Senior Design

Sub Software (8 tasks)

Sub Software::State Machine Diagram for Sub

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate</th>
<th>Time spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(none)</td>
<td>6h</td>
<td>0h</td>
</tr>
</tbody>
</table>

Sub Software::RPI code to receive serial data from arduino

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate</th>
<th>Time spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jeff Kloosterman</td>
<td>6h</td>
<td>3h</td>
</tr>
</tbody>
</table>

Comments

Mike Capozzoli       22 October 2012 23:39
A good start has been done

Jeff Kloosterman     22 October 2012 23:43
I concur, sir

Sub Software::Motor Control Software

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate</th>
<th>Time spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>(none)</td>
<td>24h</td>
<td>0h</td>
</tr>
</tbody>
</table>

- Develop protocol for reading chosen IMU
- Develop mathematical control system model
- Implement control system in software
- Develop software interface for control system software

Sub Software::RPI code to send and receive data packets

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate</th>
<th>Time spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike Capozzoli</td>
<td>5h</td>
<td>0h</td>
</tr>
</tbody>
</table>

Sub Software:: RPI code to send motor commands over serial to Arduino

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate</th>
<th>Time spent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6h</td>
<td>0h</td>
</tr>
</tbody>
</table>
Mitch Fynaardt

Sub Software::Communication Protocall

Design conceptual communications protocol so messages can be deciphered at both ends (akin to ISA)

Responsible: Mike Capozzoli
Time estimate: 8h
Time spent: 0h

Comments

Mike Capozzoli
started 29 October 2012 15:11

Sub Software::Design fail-safe systems (in the event of leaking/ power loss)

Design failsafe systems to activate in the event of leaking/ power loss

Responsible: (none)
Time estimate: 5h
Time spent: 0h

Sub Software::Data acquisition Software

Responsible: (none)
Time estimate: 42h
Time spent: 0h

- Accelerometer (4 hours)
- Gyro (4 hours)
- Depth (5 hours)
- Temp (4 hours)
- Humidity (4 hours)
- Water (4 hours)
- Integrate gyro + acc (3 hours)
- Position (IMU + depth) (3 hours)
- safety (depth + water + humidity) (6 hours)
- Design and code scheme to send data packets to controller (6 hours)

Sub Hardware (5 tasks)
Sub Hardware::Create a board layout diagram

- Responsible: (none)  
  Time estimate: 13h  
  Time spent: 0h

- Create Spacial Arrangement Diagram (2 hours - dependent on component selection)
- Create Component Footprints as needed (5 hours)
- Create Schematic (2 hours)
- Route Traces (4 hours)

Sub Hardware::Purchase waterproof wires

- Ethernet and USB cables and connectors

- Responsible: Jon  
  Time estimate: 8h  
  Time spent: 0h

Due on 7 November 2012 00:00 for target Done

- Ethernet
- USB
- Ethernet port
- USB port

Sub Hardware::Choose sensors

- Responsible: Jeff Kloosterman

- Time estimate: 7h 30m  
  Time spent: 0h

- Choose Accelerometer (1 hour)
- Choose Gyro (1 hour)
- Choose Depth Sensor (2 hour)
- Choose Temperature Sensor (2 hour)
- Choose Humidity Sensor (2 hour)
- Choose Water Sensor (2 hour)
- Purchase sensor breakout boards (0.5 hour)

Sub Hardware::Choose camera (3 hours)

- Responsible: (none)  
  Time estimate: 3h 50m  
  Time spent: 0h

- Purchase camera (0.5 hour)
Sub Hardware::Choose a processor (2 hours)

Responsible: Jeff Kloosterman  
Time estimate: 2h 30m  
Time spent: 0h

- Purchase Arduino (10 minutes)
- Purchase Raspberry Pi (10 minutes)

Comments

Jeff Kloosterman  
29 October 2012 16:02

Sidelined until later

Mechanical (7 tasks)

Mechanical::Design Enclosure

Responsible: (none)  
Time estimate: 30h  
Time spent: 0h

- Design main hull (8 hours)
- Design ballast compartments (8 hours)
- Design environment sample storage compartments (7 hours)
- Design waterproofing for electronics (7 hours)

Mechanical::Build Enclosure

Responsible: (none)  
Time estimate: 16h  
Time spent: 0h

- Build main hull (4 hours)
- Build ballast compartments (4 hours)
- Build environment sample storage compartments (5 hours)
- Create enclosure partitions between components (3 hours)

Mechanical::Test the enclosure for waterproofing at surface depth (without electronics)

Responsible: (none)  
Time estimate: 4h  
Time spent: 0h

Mechanical::Test the enclosure under pressure (without electronics)
<table>
<thead>
<tr>
<th>Task Description</th>
<th>Responsible</th>
<th>Time estimate</th>
<th>Time spent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Team Tasks: Mechanical::Add programming port to enclosure</td>
<td>(none)</td>
<td>4h</td>
<td>oh</td>
</tr>
<tr>
<td>Team Tasks: Mechanical::Add tether port to enclosure</td>
<td>(none)</td>
<td>4h</td>
<td>oh</td>
</tr>
<tr>
<td>Team Tasks: Mechanical::Research tether materials in order to make it structurally sound</td>
<td>(none)</td>
<td>2h</td>
<td>oh</td>
</tr>
<tr>
<td>User Interface (6 tasks)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User Interface::Choose an initial platform (1 hour)</td>
<td>Jon</td>
<td>1h</td>
<td>oh</td>
</tr>
<tr>
<td>User Interface::Develop a HUD layout (1 hour)</td>
<td>Jon</td>
<td>1h</td>
<td>oh</td>
</tr>
<tr>
<td>User Interface::Capture video feed (3 hours)</td>
<td>Jon</td>
<td>6h</td>
<td>oh</td>
</tr>
<tr>
<td>Display video feed (3 hours)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User Interface::Design data logging system (4 hours)</td>
<td>Jon</td>
<td>4h</td>
<td>oh</td>
</tr>
<tr>
<td>User Interface::Code the HUD</td>
<td>Jon</td>
<td>12h</td>
<td>oh</td>
</tr>
</tbody>
</table>
Method to recognize when a sensor value changes (4 hours)

Method to print sensor outputs to screen (.5 hours)

Develop code to read user input (4 hours)

Develop code to send user inputs (4 hours)

User Interface::User Testing and Calibration (4 hours)

Responsible: Jon  Time estimate: 4h  Time spent: 0h

Power Requirements (7 tasks)

Power::Research types of batteries for underwater applications (8 hours)

Responsible: (none)  Time estimate: 8h  Time spent: 0h

Power::Research batteries that could be used to power the communications router (8 hours)

Responsible: Mike Capozzoli  Time estimate: 8h  Time spent: 0h

Power::Buy appropriate battery for sub (2 hours)

Responsible: (none)  Time estimate: 2h  Time spent: 0h

Power::Buy a battery to place on above water float (2 hours)

Responsible: (none)  Time estimate: 2h  Time spent: 0h

Power::Integrate all of the sub's systems (motors, processor, lights) so that they may be powered by the same battery

Responsible: Mitch Fynaardt  Time estimate: 8h  Time spent: 0h

Power::Install battery on float and wire it to the router

Responsible: Mike Capozzoli  Time estimate: 2h  Time spent: 0h
<table>
<thead>
<tr>
<th>Power::Add passive means of charging battery(thermocouple, solar panels)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: Mitch Fynaardt</td>
</tr>
</tbody>
</table>

**Communication Requirements (1 task)**

<table>
<thead>
<tr>
<th>Communication::RPI code to stream video</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: Mike Capozzoli</td>
</tr>
</tbody>
</table>

**Class Assignments (4 tasks)**

<table>
<thead>
<tr>
<th>Class Assignments::Oral Presentation 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: Jeff Kloosterman</td>
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</tbody>
</table>

Due on 28 November 2012 02:30 for target Done

<table>
<thead>
<tr>
<th>Class Assignments::Oral Presentation 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: (none)</td>
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</table>

<table>
<thead>
<tr>
<th>Class Assignments::Oral Presentation 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: (none)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Class Assignments::Final Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: (none)</td>
</tr>
</tbody>
</table>
It's been a nice life

<table>
<thead>
<tr>
<th>Responsible: (none)</th>
<th>Time estimate: 100h</th>
<th>Time spent: oh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Due on 10 May 2013 00:00 for target Done</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PPFS (0 tasks)**

**Financials (2 tasks)**

<table>
<thead>
<tr>
<th>find out what to do for this section</th>
<th>Team Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: (none)</td>
<td>Time estimate: 30m</td>
</tr>
<tr>
<td>Financials::Budget Allocation</td>
<td></td>
</tr>
<tr>
<td>Put together a list of parts and compare against max budget</td>
<td></td>
</tr>
<tr>
<td>Responsible:</td>
<td>Time estimate: 8h</td>
</tr>
<tr>
<td>Jeff Kloosterman</td>
<td></td>
</tr>
</tbody>
</table>

**Integration Testing (1 task)**

<table>
<thead>
<tr>
<th>find out what to do for this section</th>
<th>Team Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: (none)</td>
<td>Time estimate: 30m</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Business Plan (5 tasks)**

<table>
<thead>
<tr>
<th>Stitch and edit Business Plan</th>
<th>Mike's Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible:</td>
<td>Time estimate: 2h</td>
</tr>
<tr>
<td>Mike Capozzoli</td>
<td></td>
</tr>
<tr>
<td>Due on 30 November 2012 00:00 for target Done</td>
<td></td>
</tr>
</tbody>
</table>
### Loan or Investment Proposal

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate: 4h</th>
<th>Time spent: oh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike Capozzoli</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Due on 25 November 2012 00:00 for target Done

### Business Plan:: Plan of operation

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate: 2h</th>
<th>Time spent: oh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitch Fynaardt</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Due on 25 November 2012 00:00 for target Done

### Business Plan :: Description of Management team

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate: 2h</th>
<th>Time spent: oh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitch Fynaardt</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Due on 25 November 2012 00:00 for target Done

### Financial Forecasts

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Time estimate: 4h</th>
<th>Time spent: oh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mike Capozzoli</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Due on 25 November 2012 00:00 for target Done

### System (0 tasks)

### To-do (7 tasks)

**Business Plan:: Competitor Analysis**

Refer to the business Plan outline. This will be an expansion of your previous work. Use the microsoft word template in the google drive and do all the editing in word. When in doubt, but the link to your source in a footnote. Write in active voice and
<table>
<thead>
<tr>
<th>Business Plan:: Location and Layout</th>
<th>Responsible: Spencer Olson</th>
<th>Time estimate: 1h</th>
<th>Time spent: 0h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make this part up</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Done</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Due on <strong>25 November 2012 00:00</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Plan:: Marketing Strategy</th>
<th>Responsible: Spencer Olson</th>
<th>Time estimate: 4h</th>
<th>Time spent: 0h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer to the business Plan outline. This will be an expansion of your previous work. Use the Microsoft Word template in the Google Drive and do all the editing in Word. When in doubt, but the link to your source in a footnote. Write in active voice and don't be afraid to use first person. &quot;We think that is is a target customer&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Done</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Due on <strong>25 November 2012 00:00</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Plan:: Executive Summary</th>
<th>Responsible: Mitch Fynaardt</th>
<th>Time estimate: 4h</th>
<th>Time spent: 0h</th>
</tr>
</thead>
<tbody>
<tr>
<td>The first thing in the report, refer to handout</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Done</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Due on <strong>25 November 2012 00:00</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Plan:: Vision and Mission Statement</th>
<th>Responsible: Mitch Fynaardt</th>
<th>Time estimate: 4h</th>
<th>Time spent: 0h</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our vision for the company, values and principals</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Done</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Due on <strong>25 November 2012 00:00</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Business Plan :: Business Strategy</th>
<th>Responsible: Mike Capozzoli</th>
<th>Time estimate: 4h</th>
<th>Time spent: 0h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Mike's Tasks</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Due on 25 November 2012 00:00 for target Done

**Business Plan:: Company Products and Services**

- **Responsible:** Mike Capozzoli
- **Time estimate:** 4h
- **Time spent:** 0h

Due on 25 November 2012 00:00 for target Done

**In progress (0 tasks)**

**Done (21 tasks)**

**System::Build SWIM-R 0.1**

- Build the first iteration rough prototype of SWIM-R. This prototype will have 4 motors that can be controlled from a laptop over USB.

- **Responsible:** Jeff Kloosterman
- **Time estimate:** 10h
- **Time spent:** 0h
- **Grouping date:** 18 November 2012

Due on 30 November 2012 00:00 for target Done (Was done by Mike Capozzoli at 18 November 2012 14:01)

- ✔ Build basic aluminum frame to mount motors to (2 hours)
- ✔ Find foam to make neutrally bouyant (1 hour)
- ✔ Mount motors (1 hour)
- ✔ Create motor drive circuitry (2 hours)
- ✔ Write Arduino code to control 4 motors at variable speed and direction (4 hours)

**PPFS::Executive Summary**

- Short technical summary of the PPFS

- **Responsible:** Jeff Kloosterman
- **Time estimate:** 4h
- **Time spent:** 0h
- **Grouping date:** 9 November 2012
Due on 9 November 2012 00:00 for target Done (Was done by Mike Capozzoli at 18 November 2012 14:01)

<table>
<thead>
<tr>
<th>PPFS::Stitch PPFS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: Jeff Kloosterman</td>
<td>Time estimate: 5h</td>
</tr>
<tr>
<td>Grouping date: 9 November 2012</td>
<td></td>
</tr>
</tbody>
</table>

Due on 12 November 2012 00:00 for target Done (Was done by Jeff Kloosterman at 9 November 2012 13:42)

<table>
<thead>
<tr>
<th>PPFS::CH12: Feasibility</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: Jon</td>
<td>Time estimate: 8h</td>
</tr>
<tr>
<td>Grouping date: 9 November 2012</td>
<td></td>
</tr>
</tbody>
</table>

Due on 9 November 2012 00:00 for target Done (Was done by Jeff Kloosterman at 9 November 2012 13:42)

<table>
<thead>
<tr>
<th>PPFS::CH8: Business Plan</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: Mitch Fynaardt</td>
<td>Time estimate: 8h</td>
</tr>
<tr>
<td>Grouping date: 9 November 2012</td>
<td></td>
</tr>
</tbody>
</table>

Due on 9 November 2012 00:00 for target Done (Was done by Mike Capozzoli at 9 November 2012 10:23)

<table>
<thead>
<tr>
<th>Cost Estimate::Production</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsible: Mitch Fynaardt</td>
<td>Time estimate: 5h</td>
</tr>
<tr>
<td>Grouping date: 9 November 2012</td>
<td></td>
</tr>
</tbody>
</table>

Due on 9 November 2012 00:00 for target Done (Was done by Mike Capozzoli at 9 November 2012 10:23)

<table>
<thead>
<tr>
<th>Marketing Study::Competition</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12/17
Consult the Design_Report_style_guide for requirements.

Responsible: Kristen Herder  
Time estimate: 5h  
Time spent: 1h  
Grouping date:  
8 November 2012  
Due on 9 November 2012 00:00 for target Done (Was done by Mike Capozzoli at 9 November 2012 02:44)

Comments

Kristen Herder  
4 November 2012 19:28  
Put a file in the Google Docs called Market Competition. Let me know what needs work/suggestions...

Marketing Study::Marketing Survey  
Spencer's Tasks

Consult the Design_Report_style_guide

Responsible: Spencer Olson  
Time estimate: 5h  
Time spent: 0h  
Grouping date:  
8 November 2012  
Due on 9 November 2012 00:00 for target Done (Was done by Mike Capozzoli at 9 November 2012 02:44)

PPFS::CH4: Float  
Mike's Tasks

Write Chapter 4 of the PPFS

Responsible: Mike Capozzoli  
Time estimate: 8h  
Time spent: 1m  
Grouping date:  
8 November 2012  
Due on 6 November 2012 00:00 for target Done (Was done by Mike Capozzoli at 8 November 2012 00:20)

Cost Estimate:: Development  
Mike's Tasks

- Hardware Design
- Software Design
- Mechanical Structure
- Construction
Responsible: Mike Capozzoli, Time estimate: 5h, Time spent: 0h
Grouping date: 8 November 2012
Due on 9 November 2012 00:00 for target Done (Was done by Mike Capozzoli at 9 November 2012 02:44)

PPFS::CH7: Prototypes
Responsible: Jeff Kloosterman, Time estimate: 8h, Time spent: 6h
Grouping date: 7 November 2012
Due on 7 November 2012 00:00 for target Done (Was done by Jeff Kloosterman at 7 November 2012 23:28)

PPFS::CH3: Computer
Write Chapter 3 of the PPFS
Responsible: Jon, Time estimate: 8h, Time spent: 0h
Grouping date: 7 November 2012
Due on 6 November 2012 00:00 for target Done (Was done by Mitch Fynaardt at 7 November 2012 22:17)

PPFS::CH2.5: System
Responsible: Jeff Kloosterman, Time estimate: 8h, Time spent: 0h
Grouping date: 5 November 2012
Due on 7 November 2012 00:00 for target Done (Was done by Jeff Kloosterman at 5 November 2012 22:20)

- System components
- Communication overview

PPFS::CH5: Sub
Write Chapter 5 of the PPFS
Responsible: Time estimate: 8h, Time spent: 16h
Jeff Kloosterman  
**Grouping date:** 4 November 2012

---

**Due on 6 November 2012 00:00 for target Done** (Was done by Jeff Kloosterman at 4 November 2012 18:40)

- ✓ Hardware Design
- ✓ Software Design
- ✓ Mechanical Structure

---

**PPFS::CH1: Introduction**

Write the First chapter of the PPFS

Responsible: Jeff Kloosterman  
**Time estimate:** 3h  
**Time spent:** 0h  
**Grouping date:** 3 November 2012

---

**Due on 3 November 2012 00:00 for target Done** (Was done by Jeff Kloosterman at 3 November 2012 16:28)

- ✓ Introduction (0.5 hours)
- ✓ Problem Statement (0.25 hours)
- ✓ Project Proposal (6 hours)
- □ Report Structure (1 hour)
- ✓ Team Organization (2 hours)

---

**PPFS::CH2: Requirements**

Write Chapter 2 of the PPFS

Responsible: Mitch Fynaardt  
**Time estimate:** 3h  
**Time spent:** 0h  
**Grouping date:** 3 November 2012

---

**Due on 3 November 2012 00:00 for target Done** (Was done by Mitch Fynaardt at 5 November 2012 10:37)

- ✓ Technical Description (2 hours)
- □ Customer Requirements (2 hours)
- ✓ Essential Features (2 hours)
- ✓ Core Features (2 hours)
- ✓ Baseline Features (2 hours)
Business Plan::Juniors!

Make break down of tasks and assign to juniors

- **Responsible:** Mike Capozzoli
- **Time estimate:** 1h
- **Time spent:** 0h
- **Grouping date:** 3 November 2012

Sub Hardware::Test DC motors for performance underwater

Test the DC motors found for performance in air and water and see if there is a trend.

- **Responsible:** Mitch Fynaardt
- **Time estimate:** 3h
- **Time spent:** 5h
- **Grouping date:** 25 October 2012

Sub Hardware::Purchase Motors

Buy four low-cost DC motors that we can use for SWIM-R 0.1

- **Responsible:** Jeff Kloosterman
- **Time estimate:** 5h
- **Time spent:** 5h
- **Grouping date:** 25 October 2012

Due on 26 October 2012 00:00 for target

Done (Was done by Jeff Kloosterman at 25 October 2012 09:17)

- ✔ Research motor types that will work in water
- ✔ Research Motor Drivers
- ✔ Buy 4 motors
- ✔ Buy Propellers

Class Assignments::Executive Summary

Write an executive summary (2-5 pages) giving details about the project. The document is to help the industry consultant get ready for the meeting

- **Responsible:** Jeff Kloosterman
- **Time estimate:** 2h
- **Time spent:** 1h
- **Grouping date:**
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<th>(Was done by Jeff Kloosterman at 22 October 2012 15:34)</th>
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Class Assignments::Oral Presentation 1

Done by Mitch and Jon

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<th>Time spent:</th>
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