Microscope Manipulator for Zebrafish Analysis

Week – September 16th, 2005 – September 22nd, 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. In addition, 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
- Continue researching medical imaging techniques and commercial micromanipulators.
- Brainstorm designs and determine design pros and cons.
- Get quote from micro-machining shop.
- Set-up and attend group meeting early in the week of 9/19-9/23.
- Begin PDS and dole out mid-semester report tasks.
• Meet with client’s associates on 9/22.

Accomplishments
• Narrowed project to stage and actuator portions.
• Doled out jobs for mid-semester report.
• Began PDS and design brain storming.
• Met with client and discussed deadlines and necessary deliverables.
• Researched micro-machining labs and commercial stage costs.
• Reviewed C and VB stage manipulation program.

This Week’s Goals
• Finish rough draft of PDS and Mid-Semester report.
• Continue researching stages and actuators.
• Find midwest micro-machining labs.
• Discuss project requirements with client.
• Receive quote from micro-machining lab.
• Finalize designs possibilities and determine technical details.

Difficulties
• Understanding all requirements of the project

Activities/Accomplishments

<table>
<thead>
<tr>
<th>Group Member</th>
<th>Weekly Accomplishments</th>
<th>Time (hrs)</th>
<th>Running Total (hrs)</th>
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</thead>
<tbody>
<tr>
<td>Joe Hippensteel</td>
<td>Group meeting, Commercial micromanipulator research, progress report</td>
<td>5</td>
<td>14.5</td>
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<tr>
<td>Evan Rogers</td>
<td>Class time, imaging research, client meeting , email correspondence</td>
<td>4.5</td>
<td>14.5</td>
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<tr>
<td>Chris Webster</td>
<td>Class time, imaging research, client meeting , group meeting</td>
<td>5</td>
<td>14.5</td>
</tr>
<tr>
<td>Jonathan Baran</td>
<td>Class time, micromanipulator code review, commercial micromanipulator research, client meeting, group meeting</td>
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<td>15</td>
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