

Positioning device for ophthalmic scanning laser systems

Team 23: “Ocular Imaging” Team

Client: Carol Rasmussen

Advisor: Professor Tom Yen

Team Members: Thomas Fleming (Leader)

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November 7 to November 13, 2008

Last Week’s Goals

- Finalize design dimensions for caster placement and pivot placement on cross-slide table
- Determine whether there are any other requirements that need to be fulfilled for shop access aside from the access forms turned in at the beginning of the semester
 - If so, fulfill those requirements sometime this week
- Obtain miscellaneous items necessary for assembly (e.g. nuts, bolts, clamps, u bolts, threaded rod)
- Begin table assembly

Summary of Accomplishments

- We finished assembling the cross-slide table out of the box and adjusting its hand-cranks for smooth operation.
 - Knowing the assembled dimensions of the table, we now have a better sense of how the camera weight will be have to be distributed.
- The milling table will have to be mounted to a frame in order to place the casters in proper positions.
 - We decided that angle iron as the most cost efficient material for building the frame while maintaining the necessary strength to hold the 150 lb. combined weight of the camera and milling table.

- We obtained some test hardware (nuts, bolts, washers) of various sizes to determine the best option for mounting the milling table to a frame.
 - We priced out some angle iron at a local hardware store, and found that about \$30 worth should suffice for frame assembly.
- We found and obtained access to the teaching lab in the Engineering Centers Building where we can store and work on construction of the milling table and frame.

This Week's Goals

- Decide on the correct hardware necessary for mounting the milling table.
 - Obtain this hardware and the necessary lengths of angle iron either from a local hardware store, the engineering shop in ECB, or McMaster-Carr
- Begin frame construction
 - While building the frame, make sure to add a position for u-bolt mounting towards the front of the frame so that we can rotate the camera about that point.
- Should construction of the frame go smoothly, we can begin to address any usability issues that come up.

Project Difficulties

- None

Activities

- 11/7/08 **Team** Met with Prof. Yen to discuss frame construction for mounting the casters. As a team, we decided that angle iron would be the most cost efficient and most easily constructed frame option, as compared to sheet metal and other materials. ~2 hours
- 11/8/08 **Team** Completed assembly of the cross-slide table and adjusted the hand cranks for smooth operation. ~2 hours
- 11/7/08-11/13/08 **Team (Individually)** Worked on individual sections of final paper~2 hours
- 11/6/08 **Team** Visited the hardware store to purchase a few nuts and bolts to test for fit on the cross-slide table base. Explored angle iron options and prices since a frame will be necessary for proper weight distribution. ~1 hour

Project Schedule

Preliminary Project Schedule	
Dates	Activities

Sept. 19-25	Assess our monetary situation and choose what materials we can buy pre-assembled and what materials we'll have to fabricate for a platform
Sept. 26-Oct. 2	Decide upon a user interface style (e.g. joystick, buttons, screws, etc.), and whether that interface will be electronic or mechanical. Research prices for necessary components.
Oct. 3 –10	Decide on team roles for device fabrication (platform vs. user interface), and finalize designs for each aspect of the device. Begin preparation for mid-semester presentation.
Oct. 10-17	Order necessary parts and begin fabrication. Finalize mid-semester presentation preparation.
Oct. 17-24	Receive necessary parts for platform (x-y and rotation). Determine whether it is reasonable to focus part of our efforts on simplifying the user interface at this point.
Oct. 24-31	Order any small parts that were not thought of upon first order. Simplify the user interface of the device. Begin work on final paper.
Nov. 1- 7	Receive necessary parts and begin fabrication.
Nov. 8-14	Continue fabrication and continue work on final paper.
Nov. 14-21	Obtain any parts necessary to complete fabrication. Continue work on prototype and final paper.

Expenses

- None