



# Software Project Management Plan

Version 3-2014-05-26

for

PlasmaGraph

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## Revision History

Version	Date	Reason For Changes
1-2013-11-11	Friday, November 11, 2013	First version of document.
1-2014-04-27	Sunday, April 27, 2014	Changes to title page, page numbers, addition of a preface, page numbers on the Table of Contents, addition of various tables and lists for terms and the like, general sentence reorganization all around the document, and additional information provided for group member roles.
2-2014-05-15	Thursday, May 15, 2014	Correction of errors Advisor found. Included missing references. Added diagrams to Process Model to describe phases. Added information regarding Software Documentation aside from Javadocs. Added information regarding resources used per Work Package, and cost of resourced. Included tentative table for Budget and figures for gantt chart schedule.
2-2014-05-20	Tuesday, May 20, 2014	Correction of various typographical errors around the document. Reduced size of various figures to be smaller than a single page. Modified Section 3.2 to discuss project management more closely. Added project schedule to Section 5.5 and end dates to Work Packages in Section 5.1. Changed Appendix A to "Advisor Meeting Notes" and added all meeting notes as of 5/20/2014.
3-2014-05-26	Monday, May 26, 2014	Corrected various minor details on the title page.

## Preface

This document, the Software Project Management Plan (SPMP), exists to detail the organization of the Plasma Visualization Group's PlasmaGraph project. It is specifically-designed to communicate how the project will begin, progress, and what are its end goals, but not what the project entails. Those reading this document should be interested in understanding facets of the management of this project.

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## 1. Introduction

### 1.1. Project Overview

This document covers the plan for the creation of the PlasmaGraph graphing tool for the Polytechnic University of Puerto Rico's (PUPR's) Plasma Laboratory. PlasmaGraph is a graphing tool, enabling easier graphing capabilities compared to those of MathWorks' Matlab [1] product, the product currently in use by the Plasma Lab. A number of basic capabilities will be included with this initial product; they will be listed and described in the Software Requirement Specification (SRS) document.

Progress in this project will be measured by the completion of particular milestones, which will be delineated in Part 5 of this document, "Work Packages, Schedule, and Budget". Completion will be measured by how the product completes the testing detailed in the Software Test Documentation (STD), also included with this document. Once completed, the team will present the finalized product and provide various components of the project to the client, including the program code and its documentation. This project will form a part of the continuity of physical and digital systems currently in use by the PUPR Plasma Laboratory to pull data from their experiments and understand them.

### 1.2. Project Deliverables

The client, Professor Angel Gonzales-Lizardo of the Polytechnic University of Puerto Rico's Plasma Laboratory, must receive the following items at his office in the PUPR Plasma Lab by Friday, May 30, 2014 at 12:00 PM Atlantic Standard Time (UTC/GMT – 04:00):

- A. One (1) digital copy of the PlasmaGraph Product (Section 5.1, Work Package B) and Program Documentation (Section 5.1, Work Package C), in a CD-ROM.

B. One (1) physical (paper, softcover) copy of the PlasmaGraph User Manual and Installation Guide.

C. One (1) physical copy of the following Project Documentation documents (Section 5.1, Work Package A):

1. The Software Project Management Plan (SPMP)
2. The Software Requirements Specification (SRS)
3. The Software Design Description (SDD)
4. The Software Test Document (STD) and Test Result Report(s).

D. One (1) digital copy of all Project Presentations (Section 5.1, Work Package D) performed throughout the duration of the project.

E. One (1) physical poster summarizing the project.

### ***1.3. Evolution of the SPMP***

The SPMP document will be created and modified as follows:

- The document will be divided in parts based on each of its sections. For example, Section 1.3 of this document will have its individual file in the project repository (Section 3.4, Sub-Section A) containing the most recent version of the section.
- Each section file will be named only by its section's name.
- Once changes are finalized to each section file, the individual section files' contents will be copied to the correct section in the SPMP template document file (SPMP-template.docx).
- The SPMP document can be saved in any of the Project Documentation formats listed in Section 4.1, Sub-Section A.
- The SPMP document's name will have a version number following the rules stipulated in Section 4.2.
- Once the document is approved by an advisor (Professor Luis A. Ortiz Ortiz), the SPMP can be saved in any of the Project Documentation formats listed in Section 4.1, Sub-Section B.

All versions of the SPMP will be located in the project's GitHub [2] version control system, (<https://github.com/TakoArishi/PlasmaGraph>) under the directory "specs/SPMP/". Document parts will be stored in folders labelled from Sections 1 to Section 5. Completed SPMP documents will be stored in the "specs/SPMP/" directory.

#### ***1.4. Reference Materials***

- [1] The MathWorks, Inc., "MATLAB – The Language of Technical Computing," [Online]. Available: [http://www.mathworks.com/products/matlab/?s\\_tid=hp\\_fp\\_ml](http://www.mathworks.com/products/matlab/?s_tid=hp_fp_ml). [Accessed 12 May 2014].
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- [6] B. Goines, S. Chacon and M. McCullough, "Git – About Version Control," [Online]. Available: <http://git-scm.com/book/en/Getting-Started-About-Version-Control>. [Accessed 13 May 2014].
- [7] PC.net, "Definition of IDE," [Online]. Available: <http://pc.net/glossary/definition/ide>. [Accessed 13 May 2014].
- [8] Polytechnic University of Puerto Rico, "Polytechnic University of Puerto Rico – Main Page," [Online]. Available: <http://www.pupr.edu/>. [Accessed 13 May 2014].
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- [16] "How to Write Doc Comments for the Javadoc Tool," 16 November 2012. [Online]. Available: <http://www.oracle.com/technetwork/java/javase/documentation/index-137868.html>. [Accessed 13 May 2014].
- [17] R. C. Martin, "UML Java Programmers," 10 December 2008. [Online]. Available: [http://www.csd.uoc.gr/~hy252/references/UML\\_for\\_Java\\_Programmers-Book.pdf](http://www.csd.uoc.gr/~hy252/references/UML_for_Java_Programmers-Book.pdf). [Accessed 24 04 2014].
- [18] t. t. w. cbwatcham, "JMatIO – Matlab's MAT-file I/O in JAVA," 04 December 2012. [Online]. Available: <http://sourceforge.net/projects/jmatio/>. [Accessed 14 May 2014].
- [19] Apache Software Foundation, "Math – Commons Math: The Apache Commons Mathematics Library," 02 November 2013. [Online]. Available: <http://commons.apache.org/proper/commons-math/index.html>. [Accessed 12 February 2014].
- [20] Oracle Corporation, "Java SE Application Design With MVC," March 2007. [Online]. Available: <http://www.oracle.com/technetwork/articles/javase/index-142890.html>. [Accessed 15 May 2014].

## 1.5. Definitions and Acronyms

Unless otherwise specified, all definitions and acronyms are specific to this project's scope.

*Table 1: Document Definitions*

Term	Definition
PlasmaGraph / Product	A Matlab-file error-checking graphing program made for the PUPR Plasma Laboratory.
Client	Professor Angel Gonzales-Lizardo; the person requesting the project.
Advisor	University-designated overseer of the project's progress.
JFreeChart [3]	A set of tools written in the “Java” programming language that create graphical representations of data provided to it.
Matlab [1]	Data-manipulation and graphing IDE made by The Mathworks, Inc.
Java [4]	Object-oriented, interpreted programming language known for its portability between multiple operating systems and general-purpose capabilities.
Operating System [5]	Software that controls the operation of a computer and directs the processing of programs (as by assigning storage space in memory and controlling input and output functions).
Project Team / Team	The creators and maintainers of the project and all of its end products. Composed of Gerardo A. Navas Morales and Daniel E. Quintini Greco.
Version Control System [6]	Manages how multiple users can access and change the same files without losing data. Also known as a Revision Control System or Source Control System
Integrated Development Environment [7]	Software development program that keeps track of all files related to a project and provides a central interface for writing source code, linking files together, and debugging the software.
Vetting work packages	The process of reviewing a work package for semantical errors, documentation requirements (if a document), or programming errors (if a program).
Program Documentation	All Javadoc files and the User Manual.
Project Documentation	The SRS, SDD, STD, and SPMP documents.
Polytechnic University of Puerto Rico [8]	University where the Plasma Laboratory is located, as well as where the group's members study.
Software Project Management Plan / SPMP [9]	This document; One of the four IEEE project documents being created as part of this project.

Term	Definition
Software Requirements Specification / SRS [10]	One of the four IEEE project documents being created as part of this project.
Software Design Descriptions / SDD [11]	One of the four IEEE project documents being created as part of this project.
Software Test Documentation / STD [12]	One of the four IEEE project documents being created as part of this project.
Graphical User Interface / GUI [5]	A computer program designed to allow a computer user to interact easily with the computer typically by making choices from menus or groups of icons.
Development	Creation of product code.
PNG / .png / JPG / JPEG / .jpg / .jpeg	Types of computer files that hold image data.
MAT / .mat	Matlab data file format.
Contributor	A GitHub user status; allows the user to make changes to the project.
Incomplete document	A document with one or more sections labelled [TBD].
Complete document	A document with no sections labelled [TBD].
Document verification	The process an Advisor performs on a document to check for errors.
GitHub [2]	File repository system that uses the Git Version Control System. [2]
JUnit [13]	Testing framework used for the automation of program tests.

Table 2: Document Acronyms

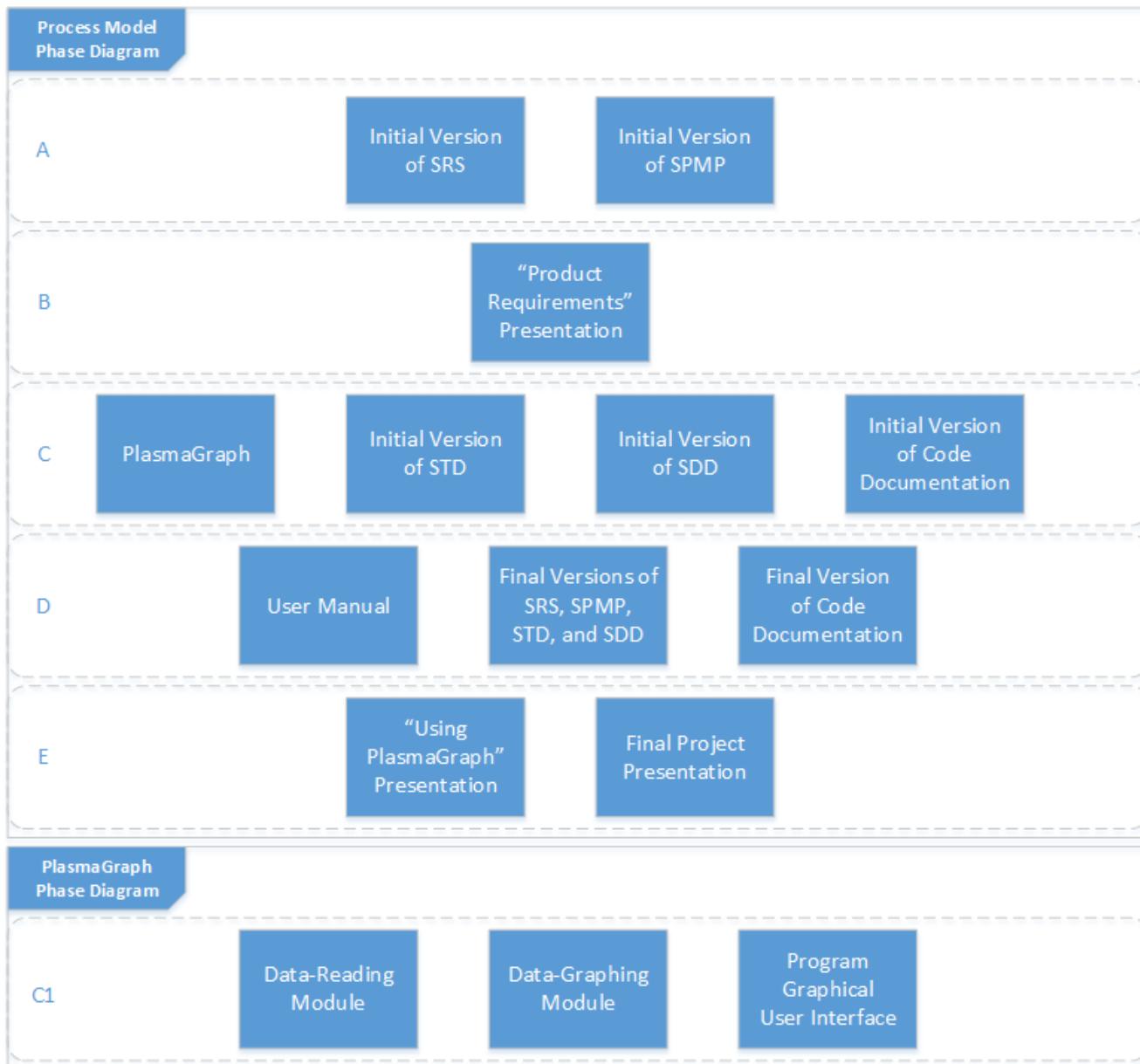
Term	Acronym
PUPR	Polytechnic University of Puerto Rico.
SPMP	Software Project Management Plan.
SRS	Software Requirement Specification.
SDD	Software Design Descriptions.
STD	Software Test Documentation.
GUI	Graphical User Interface.
VCS	Version Control System
IDE	Integrated Development Environment.

## 2. Project Organization

### 2.1. Process Model

The PlasmaGraph project will be divided into five phases, each of which must be completed in order. The following diagram details the project team's required activities in order from start to finish.

Figure 1: Process Model Phase Diagrams



As can be seen in Figure 1, the project will be divided into five phases, each labelled in alphabetical order. The phases are:

- A. Creation of the initial SRS and SPMP documents.
- B. Presentation of the Project Requirements.
- C. Creation of the PlasmaGraph product, initial versions of the STD and SDD documents, and the initial version of the product's code documentation.
- D. Creation of the User Manual and final versions of the Code Documentation and SRS, SDD, STD, and SPMP documents.
- E. Presentation of the Product (PlasmaGraph).

Furthermore, the creation of the PlasmaGraph product, located in phase C, is separated into the following simultaneous tasks:

- C1. Creation of the Data-Reading Module
- C2. Creation of the Data-Graphing Module
- C3. Creation of the Program's Graphical User Interface (GUI)

A thorough explanation of what each phase of this project entails is found in the section entitled “Work Packages”, section 5.1. Furthermore, the time required to complete these phases will be explained in section 5.5 (“Schedule”).

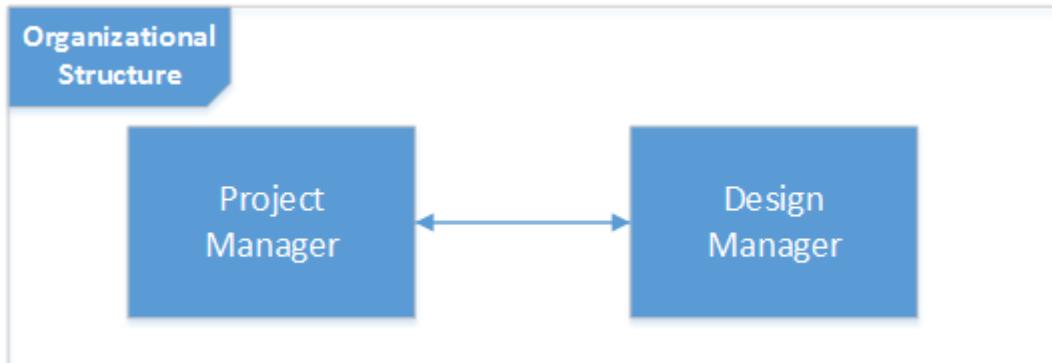
## 2.2. Organizational Structure

This project will be completed by the following people (their positions are included in parentheses):

- Gerardo A. Navas Morales (Project Manager)
- Daniel E. Quintini Greco (Design Manager)

As shown in the following diagram, the positions of these two project members are equivalent with regards to project management hierarchy:

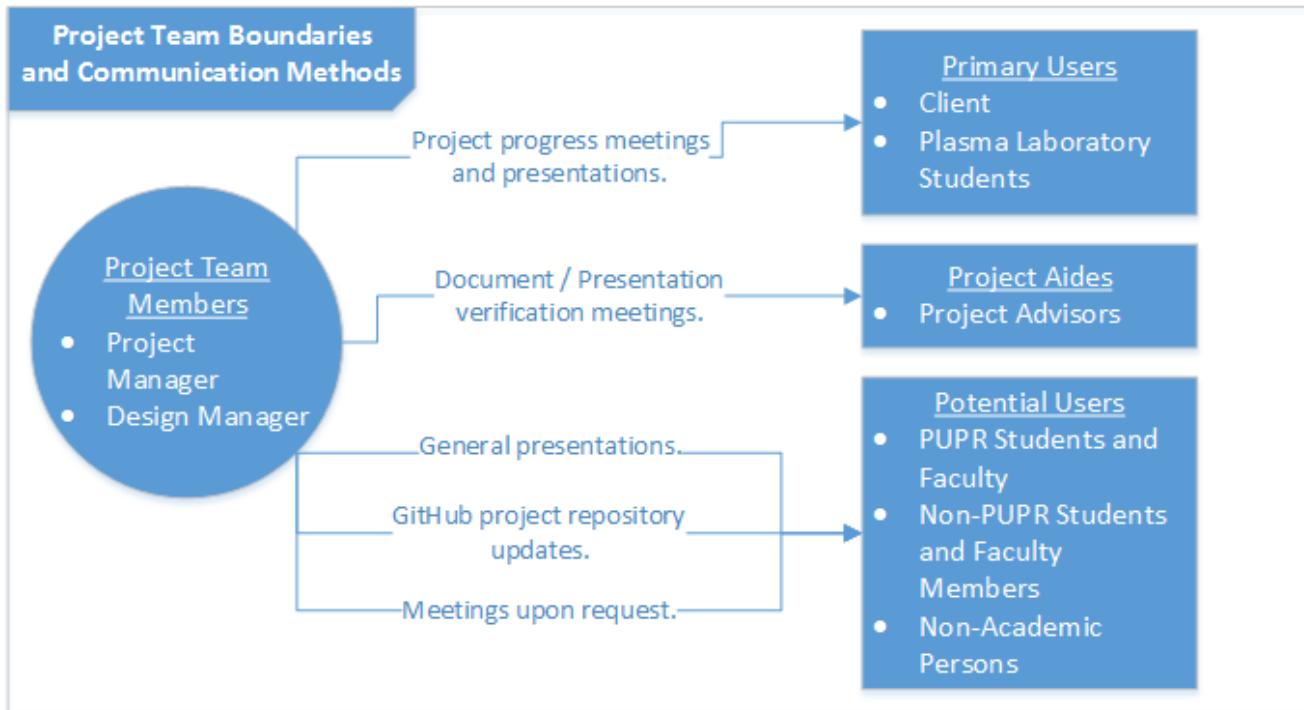
*Figure 2: Team Organizational Structure*



### 2.3. Organizational Boundaries and Interfaces

The project team will handle the following items related to the project:

*Figure 3: Project Organizational Boundaries and Communication Channels*



The project team will handle communication between itself and the three external group types as follows:

- Primary Users: Both the client and the students that work in the Plasma Laboratory will be provided information regarding the PlasmaGraph product via progress meetings and presentations as needed.
- Project Aides: The team will meet with any and all project advisors whenever a document or presentation is ready to be verified for errors.
- Potential Users: Meetings with people that are not currently involved with the project will be met with upon their request. Any parties interested in the results of this project will be updated with the status of the project via the GitHub project repository or any presentations made to the general public.

## 2.4. Project Responsibilities

As described in section 2.2 of this document, this project's team is composed of two (2) members. The duties that these two members must perform are as follows:

- Shared Responsibilities
  - Research, design, develop, and maintain product.
  - Develop and maintain product documentation.
  - Manage meetings with the client and Plasma Laboratory students.
  - Develop and present product according to the Work Package Diagrams in Section 5.1.
  - Provide all materials to the client upon completion of the project.
- Individual Responsibilities
  - Project Manager
    - Develop and Maintain the SPMP and SDD documents.
    - Manage weekly project updates.
    - Maintain project's GitHub repository
  - Design Manager
    - Develop and maintain the SRS and STD documents.
    - Schedule and oversee Primary User (See Section 2.3) testing.
    - Serve as intermediary between Project Manager and Primary Users (See Section 2.3).

### 3. Managerial Process

#### 3.1. Management Objectives and Priorities

This section will cover what the project goals are and how the team will reach them.

##### A. Purpose

This project team was organized in order to create a product, named “PlasmaGraph”, for the client. This product will be able to take a Matlab Level-5-formatted data file [14] and the graph details (settings), and will produce a graph containing the data according to the settings selected by the user. The client has requested this tool to substitute the use of Matlab, currently being used to produce all graphs in the Plasma Laboratory.

##### B. Priority

The project is divided into two general sections: the program (the working product, including its code documentation) and its documentation (its specifications and the User Manual and Installation Guide that will be provided alongside the product). The priorities for each are as follows:

- a. Documentation Priority: The SPMP and SRS documentation for the project is required before beginning the development of the product.
- b. Product Priority: The team will not begin development on the product until initial drafts of the SRS and SPMP Work Packages (See Section 5.1) have been completed.

##### C. Communication and Meetings

Team members can communicate with each other via e-mail, telephone conversations, text messages, instant messaging, and in meetings. Group members will exchange telephone contact information during the first official meeting of the project group, and may provide additional contact vectors as needed.

Meetings will be decided upon at least one day in advance, and must last for at least one hour. The ideal period of time for meetings will be on Tuesdays or Wednesdays from 4:00 PM to 6:30 PM.

Meetings with the Advisor and the Client will all be official. Meetings with the Advisor will be held weekly and be logged via meeting notes (specs/Notas de Reuniones/) that will be signed by all team members, describing what has been done during the week and what should be done for the following week. Meetings with the client will not be recorded in the same way; instead, the project team will meet with him with a number of questions and will end the meeting when questions have been answered and when all the requests by the client have been answered satisfactorily. All meeting notes will be appended in Appendix A.

#### D. Schedule

Refer to Section 5.5 of this document for how the project's schedule will be organized.

#### E. Budget / Resources

Refer to Sections 5.3 and 5.4 for how the project's budget and resources will be used and allocated.

### ***3.2. Assumptions, Dependencies, and Constraints***

The Plasma Visualization Group operates under a number of assumptions and constraints in order to create the product:

- Assumptions
  - Test data will be provided by the PUPR Plasma Laboratory students to the Design Manager in order to successfully test PlasmaGraph.
  - At least one (1) PUPR Plasma Laboratory student will be required to perform the tests detailed in the STD for successful completion of the project.
- Constraints
  - The project's duration will not exceed 10 months.
  - The project will be completed with only two (2) members

- Dependencies
  - The PVG team must work with the Client and the PUPR Plasma Laboratory students to set a standard format for PlasmaGraph data files.

### ***3.3. Risk Management***

Problematic situations may occur throughout the duration of this project. This list will detail what are the measures that will be taken to minimize risk:

#### A. Project Members

1. Constant communication is mandatory, whether through phone, e-mail, or meetings.
2. Whenever a meeting is scheduled, all project members must participate in that meeting. Persons that do not participate in at least half of the group meetings without valid reasons will be removed from the project group.
3. Work will be divided evenly. In case of a member believing the tasks given to them are uneven or unsuited, the team member can bring up the complaint to the Project Manager via any communication medium. The Project Manager must then decide to either not change the task or assign a different task.
4. If a project member does not participate in a meeting, the member must be contacted via any communication medium to update them of the meeting's results, and the member must send a confirmation message that they received the information.
5. All project members must perform roughly equal work to be credited properly. For the purposes of this point, "roughly equal work" refers to a 50/50% split, with a variance of 15%. Any members that do not comply with this rule will be removed from the team.

6. If the document-hosting service or the code-hosting service is terminated by either the Project Manager or a third party, the Project Manager's version of these documents or code will be used as the basis of all future development. These files will then be uploaded onto another service with similar privacy protection as agreed upon by the Project Manager. Once this is done, this change must be communicated to all project members via any medium, and must explain the change and how to access the new versions.

#### B. Client

1. Meetings with the Client will occur when a milestone has been reached, but communication regarding the group's current progress should occur periodically so as to provide some amount of feedback to the Client.
2. Features requested after the first meeting are not guaranteed to appear in the first version of the finished product. Instead, they will be accommodated as possible into the schedule.
3. If the Client wishes to drop the project, the project will continue to its conclusion, relying on the Advisor as backup client.

#### C. Advisor

1. Meetings with the Advisor will occur weekly on Thursdays at 4:00 PM to 4:30 PM. Project group members will come with a log of their weekly accomplishments and the following week's proposed tasks.
2. If a certain part of the project requires multiple rounds of feedback from the advisor, additional meetings between the project member(s) and the advisor should be scheduled throughout the week.
3. If the Advisor finds himself unable to continue work on the project or unwilling to provide adequate feedback on the components for multiple months for whatever reason, the project members will submit a request for a new advisor willing to provide assistance to the project.

### ***3.4. Monitoring and Controlling Mechanisms***

This section details how this product will be distributed and managed during its development in this section.

#### A. Project Repository

The PlasmaGraph project's files will be distributed and managed via the project's GitHub page. GitHub is a version control system designed to manage multiple versions of files, allowing for easy access while providing excellent error-correction mechanisms. The primary version of the project is called the "master", whereas all other versions are called "branches".

The GitHub repository may be manipulated either via the official website [2] or via any tool [15] that is able to interact with repositories via the Git system.

The following is a list of rules that all member must follow to work on the project:

- All team members must request Contributor status to the Project Manager in order to work on the project.
- All members must create a new branch in order to begin work on any section of the project.
- Work must be performed on the member's own branch, unless requested to by the branch owner or the Project Manager (Refer to C for details regarding the logging of changes into the GitHub repository).
- When work is finished on a branch, a pull request must be initiated by the branch owner. The Project Manager will then evaluate the work. If the branch has completed its purpose, the Project Manager will merge the new branch into the master branch.

The project's GitHub web page is located at:

<https://github.com/TakoArishi/PlasmaGraph>.

## B. Repository Management

Each project member will maintain their own personal version of the project's contents, known as a "branch". This isolates their changes and allows them to manage their work until their work is ready to be added to the main branch's ("master") contents. This section will discuss how the project members will perform these changes, view their changes, and include their work into the project's "master" branch.

### 1. Documenting Changes

Project members must follow the following rules while logging changes to the GitHub repository:

- First, members must add all files to be logged via the Git command "Add".
- Second, the Git command "Commit" must be used to document the changes via a descriptive message of what changes the update contains.
- Finally, the Git command "Push" will synchronize the changes to the member's branch in the GitHub repository.

### 2. Reviewing Changes

Changes can be reviewed via the GitHub project's "Commits" page. The commits of branches that aren't the main one can be accessed by using the "Branches" viewing option and selecting the desired branch.

### 3. Moving Changes to the Master Branch

When a milestone has been reached in a branch (such as when a specification document like the SRS / SDD / STD / SPMP is completed). The milestone should be moved to the main branch via the Pull Request function. The process is as follows:

- The team member must create a Pull Request between the "master" branch and their branch. This Pull Request must include a comment describing the work done to reach the milestone.

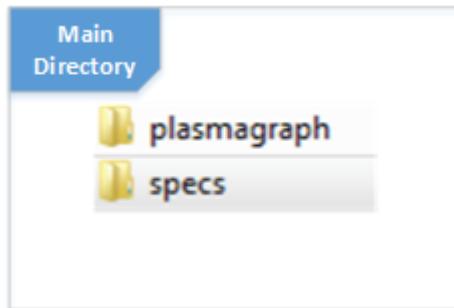
- The Project Manager will approve or deny the Pull Request based on the work done in the branch.

This process allows other project members to routinely take advantage of new work related to the project without sacrificing much of the main branch's quality.

### C. Repository Organization

The project's GitHub repository will be structured in the following format:

*Figure 4: Main Directory Organization*

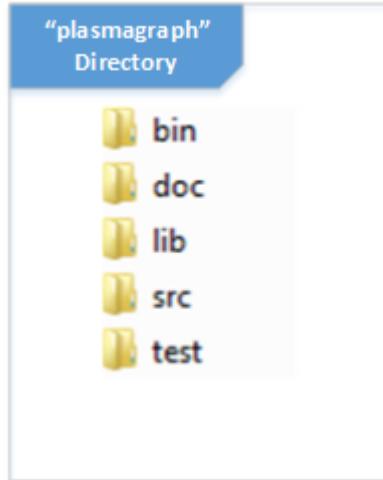


The main directory will contain two different folders:

- The “plasmagraph” folder contains the contents of the Work Packages labelled “PlasmaGraph” and “Code Documentation” (see Section 5.1).
- The “specs” folder will hold the contents of any work package that isn't held in the “plasmagraph” folder (see Section 5.1).

The “plasmagraph” directory will contain the following sub-directories:

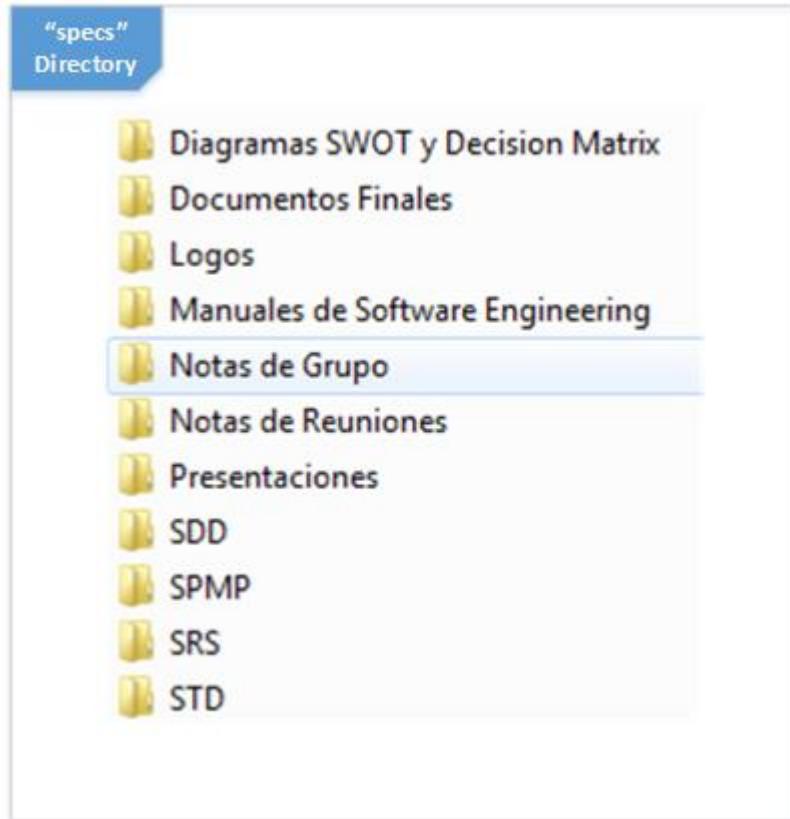
*Figure 5: PlasmaGraph Directory Organization*



- The "bin" directory will hold the compiled versions of the product.
- The "doc" directory will hold the JavaDocs created as a result of the code documentation (See Work Package B1 in section 5.1 of this document for more details).
- The "lib" directory will hold additional libraries used by the project via the JAR files that are linked via the Eclipse "External Libraries".
- The "src" directory will hold the Eclipse workspace; all relevant files that directly form part of the PlasmaGraph product will be saved in the repository.
- Finally, the "test" directory will hold the environment for testing the product, including sample test data and test template data.

Finally, the “specs” directory will contain these sub-directories:

*Figure 6: Specs Directory Organization*



- The “Diagramas SWOT y Decision Matrix” sub-directory will contain all diagrams and materials used in the programming language, tools, and decisions made at the start of the project.
- The “Documentos Finales” sub-directory will contain the release-ready versions of the SRS, SDD, STD, and SPMP documents. Documents in this sub-directory will be actualized with the currently-released version.
- The “Logos” sub-directory will contain all logos related to the PlasmaGraph project and the Plasma Visualization Group team.
- The “Manuales de Ayuda” sub-directory will contain all supplementary documents used for the creation and maintenance of the project and all its work packages.
- The “Notas de Grupo” sub-directory will contain all notes that are important for the functioning of the team.

- The “Notas de Reuniones” sub-directory will contain all meeting notes between the team and the client or any other external party.
- The “Presentaciones” sub-directory will contain all the project's PowerPoint presentations and their respective materials.
- The “SDD”, “SPMP”, “SRS”, and “STD” sub-directories will contain their respective documents, along with all the images, diagrams, and other document fragments.

#### D. Problem Resolution

Solutions to possible repository problems that may arise will be considered on a per-situation basis. The Project Manager must discuss the options available with the Design Manager before resolving the situation.

### ***3.5. Staffing Plan***

A minimum of two persons will be required to complete this product, both of which should have various qualifications. Training will be available for potential members with lack of experience with certain programming tools. These persons, as well as the requirements for each, are as follows:

#### A. Project Manager

The Project Manager is the director of the team, orchestrating the meetings between the client and team members, maintaining the SPMP and SDD, and managing the GitHub project repository used by the group.

This person must have previous experience working with SRS, SDD, STD, and SPMP documents, and should have extensive university-level class experience in programming and program design. The person should also have some experience with team management, and should also have extensive experience with the programming language being used in the project.

## B. Design Manager

The Design Manager is the mastermind of the SRS and STD. The person will detail what functions the product will perform and how will these functions be tested to ensure their compliance to the client's request.

The person must have previous experience working with SRS, SDD, STD, and SPMP documents, and should have extensive university-level class experience in programming and program design. It is recommended for them to have some experience with the programming language being used in the project.

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Any substitution of current personnel must be done with the following:

1. A new qualified person ready for immediate assignment.
2. The approval by all Advisors working with the project team's members.

Training will be provided by the Project Manager or Design Manager to the new member(s) of the project group as needed.

## 4. Technical Process

### 4.1. Methods, Tools, and Techniques

The creation of the PlasmaGraph product will be done using the following:

#### A. Programming Language

Java Version 7 will be used to create the product.

#### B. Project Development Software

The following table details all the software used in the project:

*Table 3: Software Used in Project, Ordered by Purpose*

Software Purpose	Software Used
Diagramming Software	OpenOffice Draw, Microsoft Visio 2013, Dia
Document Software	Microsoft Word 2013, OpenOffice Writer, OpenOffice Calc, Sublime Text 2, Sublime Text 3
Scheduling Software	Microsoft Project 2013
Presentation Software	Microsoft PowerPoint, OpenOffice Impress
Programming Software / IDEs	Eclipse, Netbeans IDE
VCS	Git, GitHub
Image-Manipulation Software	GIMP, Paint.NET, MSPaint
Research Software	Mozilla Firefox, Google Chrome

#### C. Operating System

The Operating System (OS) used to create PlasmaGraph must be any version of Windows 7.

#### D. Intermediary Document and Image Formats

The following table details the possible formats for any components of the “Project Documentation” and “Code Documentation” Work Packages. (See Section 5.1)

*Table 4: Intermediate Document and Image Formats*

Document	Extension
Diagramming Document Format(s)	.dia
Text Document Format(s)	.txt, .doc, .docx, .md
Code Document Format(s)	.java
Image Format(s)	.png, .jpg, .jpeg
Presentation Format(s)	.pptx, .ppt, .odt

#### E. Testing Techniques

The testing techniques used to verify the functionality of PlasmaGraph are detailed in PlasmaGraph's STD. Automated testing of basic program code functionality will be handled via the JUnit testing framework, whereas manual testing will be performed to verify proper GUI functionality.

Furthermore, the following is required in order to run the final PlasmaGraph product:

##### A. Java Version

Java Version 7 or newer is required to run PlasmaGraph.

##### B. Operating System

The Operating System (OS) used to run PlasmaGraph must be able to run Java Version 7 or newer.

## 4.2. Software Documentation

Software documentation explains not only how the product is designed and made, but what the product's code does in order to fulfill the client's requirements.

- A combination of Document, Diagramming, Scheduling, and Image-Manipulation Software will be used to create the project documentation.
  - The SRS, SDD, STD, and SPMP documents must be made following IEEE format specifications [10] [11] [12] [9].

- Versioning for all of these documents will be contained in the name of the document’s file and will use the following format (each point being separated by a hyphen):
  - The name of the document.
  - A number from 0-3 indicating readiness of the document.
    - Zero (0) refers to an incomplete document.
    - One (1) refers to a complete document that has not been verified by an Advisor.
    - Two (2) refers to a complete document that has been verified but rejected by an Advisor due to errors.
    - Three (3) refers to a complete document that has been verified and approved by an Advisor.
  - The date the document was submitted to the Advisor for verification. The date will be formatted in the following order (each part is separated by a hyphen).
    - Year
    - Month
    - Day
- The Java-provided tool “javadoc” will be used to create the code documentation. To do so, however, the following rules must be adhered to:
  - Each Java Package, Class, and Method must be documented via JavaDoc comment format.  
[16]
  - All Java Packages must contain the following JavaDoc comment components in their “package-info.java” file:
    - Package content summary.
    - One “@author” tag. The default author for this project is “Plasma Visualization Group”.
  - All Java Classes must contain the following JavaDoc comment components:
    - Class summary.
    - One “@author” tag. The default author for this project is “Plasma Visualization Group”.

- All public Java Methods must contain the following JavaDoc comment components:
  - Method summary.
  - One “@param” tag per method parameter.
  - One “@return” tag, unless the method is a void method.
- The PlasmaGraph User Manual and Installation Guide will be formatted with the use of Document and Image-Manipulation Software as follows:
  - The first section of the manual will detail the installation of the product on the Operating System used on the computers in the Plasma Laboratory, Windows 7.
  - The second section of the manual will detail the usage of the product in this order:
    - Creation of a simple graph.
    - Graph modifications.
    - Saving and loading modifications (Templates).
    - Saving graphs as images.
    - Interpolation of graph data.
    - Searching for Outliers.
    - Grouping data by a third column.
  - Versions for the User Manual and Installation Guide will be managed in the same manner as the project documentation.

#### **4.3. Project Support Functions**

This project requires various minor functions in order to operate certain sections and guarantee quality.

##### A. Software Quality Assurance

The quality of the final product will be confirmed in three ways:

1. Mutual Oversight: Both the Project and Design Managers must communicate with each other, explaining how their contributions help to reach the final goal. This applies to all phases of the project.
2. Software Documentation: All programmers (Project Manager and Design Manager) must document their code. This allows others to understand the product's internals better and find programming errors.
3. Testing: Please refer to the STD for information regarding how the product will be tested.

##### B. Configuration Management

1. Initial IDE Configuration: Initial configuration of the development environment will be explained via the “README.md” file located in the root of the GitHub repository.
2. Final Product Configuration: Configuration details of the final product's environment will be detailed in the supplementary User Manual (See Section 5.1).

## 5. Work Packages, Schedule, and Budget

### 5.1. Work Packages

The project team must implement all the requirements stipulated in section 2.2 of the SRS. To do so, the team must complete the following components, known as Work Packages:

*Table 5: Work Package Labels and Phases*

Work Package	Package Label	Project Phase(s)
Software Requirement Specification (SRS)	A1	A, D
Software Design Description (SDD)	A2	C, D
Software Test Documentation (STD) and Test Result Report(s)	A3	C, D
Software Project Management Plan (SPMP)	A4	A, D
Data Reading Module	B1	C
Data Graphing Module	B2	C
Program Graphical User Interface	B3	C
Code Documentation (Javadocs)	C1	C
User Manual and Installation Guide	C2	C
“Product Requirements” Presentation	D1	B
“Using PlasmaGraph” Presentation	D2	E
Final Project Presentation and Project Poster	D3	E

The following explanations will describe the purpose of each work package mentioned above:

#### A. Project Documentation

##### A1. Software Requirement Specification (SRS) [10]

- Description: This document describes the product from an external viewpoint. It specifies the key features of the product as requested by the client, as well as what the product needs in order to perform its functions.
- Product: Project Deliverable C2 (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document, Diagramming, and Image-Manipulation Software.
  - Personnel: Design Manager.
  - Other: None.
- Start Date: 8/14/2013
- End Date: 5/14/2014

##### A2. Software Design Description (SDD) [11]

- Description: This document details the product's internal structure and how it performs its most crucial processes in a step-by-step manner via the use of various types of UML diagrams [17].
- Product: Project Deliverable C3 (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document, Diagramming, and Image-Manipulation Software.
  - Personnel: Project Manager and Design Manager.
  - Other: None.
- Start Date: 11/21/2013
- End Date: 5/29/2014

### A3. Software Test Document (STD) and Test Result Report(s) [12]

- Description: This document details the different tests that prove the product adheres to the requirements specified by the client and written in the SRS. This document also contains a collection of results for each test performed according to its specifications.
- Product: Project Deliverable C4 (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document and Image-Manipulation Software.
  - Personnel: Design Manager.
  - Other: None.
- Start Date: 4/15/2014
- End Date: 5/26/2014

### A4. Software Project Management Plan (SPMP) [9]

- Description: This document describes the project's team structure, objectives, tools, and plan to create the product described in the SRS and SDD.
- Product: Project Deliverable C1 (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document, Scheduling, Diagramming, and Image-Manipulation Software.
  - Personnel: Project Manager.
  - Other: None.
- Start Date: 8/14/2013
- End Date: 5/22/2014

## B. PlasmaGraph Program

### B1. Data-Reading Module

- Description: This product component extracts the data contained in the given Matlab Level-5 file and creates various containers for the data via the use of the JMatIO Matlab file-reading tool. [18] This component also verifies that the file provided is valid to be graphed and, if another module requests the data under a pair of columns, will verify that each row contains valid data.
- Product: Project Deliverable A (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Programming / IDE and Internet Software.
  - Personnel: Project Manager and Design Manager.
  - Other: None.
- Start Date: 12/30/2014
- End Date: 4/23/2014

### B2. Data-Graphing Module

- Description: This product component obtains a file to be graphed, the columns to graph, and the visual modifications to perform on the created graph and creates a graph if the desired columns of said file with the selected modifications. This module utilizes the JFreeChart graphing tool [3] in order to create the graphs, and adds on to its functionality via the Apache Software Foundation's Commons Math tool set [19] to implement the interpolation and outlier search tools.
- Product: Project Deliverable A (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Programming / IDE and Internet Software.
  - Personnel: Project Manager and Design Manager.
  - Other: None.

- Start Date: 12/30/2014
- End Date: 4/23/2014

### B3. Program Graphical User Interface

- Description: This product component provides the user with a visual interface to interact with the various tools that this program contains via the MVC GUI model [20]. This component makes this program much quicker and easier to use than Matlab. It also contains the necessary code to connect the Data-Reading and Data-Graphing Modules.
- Product: Project Deliverable A (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Programming / IDE and Internet Software.
  - Personnel: Project Manager.
  - Other: None.
- Start Date: 12/30/2014
- End Date: 3/26/2014

## C. Program Documentation

### C1. Code Documentation (Javadocs)

- Description: Javadoc documentation allows interested parties to understand the inner workings of the product's code. With this, Plasma Laboratory students will be able to better understand the work done by this project's team and be better equipped to add additional functionality to the product if desired.
- Product: Project Deliverable A (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document, Programming / IDE, and Internet Software.

- Personnel: Project Manager and Design Manager.
- Other: None.
- Start Date: 4/17/2014
- End Date: 5/22/2014

## C2. User Manual and Installation Guide

- Description: The User Manual contains instructions on how to install the PlasmaGraph program on PUPR Plasma Laboratory computers and allows potential users to better understand how to use the program by explaining how to perform certain functions.
- Product: Project Deliverable A and B (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document, Image-Manipulation, and Programming / IDE Software.
  - Personnel: Design Manager.
  - Other: None.
- Start Date: 4/17/2014
- End Date: 5/22/2014

## D. Project Presentations

### D1. “Product Requirements” Presentation

- Description: This presentation will showcase the work performed in the initial drafts of the SRS and SPMP documents before work begins on the SDD and product itself.
- Product: Project Deliverable C (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document and Presentation Software.
  - Personnel: Project Manager and Design Manager.
  - Other: None.

- Start Date: 11/21/2013
- End Date: 12/11/2013

#### D2. "Using PlasmaGraph" Presentation

- Description: This presentation is primarily directed to the students of the Plasma Laboratory and will showcase how to interact with the PlasmaGraph program. It will contain a step-by-step description of how to perform certain functions as well as explanations on how certain functions create their outputs.
- Product: Project Deliverable C (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document and Presentation Software.
  - Personnel: Project Manager and Design Manager.
  - Other: None.
- Start Date: 4/23/2014
- End Date: 5/30/2014

#### D3. Final Project Presentation and Presentation Poster

- Description: This presentation is directed to all interested parties in the Polytechnic University of Puerto Rico. It will present an overview of the project, describing what the team was requested to create and how it was created. The Presentation will also feature a poster which will highlight the process through which the project's deliverables were created and their costs.
- Product: Project Deliverable C (See Section 1.2)
- Resources Used: (See Section 4.1 for resources used throughout the project.)
  - Hardware: All hardware.
  - Software: Document, Image-Manipulation, and Presentation Software.
  - Personnel: Project Manager and Design Manager.
  - Other: Cardboard Project Board.

- Start Date: 4/23/2014
- End Date: 6/3/2014

The Project Documentation (A) must follow the IEEE 830 / 1016 / 829 / 1058 document standards. Furthermore, all presentations will be created using the program “Microsoft PowerPoint 2013”.

The following must occur before any work on a work package initiates:

- An initial draft of the previous work packages must be finished. For the purposes of this project, an “initial draft” consists of either a first draft of a document or presentation considered sufficiently completed by a project member, or a version of the product that has passed the automated tests described in the STD.
- A request must be made to the Project Manager to begin work on a work package, and they must vet the initial draft of the pre-requisite work packages.

Once a work package is verbally approved to start, the project members may begin to contribute to the work package until its completion. For the purposes of this project, a completed work package requires the following:

- A final draft of the work package that is considered sufficiently completed by a project member.
- Inclusion of the final draft and all materials used to create it into the main branch of the project repository if the draft was created in a separate branch.
- Inclusion of the final draft into the folder named “Documentos Finales” in the “specs” folder of the repository.

## 5.2. Dependencies

The following graphs describes dependencies among the work packages.

Figure 7: Work Package Dependency Diagram

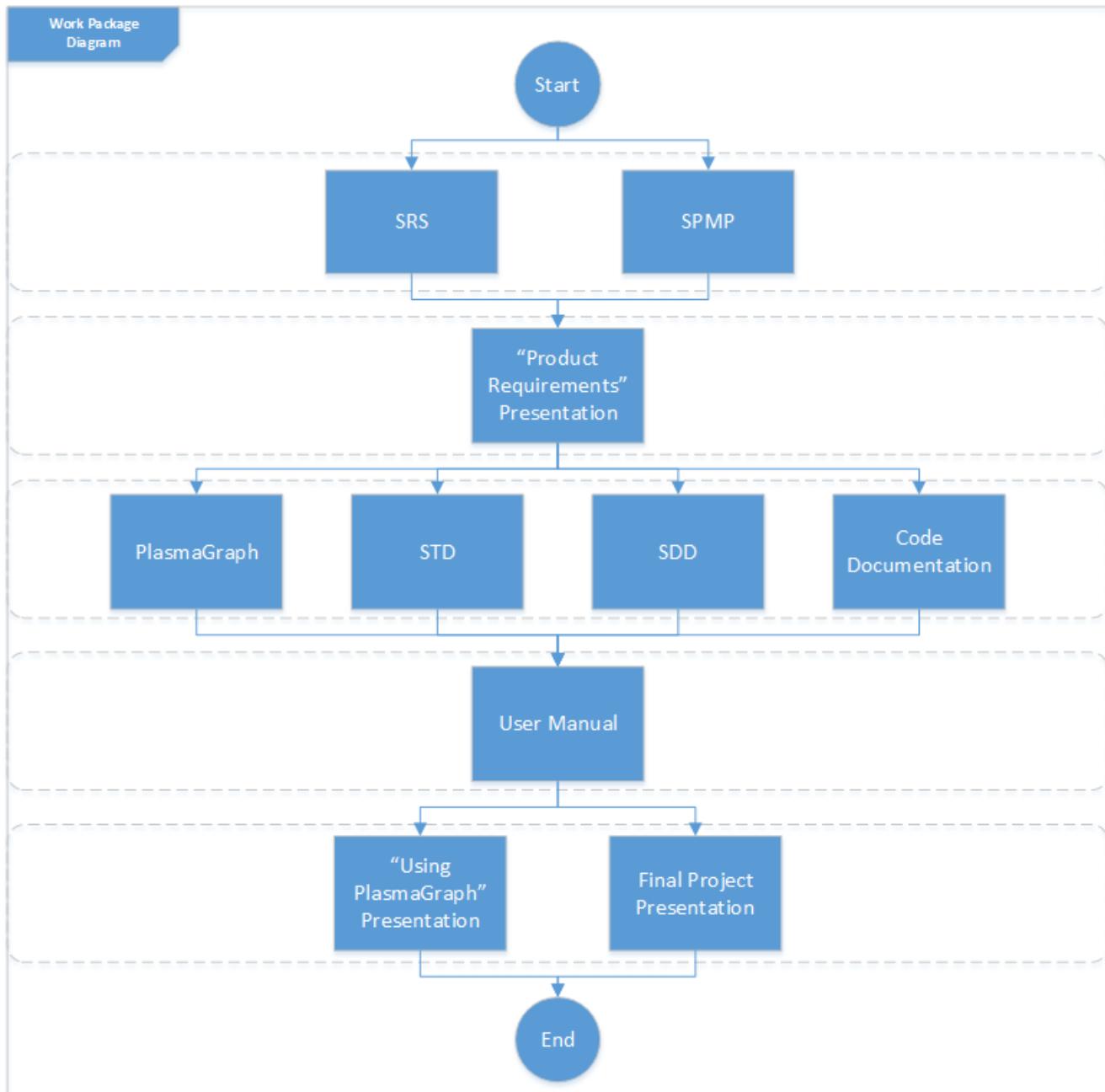
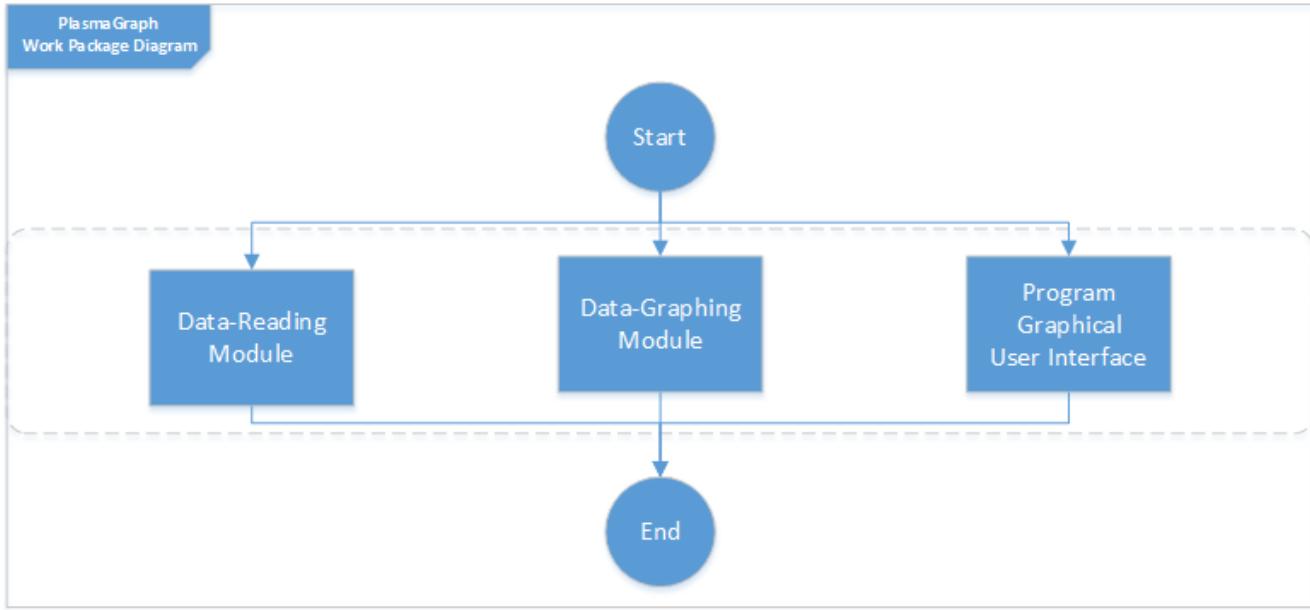


Figure 8: "PlasmaGraph Program" Work Package Dependency Diagram



As presented in these diagrams, each set of concurrent work packages is presented in a different row. In order to continue to the next row, each work package in the current row must pass the initial draft process detailed in Section 2.1 of this document.

### **5.3. Resource Requirements**

The following resources will be needed for the completion of this project (See Section 5.4 for the cost of each of these resources):

#### A. Hardware and Software

##### 1. Hardware

The project team will utilize two laptop and one desktop computers, as well as the desktops in the PUPR Computer Lab located in P-103 to complete all work packages as detailed in section 5.1 of this document.

##### 2. Software

The project group will use a number of software programs in order to complete the work packages. The software, along with the category of software each falls into, is listed in Section 4.1.

#### B. Temporary and Permanent Locations

##### 1. Temporary Locations

The following locations will be used:

- PUPR Campus - Library - Study Rooms: Project team meetings.
- PUPR Campus – Classroom P-103: Project team meetings and client meetings.
- PUPR Campus - Classrooms L-310, EPL-2: Meetings with Advisor.
- PUPR Campus - Plasma Laboratory: Meetings with Client.

##### 2. Permanent Locations

No permanent locations will be needed for the purposes of completing this project.

#### C. Human Resources

The Project and Design Managers will work on all work packages except the SRS, STD, and SPMP packages. The Project Manager will manage the GitHub file repository. Presentations will be given by both members. The team will rely on university faculty to review their SRS, SDD, STD, and SPMP documentation.

#### D. Meeting Logs

Meeting Logs will be maintained by the Project Manager and will be provided in the final package along with the rest of the items.

#### E. Time

The time necessary for the completion of this project, as well as for each individual Work Package, is detailed in Appendix A: Project Gantt Chart

The following table details all the Software, Hardware, and Human Resources used in each Project Deliverable.

*Table 6: Resources Used for Project Deliverables*

Project Deliverable	Software Resources	Hardware Resources	Human Resources
Software Requirement Specification (SRS)	Document, Diagramming, Image-Manipulation	All computers.	Design Manager.
Software Design Description (SDD)	Document, Diagramming, Image-Manipulation	All computers.	Project and Design Manager.
Software Test Document (STD) and Test Result Report(s)	Document, Image-Manipulation	All computers.	Design Manager.
Software Project Management Plan (SPMP)	Document, Scheduling, Diagramming, Image-Manipulation	All computers.	Project Manager.
Project Weekly Reports	Document, Image-Manipulation	All computers.	Project Manager.
Data Reading Module	Programming / IDEs, Internet	All computers.	Project and Design Manager.
Data Graphing Module	Programming / IDEs, Internet	All computers.	Project and Design Manager.
Program Graphical User Interface	Programming / IDEs, Internet	All computers.	Project Manager.
Code Documentation (Javadocs)	Document, Programming / IDEs	All computers.	Project and Design Manager.

Project Deliverable	Software Resources	Hardware Resources	Human Resources
User Manual and Installation Guide	Document, Programming / IDEs	All computers.	Design Manager.
“Product Requirements” Presentation	Document Software, Presentation Software	All computers.	Project and Design Manager.
“Using PlasmaGraph” Presentation	Document, Presentation	All computers.	Project and Design Manager.
Final Project Presentation	Document, Presentation	All computers.	Project and Design Manager.
Project Poster	Document, Image-Manipulation	All computers.	Project and Design Manager.

#### 5.4. Budget and Resource Allocation

The resources required (and their budget allocated) are as follows:

Table 7: Project Resources and Budget

Resource	Amount	Resource Type	Resource Sub-Type	Projected Cost	Actual Cost	Notes
Laptop	1	Hardware	N/A	\$399.99	\$399.99	Team members Gerardo Navas' personal computer.
Desktop	1	Hardware	N/A	\$700.00	\$700.00	Team member Daniel Quintini's personal computer.
Desktop	1	Hardware	N/A	\$856.00	\$856.00	Team members Gerardo Navas' personal computer.
OpenOffice Calc	1	Software	Document	\$0.00	\$0.00	Free Software.
OpenOffice Draw	1	Software	Diagramming	\$0.00	\$0.00	Free Software.
OpenOffice Impress	1	Software	Presentation	\$0.00	\$0.00	Free Software.
Microsoft Word 2013	1	Software	Document	\$109.99	\$0.00	Free for PUPR students via university computers.

Resource	Amount	Resource Type	Resource Sub-Type	Projected Cost	Actual Cost	Notes
Microsoft PowerPoint 2013	1	Software	Presentation	\$109.99	\$0.00	Free for PUPR students via university computers.
Microsoft Visio Professional 2013	2	Software	Diagramming	\$1,179.98	\$0.00	Free for PUPR students via Microsoft Dreamspark.
Microsoft Project 2013	1	Software	Scheduling	\$589.99	\$0.00	Free for PUPR students via Microsoft Dreamspark.
Dia	2	Software	Diagramming	\$0.00	\$0.00	Free Software.
Sublime Text 3	2	Software	Document	\$0.00	\$0.00	Free Software.
Eclipse	2	Software	Programming / IDE	\$0.00	\$0.00	Free Software.
NetBeans IDE	2	Software	Programming / IDE	\$0.00	\$0.00	Free Software.
GIMP	1	Software	Image Manipulation	\$0.00	\$0.00	Free Software.
Paint.NET	2	Software	Image Manipulation	\$0.00	\$0.00	Free Software.
MSPaint	2	Software	Image Manipulation	\$0.00	\$0.00	Free Software.
GitHub – Free Project Repository	1	Software	Version Control / VCS	\$0.00	\$0.00	Free Software.
GitHub – Windows Program	2	Software	Version Control / VCS	\$0.00	\$0.00	Free Software.
Mozilla Firefox	2	Software	Research	\$0.00	\$0.00	Free Software.
Google Chrome	2	Software	Research	\$0.00	\$0.00	Free Software.
PUPR Library Study Rooms	1	Locations	Temporary	\$0.00	\$0.00	Free for PUPR students.
PUPR Rooms P-103, L-310, EPL-2	1	Locations	Temporary	\$0.00	\$0.00	Free for PUPR students.

Resource	Amount	Resource Type	Resource Sub-Type	Projected Cost	Actual Cost	Notes
PUPR Plasma Laboratory	1	Locations	Temporary	\$0.00	\$0.00	Free for PUPR students.
Project Manager – Wage	1	Personnel	Team Member	\$37,000.00	\$37,000.00	<a href="http://www.payscale.com">http://www.payscale.com</a> median wage multiplied by project duration.
Design Manager – Wage	1	Personnel	Team Member	\$37,000.00	\$37,000.00	<a href="http://www.payscale.com">http://www.payscale.com</a> median wage multiplied by project duration.
Total Costs				\$77,945.94	\$75,955.99	

## 5.5. Schedule

The project's schedule follows the phases detailed in Section 2.1, and are as follows:

*Figure 9: Project Phase Schedule – Phase A*

ID	Task Mode	Task Name	Duration	Start	Finish	August	September	October	November
1	➡	<b>Phase A</b>	<b>63 days</b>	<b>Wed 8/14/13</b>	<b>Fri 11/8/13</b>	B	M	E	
2	↗	SRS - Initial Draft	63 days	Wed 8/14/13	Fri 11/8/13		B	M	E
3	↗	SPMP - Initial Draft	63 days	Wed 8/14/13	Fri 11/8/13		B	M	E

*Figure 10: Project Phase Schedule – Phase B*

ID	Task Mode	Task Name	Duration	Start	Finish	November
4	➡	<b>Phase B</b>	<b>8 days</b>	<b>Mon 11/11/13</b>	<b>Wed 11/20/13</b>	B
5	➡	"Project Requirements" Presentation	8 days	Mon 11/11/13	Wed 11/20/13	M
6	↗	"Project Requirements" Presentation - Initial Draft	3 days	Mon 11/11/13	Wed 11/13/13	E
7	↗	"Project Requirements" Presentation - Final Draft	4 days	Thu 11/14/13	Tue 11/19/13	
8	↗	"Project Requirements" Presentation - Presentation	1 day	Wed 11/20/13	Wed 11/20/13	

Figure 11: Project Phase Schedule – Phase C

ID	Task Mode	Task Name	Duration	Start	Finish	November B M E	December B M E	January B M E	February B M E	March B M E	April B M E
9	➡	<b>Phase C</b>	109 days	Thu 11/21/13	Tue 4/22/14						
10	➡	<b>PlasmaGraph</b>	86 days	Thu 11/21/13	Thu 3/20/14						
11	★	PlasmaGraph - Data-Reading Module	86 days	Thu 11/21/13	Thu 3/20/14						
12	★	PlasmaGraph - Data-Graphing Module	86 days	Thu 11/21/13	Thu 3/20/14						
13	★	PlasmaGraph - Program Graphical User Interface	63 days	Thu 11/21/13	Mon 2/17/14						
14	★	SDD - Initial Draft	28 days	Thu 11/21/13	Mon 12/30/13						
15	★	STD - Initial Draft	109 days	Thu 11/21/13	Tue 4/22/14						
16	★	Code Documentation - Initial Draft	86 days	Thu 11/21/13	Thu 3/20/14						

Figure 12: Project Phase Schedule – Phase D

ID	Task Mode	Task Name	Duration	Start	Finish	April B M E	May B M
17	➡	<b>Phase D</b>	27 days	Wed 4/23/14	Thu 5/29/14		
18	➡	<b>User Manual and Installation Guide</b>	22 days	Wed 4/23/14	Thu 5/22/14		
19	★	User Manual and Installation Guide - Initial Draft	6 days	Wed 4/23/14	Wed 4/30/14		
20	★	User Manual and Installation Guide - Final Draft	16 days	Thu 5/1/14	Thu 5/22/14		
21	★	SRS - Final Draft	16 days	Wed 4/23/14	Wed 5/14/14		
22	★	SDD - Final Draft	27 days	Wed 4/23/14	<b>Thu 5/29/14</b>		
23	★	<b>STD - Final Draft</b>	27 days	<b>Wed 4/23/14</b>	<b>Thu 5/29/14</b>		
24	📅	STD - User Tests	1 day	Fri 5/16/14	Fri 5/16/14		
25	★	SPMP - Final Draft	22 days	Wed 4/23/14	Thu 5/22/14		
26	★	Code Documentation - Final Draft	24 days	Wed 4/23/14	Mon 5/26/14		

Figure 13: Project Phase Schedule – Phase E

ID	Task Mode	Task Name	Duration	Start	Finish	April	May
						B	M
27	★	<b>Phase E</b>	<b>28 days</b>	<b>Wed 4/23/14</b>	<b>Fri 5/30/14</b>		
28	★	"Using PlasmaGraph" Presentation	28 days	Wed 4/23/14	Fri 5/30/14		
29	★	"Using PlasmaGraph" Presentation - Initial Draft	1 day	Thu 5/1/14	Thu 5/1/14		
30	★	"Using PlasmaGraph" Presentation - Final Draft	2 days	Tue 5/20/14	Wed 5/21/14		
31	★	"Using PlasmaGraph" Presentation - Presentation	1 day	Fri 5/30/14	Fri 5/30/14		
32	★	<b>Final Project Presentation</b>	<b>28 days</b>	<b>Wed 4/23/14</b>	<b>Fri 5/30/14</b>		
33	★	Final Project Presentation - Initial Draft	1 day	Thu 5/1/14	Thu 5/1/14		
34	★	Final Project Presentation - Final Draft	2 days	Tue 5/20/14	Wed 5/21/14		
35	★	Final Project Presentation - Presentation	1 day	Fri 5/30/14	Fri 5/30/14		

## Appendix

### Appendix A: Advisor Meeting Notes

#### Reunión 1

# Curso: CECS 4800

Fecha: 29/08/2013

Nombre de Proyecto: PlasmaGraph

Que hemos hecho: *hablo*

- 1) ~~Hablar~~ con el cliente del proyecto, el profesor Angel Gonzales de la Universidad Politecnica de Puerto Rico.
- 2) Investigar tecnicas para toma de desiciones ("SWOT Diagrams" y "Decision Matrices") para decidir el lenguaje de programacion, herramientas y disen~o de solucion para problema del cliente.
- 3) Evaluar varios lenguajes de programacion (C / C++, Python, Java, MATLAB).
- 4) Preparar repositorio de documentos (Dropbox) y codigo (GitHub, bajo nombre "PlasmaGraph"). (Link: <https://github.com/CherimaeNemeta/PlasmaGraph>)

Que vamos a hacer para la proxima semana:

- 1) Seleccionar un lenguaje en base a las herramientas disponibles
- 2) Empezar SRS (casos de uso y escenarios)
- 3) Empezar SPMP

Materiales Utilizados: 2x Laptops, Acceso al internet.

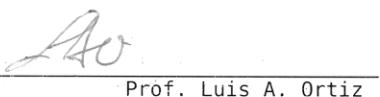
Integrantes:



Gerardo A. Navas

Daniel Quintini

Profesor:



Prof. Luis A. Ortiz

## Reunion 2

# Curso: CECS 4800

Fecha: 05/09/2013

Nombre de Proyecto: PlasmaGraph

Que hemos hecho:

- 1) SPMP: Trabajo con la parte 1 del documento.
- 2) SRS: Empezar con casos de uso y escenario.
- 3) Lenguaje: Java?
- 4) Herramienta: JFree (Graphing)

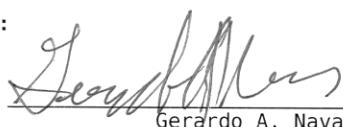
{ ¿quien  
que hace que?

Que vamos a hacer para la proxima semana:

- 1) STD: Comenzar proceso de diseño de pruebas para el sistema.
- 2) SPMP: Hacer Gantt Chart inicial y continuar con Parte 3.
- 3) Logos: Crear logo de grupo y proyecto.
- 4) Encontrar "CSV reader" o crear uno propio.
- 5) SRS: Introducción.

Materiales Utilizados: 2x "Laptops", Acceso al internet, data de ejemplo del Prof. Gonzales

Integrantes:



Gerardo A. Navas



Daniel Quintini

Profesor:



Prof. Luis A. Ortiz

Reunion 3  
# Curso: CECS 4800  
Fecha: 12 Febrero 2013

Nombre de Proyecto: PlasmaGraph

Que hemos hecho:

- 1) Disenado program flow chart.
- 2) SRS: Parte 1 completada tentativamente ("Beta" state); Parte 2 comenzado.
- 3) SPMP: Trabajo con partes 1 y 3.
- 4) Ideado varias ideas para el futuro. (Combinar data de varios documentos "CSV", salvar data en base de datos usando JDBC...)

Que vamos a hacer para la proxima semana:

- 1) Trabajo en SRS (Parte 2) y SPMP (Todas partes.)
- 2) Empezar con STD (Notas de cuales pruebas se necesitan).
- 3) Encontrar como se van a conectar el XML reader y JFreeChart.
- 4) Organizar reunion con Prof. Gonzales para pedir mas datos y hacer algunas preguntas.  
(Question: What are the usual charts you make for this purpose?, Question: How do you obtain the data?)
- 5) "Tool comparison chart" para lenguajes y herramientas. (Para una reunion subsiguiente con el Prof. Gonzales.)
- 6) [Stretch] Hacer lista de errores en la data de Prof. Gonzales y disen~ar proceso de arreglar la data.

(tl;dr para 4-6: Preparar para segunda reunion con Prof. Gonzales.)

Materiales Utilizados: 2x Computadoras "laptop", data de Prof. Gonzales, Papel y lapiz (dibujos preliminares de "Program Flow" y GUI), salon de biblioteca, internet.

Integrantes:



Gerardo A. Navas



Daniel Quintini

Profesor:



Prof. Luis A. Ortiz

## Meeting 4

Course / Class #: CECS 4800  
Date: 19 September 2013

Group Name: Plasma Visualization Group  
Project Name: PlasmaGraph

## Has been done:

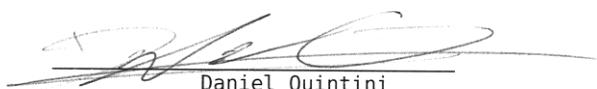
- 1) Group name decided.
- 2) SRS Use Cases and Program Flow diagram ready to present.
- 3) Libraries to use.  
    CSV + OpenCSV -> XML  
    Edit XML via javax.xml or XStream  
    XML + JGraphFree -> Graphs for user. *JFree Graph Chart*
- 4) First version of logos.

## What will be done:

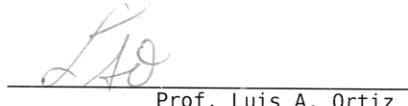
- 1) Diagrams for Client to present to him the tools we can use, the reasons why to use said tools, how these tools help cover his requirements, and how the program will flow. (Next week, should be.)
- 2) Ask Client for some more data and organize secret data for final test.
- 3) Start work on step 1: Try to get "CSV + OpenCSV -> XML" tentatively done.
- 4) Stabilize Dropbox problems.
- 5) Fix program flow diagram.

Materials Used: 2x Computers, GIMP (art assets), Dropbox system, internet connections, Dia (diagramming software)

## Group Members:

  
Gerardo A. Navas  
Daniel Quintini

## Professor:

  
Prof. Luis A. Ortiz

**Meeting 5**

=====

Course / Class #: CECS 4800  
Date: 26 September 2013

Project Name: PlasmaGraph

Has been done:

- 1) Stabilized Dropbox problem.
- 2) Commit # 2cledf08a13694af93696327b835c69bcf3e23be (Java Project commit:  
all files for Eclipse project creation.)
- 3) Art Assets: More work on group logo. (Smaller image size; more prominent  
name.)
- 4) Work on diagrams.
- 5) Preliminary inspection of OpenCSV and JFreeChart.

What will be done:

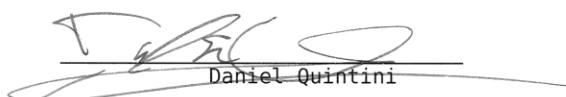
- 1) Meet with Prof. Gonzales.
- 2) Design GUI for program.
- 3) Understand how OpenCSV will transform the data file into XML and  
determine what needs to be cleaned out of the files.
- 4) Work on SRS and SPMP documents.

Materials Used: 2x Computers, GIMP (art assets), Dropbox system, internet  
connections, Dia (diagramming software)

Group Members:

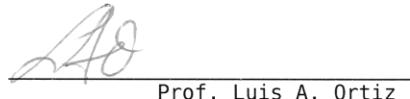


Gerardo A. Navas



Daniel Quintini

Professor:



Prof. Luis A. Ortiz

Meeting 6

Course / Class #: CECS 4800

Date: 3/10/2013

Project Name: PlasmaGraph

Has been done:

- 1) First version of User Interfaces.
- 2) SRS work: Case use diagrams.
- 3) SPMP work: Chapter 2, 3.

What will be done:

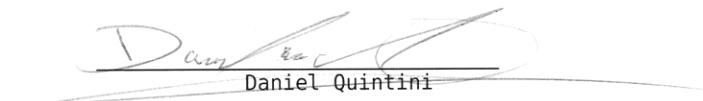
- 1) SRS work. (Tentative: finish first draft of SRS.)
- 2) Preliminary basic program. (Using JChartEditor and fake CSVs.)
- 3) SPMP work. (Tentative: finish first draft of SPMP.)
- 4) Develop basic plan of attack on SDD document.
- 5) Either fix Dropbox desynchronization issue or switch to pure GitHub.

Materials Used: 2x Computers, word-processing software, Dropbox, GitHub, internet connections, Dia (diagramming software)

Group Members:

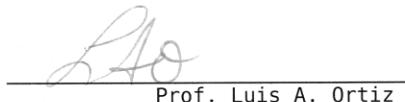


Gerardo A. Navas



Daniel Quintini

Professor:



Prof. Luis A. Ortiz

Meeting 7

Course / Class #: CECS 4800  
Date: 10 October 2013

Project Name: PlasmaGraph

Has been done:

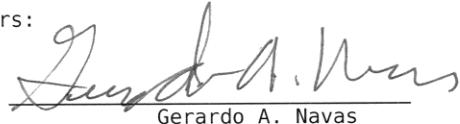
- 1) Migrated product design documents to GitHub under "/specs" folder.
- 2) Updated Scenarios and use case diagrams.
- 3) Notes on SPMP changes now that GitHub is in place instead of Dropbox.

What will be done:

- 1) Reinstatement of weekly meetings on Tuesdays and/or Wednesdays from 5:30 PM to 6:30 PM.
- 2) Make document changes due to removal of Dropbox and use of GitHub.
- 3) Finish SPMP and SRS.
- 4) Merging of paths on Thursdays @ 12 PM EST.

Materials Used: Two Computers, Internet Connections, GitHub, Prof. Luis A. Ortiz.

Group Members:

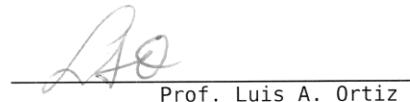


Gerardo A. Navas



Daniel Quintini

Professor:



Prof. Luis A. Ortiz

**Meeting 8**

Course / Class #: CECS 4800  
Date: 17/10/2013

Project Name: PlasmaGraph

**Has been done:**

- 1) SPMP: Section 3 (All files at Alpha stage.), File changes from Dropbox to GitHub. (Not all the explanation changes are done.)
- 2) SRS: Use Case Diagrams and Scenarios.
- 3) GitHub: Change in managing

**What will be done:**

- 1) SPMP: First Alpha Version. Includes changes from Dropbox to GitHub.
- 2) SRS: Use Case Diagrams v4. Maybe even a finalized version of them!

Materials Used: Two Computers, Internet Connections, GitHub, Prof. Luis A. Ortiz, Dia (Diagramming Tool)

**Group Members:**

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Gerardo A. Navas



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Daniel Quintini

**Professor:**

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Prof. Luis A. Ortiz

Meeting 9

Course / Class #: CECS 4800

Date: 24 October 2013

Project Name: PlasmaGraph

Has been done:

- 1) Work on Use Cases - Exceptions.
- 2) Design Draft #1 - GUI.
- 3) Fixed problems with Eclipse project being hosted directly on GitHub;  
Proved functionality via test program.

What will be done:

- 1) Design Draft #2 - GUI.
- 2) Work on Exceptions and Alternate Cases for the Use Cases.
- 3) Work on documents.

Materials Used: Two Computers, Internet Connections, GitHub, Prof. Luis A. Ortiz,  
Dia (Diagramming Tool), Pencil (GUI Prototyping Tool), Eclipse.

Group Members:

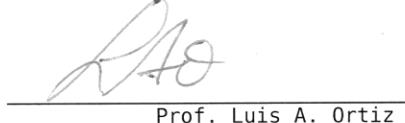


Gerardo A. Navas



Daniel Quintini

Professor:



Prof. Luis A. Ortiz

**Meeting 10**

Course / Class #: CECS 4800

Date: 31 October 2013

Project Name: PlasmaGraph

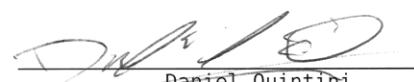
**Has been done:**

- 1) SRS: Scenarios - Exceptions & Scenarios - Alternates.
- 2) SPMP: Majority done. (Need Gantt Chart, Budget Chart, finalize list of Resources, and three small sections.)

**What will be done:**

- 1) SRS: Section 3 & Fixes to Scenarios as necessary.
- 2) SPMP: Tentatively Finish SPMP.
- 3) Demo program for Client.
- 4) Start work on package C5: Product / Project Description Presentation.

Materials Used: Two Computers, Internet Connections, GitHub, Prof. Luis A. Ortiz, Dia (Diagramming Tool).

**Group Members:**  
\_\_\_\_\_  
Gerardo A. Navas  
\_\_\_\_\_  
Daniel Quintini**Professor:**  
\_\_\_\_\_  
Prof. Luis A. Ortiz

**Meeting 11**

Course / Class #: CECS 4800

Date: 20 November 2013

Project Name: PlasmaGraph

Has been done:

## 1) SPMP: Revision 1 complete!

- a) Lacks attached list of resources used (5.4), although it exists in the PlasmaGraph repository, and Gantt Chart (5.5).
- b) Using Microsoft Project to create said Gantt Chart.

## 2) SRS: Revision 1 complete!

- a) Basically complete, but lacks lots of polish and a few details.

## 3) Prototype 1 Completed.

- a) Displays test data for each of the four main graph types: Bar Chart (Horizontal and Vertical), Pie Chart (No distinction between Horizontal and Vertical), XY Plot (Horizontal and Vertical), and Line Chart (Horizontal and Vertical).

- b) Has a set of options available.

- c) Allows saving of images, and editing of settings. (Settings changed via the ChartEditor [Right click -> Properties] do not change the Template; this means this feature will most likely be removed for the actual product.)

- d) Does not allow reading of data yet due to various Dataset conversion problems. (Solutions are already being developed; the likeliest of them involves usage of the CSVReader and CSVParser classes provided by OpenCSV in a CSVDataReader class that will read said CSV data files and correctly transfer the data into the appropriate JFreeChart Dataset.)

- e) Other graphs are being debated on. (Bar-and-Whisker, etc.) Largest problem is CSV data file parsing. Alternative input methods could be interesting, but probably outside the scope of the core of what the product will primarily do.

## 4) SDD: Initial work started.

- a) Started work on SDD via hand-drawn diagrams of the Package and Class Diagrams.

What will be done:

## 1) SPMP: Revision 2.

- a) Edits to older sections to update them with new data or with better explanations.
- b) More work on the Gantt Chart.

## 2) SRS: Revisions to it as feedback is provided.

## 3) SDD: Additional sketches of class methods and program flow.

## 4) Prototype: CSV data file reading + Second version of GUI. (Implement a Presentation - Model pattern, not MVC or Blob, which is what we currently have.)

## 5) Meeting with Client next week or the week after, depending on his availability.

Materials Used: Computers, Internet connections, Microsoft Project, Microsoft Word, Eclipse, Netbeans IDE, LibreOffice Calc, LibreOffice Writer, Sublime Text 2, GitHub

Group Members:



Gerardo A. Navas



Daniel Quintini

Professor:



Prof. Luis A. Ortiz

**Meeting #12**

Course / Class #: CECS 4800

Date: 12 December 2013

Project Name: PlasmaGraph

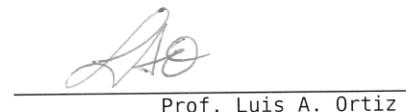
**Has been done:**

- 1) Presentation of current work to Client. (Prof. Angel Gonzales)
  - a) Conveying current progress.
  - b) Showcasing prototype.
  - c) Gathering further input. (Interpolation, Error Checking on data [read: remove data points that are extremely out of place with the rest of the data.], MATLAB file importing [as an option in addition to CSV].)
- 2) Work on CSV and MATLAB file-reading tools. (Documents for MATLAB found and read. Work pending.)
- 3) SDD: Work on Class Diagram.
- 4) Mid-Project Presentation to Senior Project Professor. (Prof. Luis A. Ortiz)

**What will be done:**

- 1) CSV and MATLAB file-reading.
- 2) SDD: Finalize Class Diagram. Work on Package and Sequence Diagrams.
- 3) Analyze impact of new input on previous documents and work on integrating them.

Materials Used: Two Computers, Internet Connections, GitHub, LibreOffice Impress / Microsoft PowerPoint (Presentation Creation Tools), Umbrello (Class Diagram UML Tool), Eclipse / NetBeans IDE (Java Development Environments).

**Group Members:**  
Gerardo A. Navas  
Daniel Quintini**Professor:**  
Prof. Luis A. Ortiz

**Meeting 13**

Course / Class #: CECS 4800

Date: 19 December 2013

Project Name: PlasmaGraph  
Project Group: Plasma Visualization Group

*logos*

Has been done:

- 1) SDD: Class Diagram (Additional methods.) and Package Diagram (Basic form.)
- 2) SDD: Activity Diagrams (Main Diagram, Import Data / Settings.)
- 3) SPMP: Gantt Chart v1.

What will be done:

- 1) Class Diagram (Organize diagram by regions, and connect via package diagram.)
- 2) Activity Diagrams (Graph Label / Aesthetic / Data Set and Graphing / Optional Tool Settings Tabs, Graph Data.)
- 3) Package Diagram (Include classes inside each package! Also, provide reference location to individual Class Diagrams!)
- 4) Include Microsoft Project, Umbrello, and Dia as tools into SPMP r2.
- 5) CSV / MatlabDataReader (By first week of January.)
- 6) Ideally, prototype 2 for Client (with imported data graphing) by the start of the second half of the WI-13 trimester.

Materials Used: Two Computers, Internet Connections, GitHub, Microsoft Project 2012 (Gantt Chart), Dia / Umbrello (UML Tool), Eclipse / NetBeans IDE (Java Development Environments).

Group Members:

  
Gerardo A. Navas

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**UNAVAILABLE**

Daniel Quintini

Professor:

  
Prof. Luis A. Ortiz

**Meeting 14**

Course / Class #: CECS 4800

Date: 9 January 2014

Project Name: PlasmaGraph

Has been done:

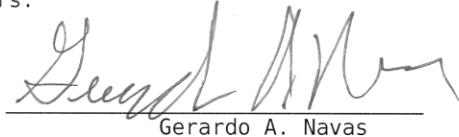
- 1) Performed research regarding hypothesis testing and statistical proofs.  
(As requested by Client, Prof. Gonzales.)
- 2) Implemented basic CSV reading with test file.
- 3) SDD: Package Diagram, Sequence Diagram questions.

What will be done:

- 1) Go more in depth with Java's OpenCSV class. This means sorting rows, columns and identifying particular data points.
- 2) Start work formally on the sanitizer package of PlasmaGraph.
- 3) First versions of Sequence Diagrams and State Diagrams.

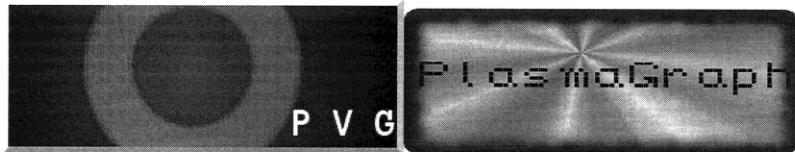
Materials Used: Two Computers, Internet Connections, GitHub, Umbrello (Class Diagram UML Tool), Eclipse / NetBeans IDE (Java Development Environments).

Group Members:

  
\_\_\_\_\_  
Gerardo A. Navas  
\_\_\_\_\_  
Daniel Quintini

Professor:

  
\_\_\_\_\_  
Prof. Luis A. Ortiz

Meeting 15

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Course / Class #: CECS 4800  
Date: 16 January 2014

Project Name: PlasmaGraph

Has been done:

- 1) SDD revision 1! (Still needs frames around most diagrams, and a number of modifications.)
- 2) Preparation for work on product.
- 3) SRS revision 1

What will be done:

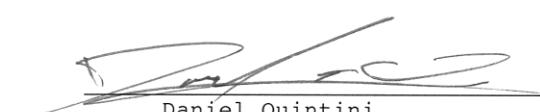
- 1) SDD revision 2 will be handed to Prof. Luis A. Ortiz before next meeting.
- 2) Begin work on product. (New GUI and data importing will be prioritized first.)
- 3) Begin work on STD. (Drafting up unit tests (for individual methods) and procedure tests (for individual classes or groups of classes) for all the various modules.)

Materials Used: 2x Computers, internet connections, Eclipse / NetBeans IDE (Programming), Dia / Microsoft Visio (Diagramming)

Group Members:

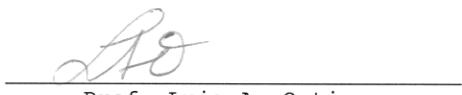


Gerardo A. Navas



Daniel Quintini

Professor:



Prof. Luis A. Ortiz

## Reunion 11

Meeting 16

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Course / Class #: CECS 4800

Date: 13 January 2014

Project Name: PlasmaGraph

Has been done:

- 1) SDD
- 2) SRS revision.
- 3) Tested Java library JMATIO

What will be done:

- 1) SDD revision.
- 2) SRS revision
- 3) Start implementation of GUI
- 4) Start implementation on data importing

Materials used: 2x computers, internet connections, Eclipse / NetBeans IDE  
(Programming), Dia /

Microsoft Visio (Diagramming)

Group Members:



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Gerardo A. Navas

---

Daniel Quintini

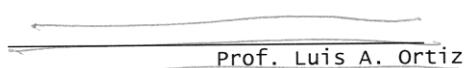
Professor:



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Prof. Luis A. Ortiz

Professor:



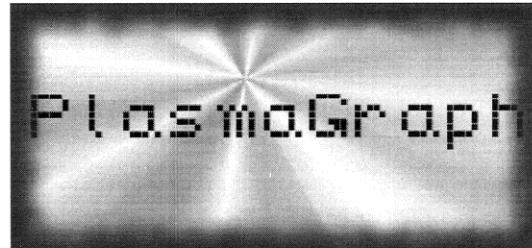
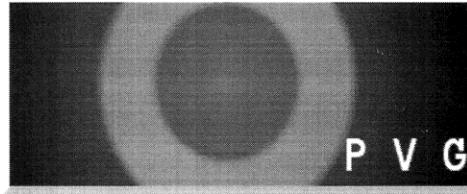
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Prof. Luis A. Ortiz

Meeting 17

Course / Class #: CECS 4800

Date: 30 January 2014



Project Name: PlasmaGraph

Has been done:

- 1) Started working on product.
  - a) Graphical User Interface via the MVC presentation model. (Missing about half of the Optional Tools' MVC classes due to edits to other dependencies.)
  - b) MatlabReader and Data-storage classes.
  - c) JavaDoc documentation work.
- 2) Continued updating specification documents based on talks with client and first clash with product code. (SRS, SDD)

What will be done:

- 1) Work on SPMP upon complete review by Prof. Ortiz.
- 2) Start work on product. (Reading functions and basic GUI functionality.)
- 3) Work on SDD. (Various missing diagrams, as well as making adjustments to extremely large diagrams.)

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:



Gerardo A. Navas

Professor:

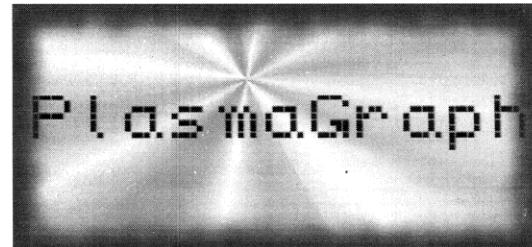
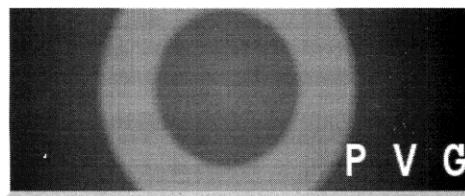


Daniel Quintini

Prof. Luis A. Ortiz

Meeting 18

Course / Class #: CECS 4800



Date: 6 February 2014

Project Name: PlasmaGraph

Has been done:

- 1) GUI Testing. (Found various issues with Swing's EDT that have been corrected. Still need to implement robust JUnit 4 tests for all the GUIs.)
- 2) Additional changes to GUI-related classes. (Template gained the ability to send ChangeEvents to listeners that register with it in order to properly display its changes on the GUI.)
- 3) Work on the Matlab Data Reading. (Found problems with the inputs that will be provided to the project and are working with the responses that the Plasma Lab. has given us to resolve them in a flexible manner.)
- 4) Implemented classes in org.pvg.plasmagraph.utils.data and org.pvg.plasmagraph.utils.graphs, including a basic CSV Data Reader and Writer. (Theory is that, if we need to, we can write a CSV file with changes to the data as a temporary format. Plus, it was relatively fast and painless to create, so we did it.)

What will be done:

- 1) Interpolation and Outlier Search functions will be implemented.
- 2) Matlab and CSV Data Reading functions will be implemented in their basic form.
- 3) Continuing work with test generation of classes.
- 4) SDD: Begin work on updating some of the new versions of the GUI Class, Activity and Sequence diagrams, as well as remaking the Package diagram.

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:

  
\_\_\_\_\_  
Gerardo A. Navas

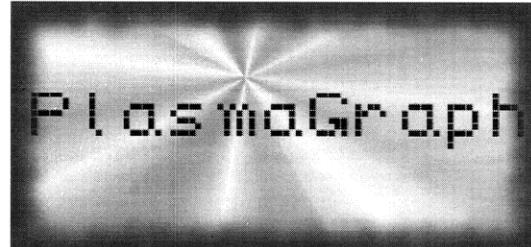
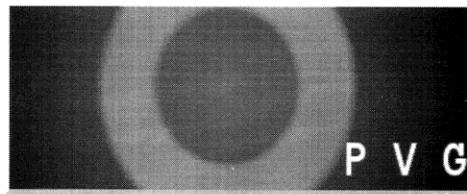
  
\_\_\_\_\_  
Daniel Quintini

Professor:

  
\_\_\_\_\_  
Prof. Luis A. Ortiz

Meeting 19

Course / Class #: CECS 4800



Date: 13 February 2014

Project Name: PlasmaGraph

Has been done:

- 1) Unit Testing: Data Sets, CSV reading, etc.
- 2) Additional changes to GUI-related classes. (Changed scaling for DataSetView, and changed the Menu Bar a bit.)
- 3) Work on the Matlab Data Reading.
  - a) Elicit more data files from the plasma laboratory.
  - b) Expanded DataSet and DataColumn classes.
  - c) Tested MatlabReader class with 4 different files.
- 4) Interpolation done. (Implemented a Spline interpolation method, and has additional tools to implement other types of interpolation.)

What will be done:

- 1) Interpolation testing will be implemented. Outlier Search will be implemented.
- 2) Fix errors produced in MatlabReader by .mat files with different lengths of columns.
- 3) Fix errors produced in MatlabReader by .mat files with null values.
- 4) Meet with client. Present options for Outlier Searching. (Faster but partially manual versus Slower but automated.)
- 5) Finish the error reporting system.
- 6) Work on next versions of the SRS, SDD, and SPMP documents.

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:



Gerardo A. Navas

Professor:



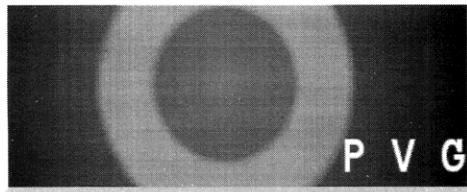
Daniel Quintini



Prof. Luis A. Ortiz

Meeting 20

Course / Class #: CECS 4800



Date: 20 February 2014

Project Name: PlasmaGraph

Has been done:

- 1) Unit Testing: Added additional tests to CSV testing, and fixed certain bugs that appeared as a result of said tests. (CSV reading not providing correct data, or interpolation not providing images.)
- 2) Additional changes to GUI-related classes. (Added “Group By Experiment” Check box; added connections to template “group\_by” setting.)
- 3) Work on the Matlab Data Reading. (Fixed some errors regarding varying column lengths and null values.)
- 4) Meeting with client.
  - a) Showed images of proper interpolation curves (Linear, Quadratic, Cubic, Quartic, and Spline Interpolations.) and GUI. (All tabs and main view.)
  - b) Presented the procedure we'll be taking to create the Outlier Scanning. (Automation via Mahalanobis Distances.)
  - c) Received request for “Group By Experiment” option.
  - d) Received request for demo presentation (for him) and product explanation presentation. (for him and PUPR Plasma Laboratory students.)

What will be done:

- 1) Outlier Search via Mahalanobis Distances (and respective tests) will be implemented.
- 2) Create Matlab Reader, Outlier Search, and general GUI tests.
- 3) Interface Readers into program. Interface reading of multiple files
- 4) Try to present demo to Client by end of next week.

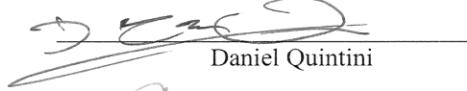
Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:

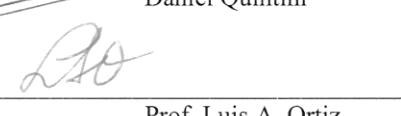


Gerardo A. Navas

Professor:



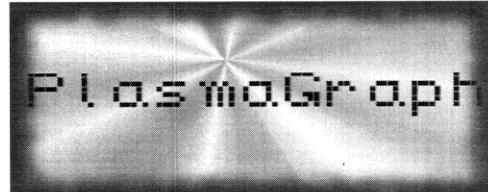
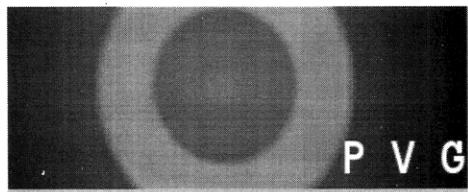
Daniel Quintini



Prof. Luis A. Ortiz

Meeting 21

Course / Class #: CECS 4800



Date: 27 February 2014

Project Name: PlasmaGraph

Has been done:

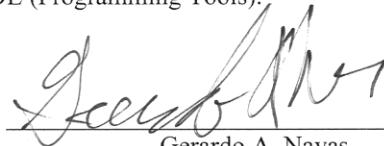
- 1) Unit Testing: Outlier Search, plus a number of slight modifications due to changes around the other methods.
- 2) Additional changes to GUI-related classes. (Changed the Graph Menu Option's buttons, various small changes in the process of accomodating the possibility of importing multiple data files for a single graph.)
- 3) Work on the Matlab Data Reading. (Date data values)
- 4) Outlier Search / Scan: Implementation plus basic test.
- 5) CSVProcessor / MatlabReader interface into data import function completed.

What will be done:

- 1) Outlier Search: Refinement of method and visual response of results, and eliminating minor bugs.
- 2) Remove data column filtering to reduce (unneeded) feature bloat.
- 3) Prepare demo for Client and students by March 10<sup>th</sup>.
- 4) Make changes to SRS and SPMP, and begin work on SDD r2 and STD r1.

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:

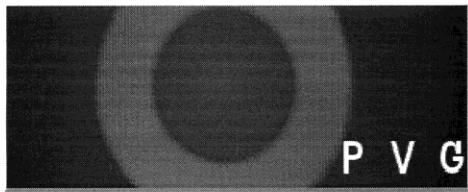
  
Gerardo A. Navas

Professor:

  
Daniel Quintini  
  
Prof. Luis A. Ortiz

**Meeting 22**

Course / Class #: CECS 4800



Date: 13 March 2014

Project Name: PlasmaGraph

Has been done:

- 1) Meeting with client. Discussed changes to product.
- 2) Additional changes to GUI-related classes. (Created data log view)
- 3) Added Matlab reading functionality to end product.

What will be done:

- 1) Bugs fixing. (Outliers, display messages, some interpolation algorithms not displaying data)
- 2) Changes to GUI (two floating windows instead of one)
- 3) Include MATLAB file specifications in SRS
- 4) File size limit testing. (csv, mat)

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:



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Gerardo A. Navas

Professor:



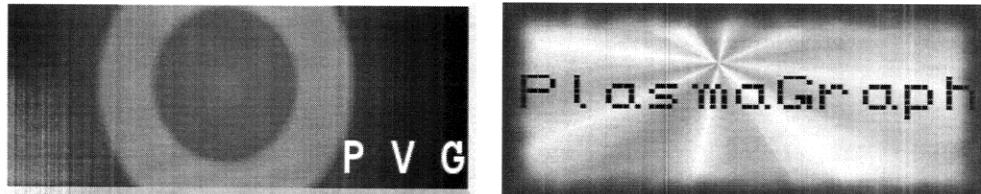
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Daniel Quintini

Prof. Luis A. Ortiz

Meeting 23

Course / Class #: CECS 4800



Date: 20 March 2014

Project Name: PlasmaGraph

Has been done:

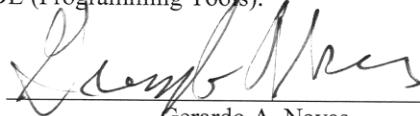
- 1) Implemented some requests by the client.
  - a. Auto-graphing changes. (Still has some problems, and lacks both automatic disabling of possible options based on chart type and some error messages.)
  - b. Tests regarding maximum file sizes. (Handles 100 column x 68,400 row files (~60 MB MAT file) very quickly.)
- 2) Removed various unneeded or debilitating features, or moved things around. (DataFilter, multiple Graph queue, old / unneeded MVC classes.)
- 3) Start updating Data, Template, etc. SDD diagrams.
- 4) New GUI. (Heavily considering putting graphs in a side-panel directly attached to settings), and graphs update automatically on second window.)

What will be done:

- 1) Bug fixing. (Outlier scanning is not removing outliers found and is mis-reporting outliers found; Auto-graphing isn't responding well enough to setting changes (Changing all setting listeners to FocusListeners so as to change upon switching from one setting to another); interpolation algorithms not graphing (Interpolation isn't providing the correct data to the Graphing classes?); edge cases with graphing (Sometimes, incorrect graphs appear or unhandled nulls are thrown.) )
- 2) Perform File size limit testing for CSV files, and update SRS with file processing times for large file sizes.
- 3) File size limit testing. (csv)

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:

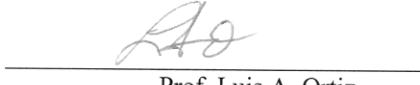


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Professor:



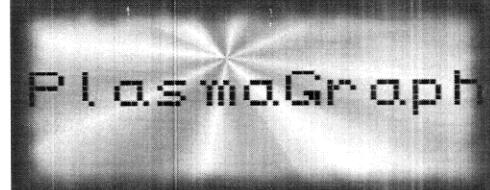
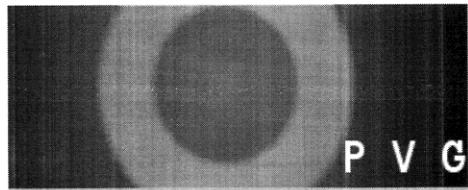
Daniel Quintini



Prof. Luis A. Ortiz

Meeting 24

Course / Class #: CECS 4800



Date: 27 March 2014

Project Name: PlasmaGraph

Has been done:

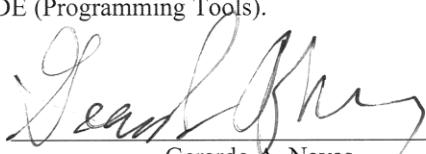
- 1) Removed Auto-Graphing changes. Added "Graph" button to bottom of side panel.
- 2) Fixed a critical majority of bugs and other errors that were preventing all functions (basic graphing, interpolation, and outlier searching) from working.
- 3) Modified Outlier Search code to properly display points removed, as well as the total / outlier points.
- 4) Added ability to toggle "Enabled" status on various components on the Data Set and Options views based on chart type or any other option.

What will be done:

- 1) Bug fixing. (Error catching for any and all edge cases with graphing (Sometimes, incorrect graphs appear or unhandled nulls might be thrown.) or option-selection. )
- 2) Update Specification documentation to match current work (SDD, STD)

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:

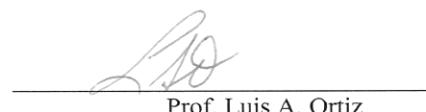


Gerardo A. Navas



Daniel Quintini

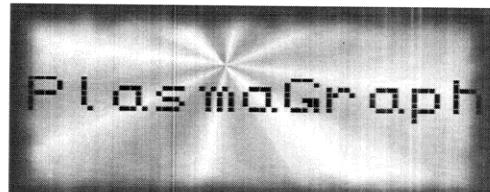
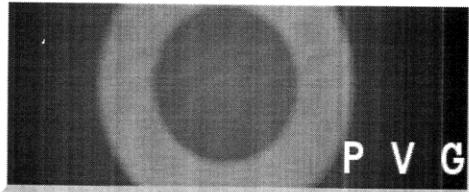
Professor:



Prof. Luis A. Ortiz

Meeting 25

Course / Class #: CECS 4800



Date: 3 April 2014

Project Name: PlasmaGraph

Has been done:

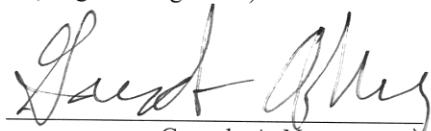
- 1) Bug-Fixing.
- 2) Basic grouping. (Can group by numerical columns. Not tested with string-typed columns.  
Doesn't work yet with Interpolations due to bugs.)
- 3) Research on Help File viewing via Java.

What will be done:

- 1) Bug fixing. (Error catching for any and all edge cases with graphing (Sometimes, incorrect graphs appear or unhandled nulls might be thrown.) or option-selection. )
- 2) Interpolation grouping, and grouping by string-typed columns.
- 3) Help File viewing. (Possibly as a replacement to the User Manual required by the project.)
- 4) Update Specification documentation to match current work (SDD, STD)

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:



Gerardo A. Navas



Daniel Quintini

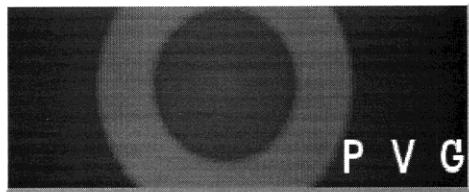
Professor:



Prof. Luis A. Ortiz

Meeting 26

Course / Class #: CECS 4800



Date: 10 April 2014

Project Name: PlasmaGraph

Has been done:

- 1) Bug fixing
- 2) Help file
- 3) Interpolation grouping (doubles only)
- 4) Meeting with client

What will be done:

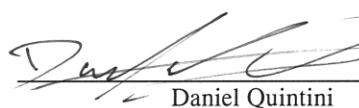
- 1) Bug fixing (String column graphing, index out of bound exception handling)
- 2) Test documentation first draft
- 3) Start testing with final matlab file format.

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:



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Gerardo A. Navas



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Daniel Quintini

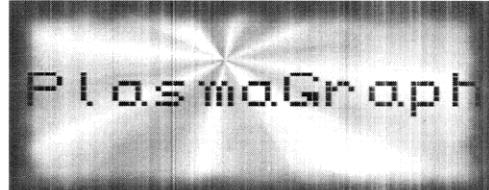
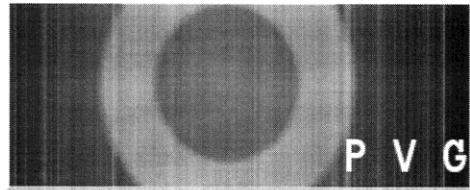
Professor:



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Prof. Luis A. Ortiz

Meeting 27

Course / Class #: CECS 4800



Date: 24 April 2014

Project Name: PlasmaGraph

Has been done:

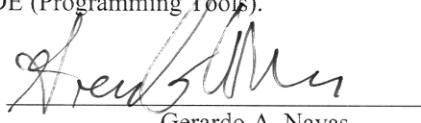
- 1) Test documentation first draft
- 2) Tests with Matlab final Test Files. (Header column is being found but not used. Bug that will be fixed by next week's client meeting.)
- 3) Began writing final presentation outlines for both Plasma Lab presentation and Final Project presentation.
- 4) Client meeting scheduled for next week.
- 5) Halfway done with Javadoc documentation polish.

What will be done:

- 1) Remaining documentation. (SPMP, SRS, etc)
- 2) Finish presentations, and start gathering materials and designing for project poster.
- 3) Fix remaining bugs before meeting with client.
- 4) Finish Javadoc polish.

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:

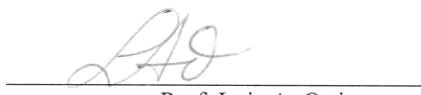


Gerardo A. Navas

Professor:



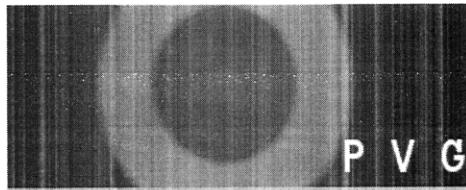
Daniel Quintini



Prof. Luis A. Ortiz

Meeting 28

Course / Class #: CECS 4800



Date: 1 May 2014

Project Name: PlasmaGraph

Has been done:

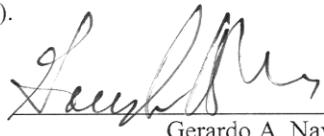
- 1) Final test data files obtained. (Contain incorrect header variable name - "headers" instead of "header". Will add additional check for "headers" and "Headers", just to be complete.)
- 2) Work on SRS, SPMP (Section 5 remaining.), SDD (Table of necessary diagrams to make for document completion and state diagram sketches.), and Presentations. (First text draft of Client presentation.)
- 3) Additional work on Javadocs.
- 4) Sent e-mail regarding Matlab file requirements for use in PlasmaGraph to Plasma Lab students.

What will be done:

- 1) Remaining documentation. (SPMP, SRS, etc)
- 2) Finish presentations, and start gathering materials and designing for project poster.
- 3) Test product with new data before presenting to client for final verification before Plasma Lab presentation scheduling.
- 4) Finish Javadoc.

Materials Used: 2x Computers, Internet connections, Microsoft Visio / Dia (Diagramming Tools), OpenOffice Writer / Microsoft Word 2013 (Document-writing Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:



Gerardo A. Navas

Professor:

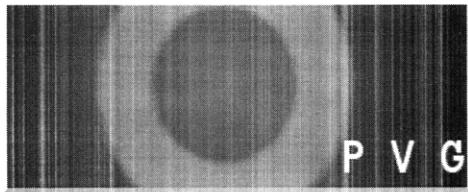


Daniel Quintini

Prof. Luis A. Ortiz

Meeting 29

Course / Class #: CECS 4800



Date: 8 May 2014

Project Name: PlasmaGraph

Has been done:

- 1) Test data files obtained. (Error in creating graph – not translating from header name to variable name correctly in MatlabProcessor's "toDataSet" method.)
- 2) SPMP (r2 complete)
- 3) SDD (Started work on diagrams [Use Case / Requirement sequence diagrams, Package / Class diagrams done, object state machine diagrams and program flow diagram next]; document structure created; Started work on textual explanations.)
- 4) Presentation material cost research.

What will be done:

- 1) Remaining documentation. (SPMP, SRS, SDD)
- 2) Finish presentations, and start gathering materials and designing for project poster.
- 3) Correct bugs with final test data before presenting to Plasma Lab.
- 4) Finish Javadoc.

Materials Used: 2x Computers, Internet connections, Microsoft Visio 2013 / Dia (Diagramming Tools), OpenOffice Writer / Microsoft Word 2013 (Document-writing Tools), Eclipse / NetBeans IDE (Programming Tools).

Group Members:

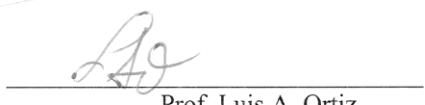


Gerardo A. Navas

Professor:



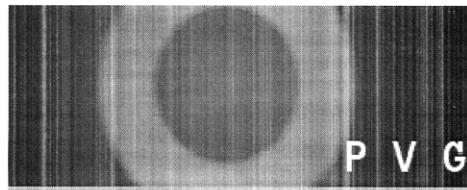
Daniel Quintini



Prof. Luis A. Ortiz

Meeting 30

Course / Class #: CECS 4800



Date: 15 May 2014

Project Name: PlasmaGraph

Has been done:

- 1) Tests with test data. (Headers don't work due to nondeterministic order in which columns are extracted from the file.)
- 2) SPMP work (Third and fourth revisions; added Gantt Chart schedule and budget to document.)
- 3) SDD (Started work on diagrams [Use Case / Requirement sequence diagrams, Package / Class diagrams done, object state machine diagrams and program flow diagram next]; document structure created; Started work on textual explanations.)
- 4) SRS finalized.
- 5) STD work.

What will be done:

- 1) Remaining documentation. (SPMP, STD, SDD)
- 2) Finish presentations, and start gathering materials and designing for project poster.
- 3) PlasmaGraph user test on Friday, May 16, 2014.
- 4) Finish Javadoc.

Materials Used: 2x Computers, Internet connections, Microsoft Visio 2013 / Dia (Diagramming Tools), OpenOffice Writer / Microsoft Word 2013 (Document-writing Tools), Eclipse / NetBeans IDE (Programming Tools), Microsoft PowerPoint 2013 (Presentation Tool), Microsoft Project 2013 (Scheduling Tool).

Team Members:

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Gerardo A. Navas

Advisor:

Handwritten signature of Daniel Quintini.

Daniel Quintini

Prof. Luis A. Ortiz

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