

Microscope Manipulator for Zebrafish Analysis

Week – October 28th, 2005 – November 3rd, 2005

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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

- Begin fusion of disparate programs
- Determine most cost efficient method for stage manipulation
 - Commercial or custom?

Accomplishments

- Realized that the primary objective is to fuse two existing computer programs (One is in C and other in Visual Basic)

- Reviewed code to begin brainstorming how to fuse these two programs
 - Possibility of using Matlab instead of Visual basic or C
 - Import C and VB scripts into Matlab
 - Discussed image recognition with Dr. Pyzalski
- Used current micromanipulator set-up
- Began to determine maximum speed at which the stage can operate without causing zebrafish translation.

This Week's Goals

- Finish the software fusion
- Determine maximum operating speed
- Pursue custom micromanipulator and stage
- Determine if it is necessary to cut a hole in current stage for better range of vision
- Start to think about final report and presentations

Difficulties

- Opening Visual Basic program
- Code Fusion

Activities/Accomplishments

Group Member	Weekly Accomplishments	Time (hrs)	Running Total (hrs)
Joe Hippensteel	Group meeting, class time, client meeting, micromanipulator research, progress report, code review, speed testing	6.5	45
Evan Rogers	Group meeting, class time, client meeting, imaging research, code review, imaging working meeting	6	44
Chris Webster	Group meeting, class time, client meeting, imaging research, code review, speed testing, BSAC meeting	6	44.5

Jonathan Baran	BWIG meeting, group meeting, class time, code review and editing, imaging working meeting	6.5	46.5
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