiment with characteristics
- Determine what materials/parts to order
- Show construction design to client

Summary of Accomplishments:

- Met with advisor
- Constructed a working, adjustable model of the prototype
- Contacted/met the three carbon fiber specialists
- Emailed advisor about more specialists since the three specialists already contacted were not very useful
- Emailed client to set up a meeting to see if model meets requirements
- Ordered carbon fiber sample to test properties
- Obtained shop permission sheets

Next Week's Goals:

- Experiment with carbon fiber samples to see if strength and integrity will stand if many holes are drilled close together
- Determine what mechanical parts to order
- Order parts to build prototype
- Find a carbon fiber specialists to talk to
- Get shop permits
- Begin building prototype

Project Difficulties:

It turned out that the three carbon fiber specialists (two professors and Trek bicycle) recommended did not have a lot of expertise with pure carbon fiber. The team is still trying to locate specialists who will be able to give advice on working with carbon fiber.

Activities:

The whole team met for with the advisor and then as a team to build a model of the prototype for 3.0 hour

Lein: 1.0 hour, brainstorming, progress report

Leon: 1.0 hour, brainstorming, communication

Ali: 1.0 hour, brainstorming

Kim: 1.0 hour, brainstorming

Team total hours for the week: 16.0 hours

Cumulative team hours: 154.5 hours

Expenses:

| Date | Item | Product Number | Supplier | Price |
|-------------|---|-----------------------|-----------------|----------------|
| 11/3/2008 | DragonPlate Carbon Fiber *SAMPLE PACK "A" [4]* (VG~VMw/A~.025"~1/32") | | Dragon Plate | \$15.00 |
| | | | Total | \$15.00 |

Project Timeline:

| Tasks | September | | | | October | | | | | November | | | | December | | |
|-----------------------------------|-----------|----|----|----|---------|----|----|----|----|----------|----|----|----|----------|----|--|
| Project Development | 5 | 12 | 19 | 26 | 3 | 10 | 17 | 24 | 31 | 7 | 14 | 21 | 28 | 5 | 12 | |
| Brainstorming/ Design Development | ■ | ■ | ■ | ■ | ■ | | | | | | | | | | | |
| Finalize Design | | | | | ■ | ■ | ■ | ■ | | | | | | | | |
| Construction of prototype | | | | | | | | ■ | ■ | ■ | ■ | ■ | | | | |
| Testing | | | | | | | | | | | ■ | ■ | ■ | | | |
| Finalizing prototype | | | | | | | | | | | | | ■ | ■ | | |
| Deliverables | | | | | | | | | | | | | | | | |
| Progress Reports | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Mid-semester Presentation | | | | | ■ | ■ | ■ | | | | | | | | | |
| Mid-semester Paper | | | | | | ■ | ■ | ■ | | | | | | | | |
| Final Presentation | | | | | | | | | | | | ■ | ■ | ■ | | |
| Final Paper | | | | | | | | | | | | | ■ | ■ | ■ | |
| Meetings | | | | | | | | | | | | | | | | |
| Advisor | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |
| Client | | | ■ | | ■ | ■ | | ■ | | | | | | | | |
| Website | | | | | | | | | | | | | | | | |
| | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | |