

Microscope Manipulator for Zebrafish Analysis

Week – November 18th, 2005 – November 27th, 2005

Team Members : Joe Hippensteel – Team Leader
Evan Rogers – Communications
Chris Webster – BSAC
Jonathan Baran – BWIG

Client :

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Problem Statement

Our goal is to develop required devices and techniques for a zebrafish embryo imaging and irradiation research project. The initial stage is developing and constructing a working prototype of a digital micromanipulator to move the Petri dish of zebrafish embryos at a reasonable speed and precision to be able to develop a composite image of the entire dish. Software is needed to operate the stage. The zebrafish must be localized during the initial scan using standard digital imaging techniques. This information will be used to irradiate the fish and determine the presence of cell apoptosis and inflammation due to this radiation.

Last Week's Goals

- Finish the software fusion
- Determine maximum operating speed (e.g. finish speed analysis)
- Discuss and decide upon other necessary components (radiation blocker, camera rig, better focus, etc.)
- Start to plan final report and presentation

Accomplishments

- Finished optimization program and quantified movement
- Created Solidworks design of irradiator stand
- Met with clients to discuss progress and necessary deliverables
- Continued software fusion
 - Difficulties with image processing
 - Visual basic portion going smoothly

This Week's Goals

- Finish!!!
- Construct irradiator stand and check precision
- Finish code
- Determine superb set-up for client
- Finish final presentation
- Finalize final report

Difficulties

- Understanding current code
- Ridding speed maximization pictures of background noise using Matlab
- Finding time to meet as a group due to hectic week

Activities/Accomplishments

| Group Member | Weekly Accomplishments | Time (hrs) | Running Total (hrs) |
|-----------------|---|------------|---------------------|
| Joe Hippensteel | Group meetings, micromanipulator research, progress report, problem statement revamp, code review, speed testing analysis | 12 | 71 |
| Evan Rogers | Group meeting, Solidworks, imaging research, code review, Matlab coding | 14 | 70 |
| Chris Webster | Group meetings, imaging research, code review, speed testing, speed testing analysis, hardware research | 10 | 67 |

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| Jonathan Baran | BWIG meeting, group meetings, code review and editing, VB research | 11 | 70.5 |
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