Progress Report: Week of 9-16-2005

Robotic Arm for Minimally Invasive Surgery
Team 22

Client: Aimen F. Shaaban, M.D.
Assistant Professor of Surgery
University of Wisconsin Medical School

Team Members: Ashley Huth (BSAC)
Brenton Nelson (Leader)
Max Michalski (Communicator)
Sujan Bhaheetharan (BWIG)

Problem Statement: Our client desires a more efficient surgical instrument for minimally invasive surgery. The instrument must be operable by hand and optimally will mimic the motions of the human wrist. Improvements of various factors for convenience are necessary and include, but are not limited to: applied force feedback, reusability, and simple operation for new users.

Last Week’s Goals:
- Finish our project schedule.
- Decide on the exact project design specifications as a group.
- Continue to gather information on surgical tools to help us design our project.
- Meet with Prof. Kreg Grueben to talk about our project and get more ideas, if possible.
- Continue to brainstorm possible designs and/or make modifications to any designs currently in use or on the drawing board.
- Take apart the current model of surgical tool

Accomplishments:
- Finished the team’s project timeline
- Finished the team’s PDS (project design specifications)
- Edited the team’s problem statement
- Made contact with Prof. Kreg Gruben and he lent his help for a future date.
- Brainstormed possible designs/ made larger versions of a possible prototype.
- Got acquainted with the current surgical tool.

Next Week’s Goals:
- Continue to brainstorm possible new designs
- Narrow the team’s focus down to three possible designs.
- Begin to think about the team’s paper due on October 20th.
- Continue to research current designs of surgical tools.

Difficulties:
No difficulties to speak of.
Team Activities:
9-16-05: Team met in class and discussed our PDS and problem statement
Time: 1 hr
9-16/22-05: Team continued to brainstorm possible designs.

Project Timeline:

<table>
<thead>
<tr>
<th>Week</th>
<th>Reporting Period Beginning</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>September 8</td>
<td>Received Project and Teams, Assigned Team Positions, 1 Meeting with our client (Dr. Shaaban)</td>
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<tr>
<td>2</td>
<td>September 15</td>
<td>Wrote PDS, Max assembled possible prototype, Contacted Professor Kreg Gruben</td>
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<td>3</td>
<td>September 22</td>
<td>Brain storm prototypes, and continue research on current surgical devices</td>
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<tr>
<td>4</td>
<td>September 29</td>
<td>Work on written report, 3 prototype designs</td>
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<tr>
<td>5</td>
<td>October 6</td>
<td>Work on written report, 3 prototype designs</td>
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<tr>
<td>6</td>
<td>October 13</td>
<td>Finalize 3 alternative design</td>
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<tr>
<td>7</td>
<td>October 20</td>
<td>Hand in PDS with written report. Submitted notebooks for review, gave oral presentations</td>
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<tr>
<td>8</td>
<td>October 27</td>
<td>Develop final prototype</td>
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<tr>
<td>9</td>
<td>November 3</td>
<td>Work on final prototype and poster</td>
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<tr>
<td>10</td>
<td>November 10</td>
<td>Work on final prototype and poster</td>
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<tr>
<td>11</td>
<td>November 17</td>
<td>Work on final prototype</td>
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<tr>
<td>12</td>
<td>November 24</td>
<td>Assemble final prototype</td>
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<tr>
<td>13</td>
<td>December 1</td>
<td>Prepare for presentation</td>
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<tr>
<td>14</td>
<td>December 8</td>
<td>Hand in final report and notebooks</td>
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<tr>
<td>15</td>
<td>December 15</td>
<td>Meet with advisor</td>
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Expenses:
None have been encountered.

Design Grid:

<table>
<thead>
<tr>
<th>Task</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>2 9 6 3 0</td>
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<td>2 5 2 8 5</td>
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<table>
<thead>
<tr>
<th>Design Grid</th>
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<tbody>
<tr>
<td>Design brainstorming</td>
</tr>
<tr>
<td>Preliminary Designs</td>
</tr>
<tr>
<td>Friday Team Meetings</td>
</tr>
</tbody>
</table>
### Deliverables
- Progress Report
- PDS
- Mid Semester Paper
- End Semester Presentation
- End Semester Paper

### Meetings
- Client
- Final Meeting with Advisor

### Prototype
- Accounting/budgeting
- Final design developments
- Rapid prototyping
- Analysis/testing
- Final prototype
- Manufacturing
- Final testing

### Website

### BSAC

Brenton
Max
Ashley
Sujan
All