TSP
The Solid Project

Crystele Dierickx

Henry Vu

Matthew Affa

Victor Zavala

Final Report

Client: Northrop Grumman

California State University San Marcos

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EXECUTIVE COMMUNICATION

Thomas Usrey
Northrop Grumman
16765 W. Bernardo Dr.
San Diego, CA 92127

Dear Mr. Usrey,

Thank you for allowing us to work with you for our Senior Project. We appreciate the time you have spent on meeting and organizing this project with us. The project you proposed to us allowed us to learn about project management, implementation, and your guidance has allowed us to learn what is required to complete a project for a real customer. We hope you continue to host projects for the Project Management Course at Cal State San Marcos, and we all appreciate the experience we shared together.

The final phase of the project ensures the requirements for the Workflow Diagram Widget were met to the best of our abilities, implemented the core functionality of the Shop Floor Visualization, and Scheduling was not successfully completed due to time constraints.
So far, Phase V has a total cost of $4,321.00 and the overall project has a completion cost of $17,052.00 .

If you have any questions or concerns regarding the project, please do not hesitate to contact us via email or Slack.

Sincerely,

Matthew Affa
Project Lead
solidprojectcsusm@gmail.com
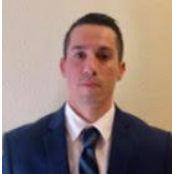CC: Dr. Shaun-Inn Wu

Stakeholder Approval
I _____(print), approve the current project and continuation under the predetermined terms by The Solid Project team, will provide any non-confidential materials that contributes to the overall success of the project, and will allow The Solid Project team to manage all deliverables set by the project sponsor.

Team Summary

DEVELOPERS	SUMMARY & SKILLS
Crystele Dierickx Project Manager Developer	I am a senior at Cal State University of San Marcos pursuing a Bachelor's of Science in Computer Information Systems with an interest in Cybersecurity. I currently work for a software firm that uses artificial intelligence, algorithmic science, and machine learning for endpoint security. The Project Management and Coordinating skills I acquired during my internship and current employer will help me manage our project as well as develop.
Henry Vu Software Developer	Senior pursuing a Bachelor's of Science in Computer Information System at Cal State San Marcos. Worked for Asus Computers as a Computer Technician before being promoted to Data Analyst. I moved to Murrieta after transferring to CSUSM. Previously interned for a startup doing quality assurance.
Matthew Affa Project Lead / Developer	Graduating senior at Cal State San Marcos with a Bachelor's of Science in Computer Information Systems with a minor in Business. I am currently employed at a FinTech company called AppTech in Carlsbad that specializes in Payment and Information technology.
Victor Zavala Software Developer	I am a senior student at California State University San Marcos pursuing a Bachelor's degree in Computer Science with a concentration in Information Systems, which I anticipate earning in May of 2018. I am currently working part-time at Fabian Leadership Resources as a full stack web developer.

Contact Us

Name	Email	Phone Number
Crystele Dierickx	feltr001@cougars.csusm.edu	(951)216-5538
Henry Vu	vu036@cougars.csusm.edu	(480) 420-5980
Matthew Affa	affa001@courgars.csusm.edu	(310) 720-8101
Victor Zavala	zaval035@cougars.csusm.edu	(619) 636-7024
Company Contact	**solidprojectcsusm@gmail.com**	

Team Norms and Expectations

- ○ Be professional, responsible and punctual.
- ○ All team members are expected to be present at all team meetings.
- ○ Business casual for all meetings with customer.
- ○ Be respectful, honest, and open about team members' issues and concerns.
- ○ Encourage response and feedback.
- ○ Critical decision making should be made by majority vote.
- ○ Clearly articulate the desired outcome.
- ○ Clearly identify constraints and boundaries.
- ○ All costs associated with the project will be split evenly among team members.
- ○ General communication will be made through Slack.
- ○ All tasks are scheduled and managed through Trello.
- ○ All work must be uploaded to Github.
- ○ All work submitted must be on time and has to meet high quality standards.

Application Development

Business Context

Northrop Grumman is an American global aerospace and defense technology company. They develop integrated Communications, Navigation and Identification systems for tactical aircraft, covert communications and tactical radio systems for the Department of Defense and other national security clients. Their product development involves mechanical, electrical, software, and engineering.

Business Problem

Northrop Grumman works on multiple projects that vary in size across multiple organizations. As they continue to grow ,leaders are required to manage more projects and more people. The company currently uses homegrown workflow applications and data management solutions to manage their processes and need a software solution for collecting, analyzing, controlling data. Northrop Grumman would like to standardize their

workflow and bring more interactive visualizations to increase tool efficiency while maintaining the best user experience for workflow, layout, and scheduling (Gantt).

Project Proposal
We propose a Web-based workflow visualization tool using a widget. This widget will be styled using CSS and have the functionalities that include adding multiple workflow objects, altering / adding workflow status , and displaying capabilities within Northrop Grumman's supported browsers.

Statement of Deliverables
- Working widget will be able to take in JSON information and display it in a workflow diagram.
- Widget will be dynamic so user can add (including insert), remove, edit and update existing workflow states.
- Workflow widget will have new features such as admin mode, zoom, node collapse/expansion, and have a new theme with custom options.
- Second working widget will display a visual representation of the Northrop Grumman manufacturing shop floor.
- Widget will work on IE11+, Firefox 45+, and on Edge.
- Documentation
- Source Code

What form or medium will your deliveries be in:
Executable source code customer can run on their local machine via web browser (IE+11, Firefox 45+, and Edge)

Project Measures of Success Outline

Phase	Details
1	- Hold JAD1 meeting on site at. 2/8/18 - Discuss communication method. - Discuss the customer's problem. - Define project scope and requirements. - Request source code from previous group. - Set up tools for project. - Slack for communication. - Google Drive for documentation. - Trello for task management. - Github for development platform.
2	- Research & Review Vortek Solutions documents and source code. - Hold JAD2 meeting on site. - Discuss issues and concerns. - Confirm project requirements. - Review Report 1. - Finalize Report 1.
3	- Download and Run Vortek Solutions source code - Implement Admin Interface Prototype. - Finalize Report 2. - Hold Prototype 1 meeting on site. - Present admin interface prototype. - Get feedback. - Discuss briefly next phase of the project. - Make changes to admin interface prototype if needed.
4	- Implement different themes for workflow diagram. - Finalize Report 3. - Hold Prototype 2 meeting on site. - Present themes for workflow diagram prototype. - Get feedback. - Discuss briefly next phase of the project. - Make changes to workflow diagram prototype if needed.
5	- Implement shop floor visualization. - Thorough testing of all functionalities. - Finalize Report 4. - Present final product.

Visual Representation
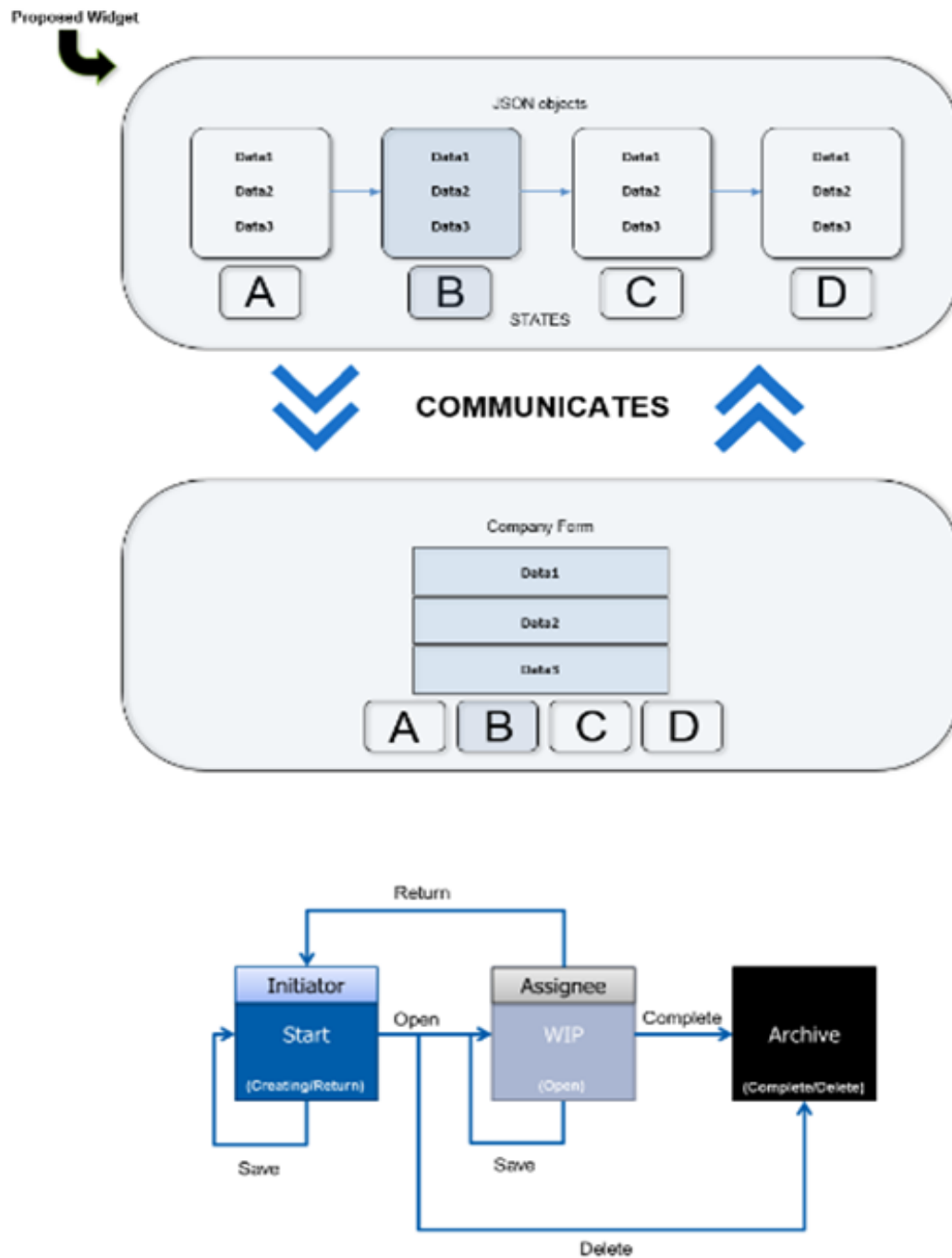
Requirements Matrix

| Requirement #	Requirement Description	Task ID	Implemented (Yes/No)
R1	Widgets will run on IE 11+.	57	YES
R2	Widgets will run on Firefox 45+.	57	YES
R3	Widgets will run on Edge.	57	YES
R4	Workflow widget will receive JSON data from source, including incomplete data. Must save in the same format as received.	57	YES
R5	Widget will render data in a workflow diagram.	57	YES
R6	Workflow widget will be interactive to the browser.	54	YES
R7	Widget will display a Shop Floor Visualization.	67	YES
R8	Workflow widget will self contain D3 object.	57	YES
R9	Workflow widget theme can be styled with CSS.	53	YES
R10	Workflow widget will have an admin mode (edit, insert node, add branch)	57	YES
R11	Workflow widget will have zoom feature	55	YES
R12	Workflow widget will have node collapse/expand feature	54	YES
R13	Shop Floor Visualization widget will render JSON data	67	YES
R14	Shop Floor Visualization will run on IE +11, Edge, and Firefox	67	YES

Project Management

Initial Project Cost Tracking Chart

Actual Cost			
Phases	**Actual Hours**	**Rate**	**Total Actual Cost**
Phase 1	72	29	$2,088.00
Phase 2	29	29	$841.00
Phase 3	138	29	$4,002.00
Phase 4	200	29	$5,800.00
Phase 5	149	29	$4,321.00
Total	588	29	$17,052.00

Total Project Cost Estimate			
Phases	**Projected Hours**	**Rate**	**Total Projected Cost**
Phase 1	84	29	$2,436.00
Phase 2	30	29	$870.00
Phase 3	116	29	$3,364.00
Phase 4	164	29	$4,756.00
Phase 5	116	29	$3,364.00
Total	510	29	$14,790.00

*Actual Cost Chart shows the actual hours and cost of the project and the Projected Cost Chart shows the hours and cost of what we projected the project to cost in the beginning of the project.

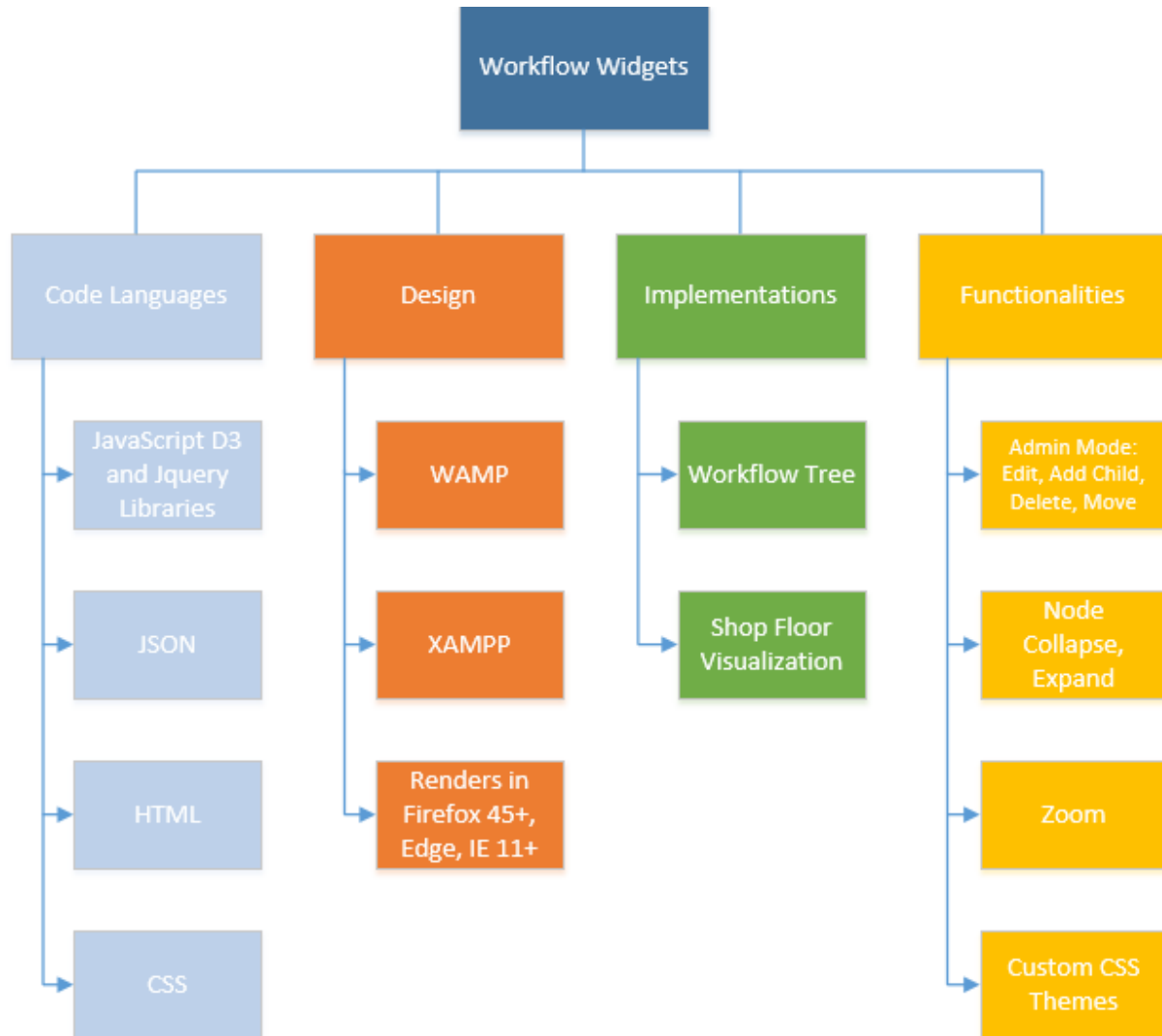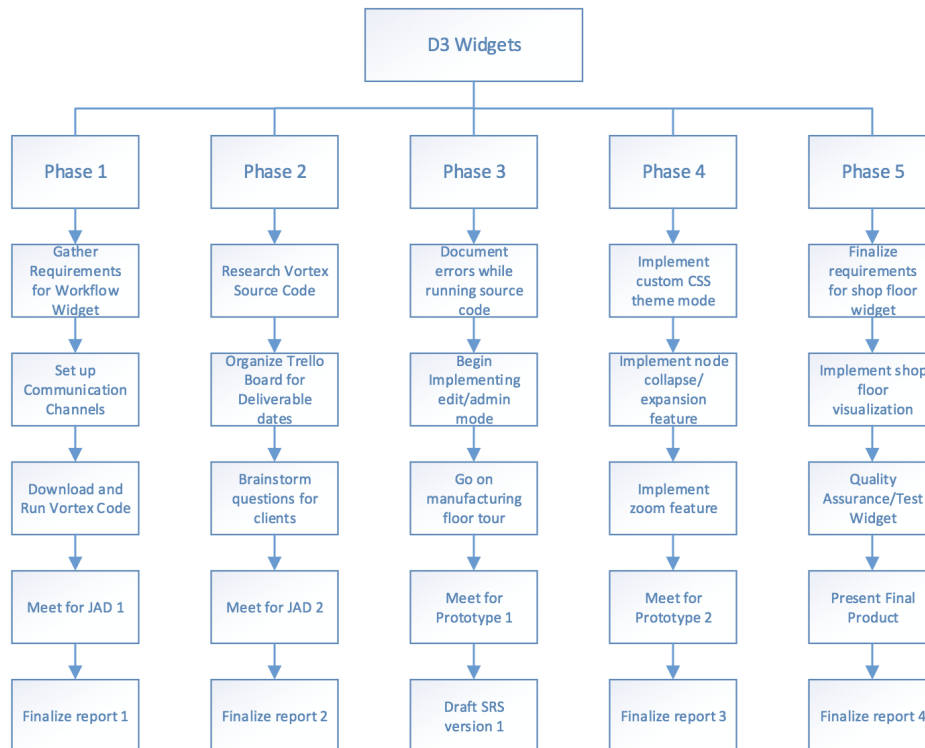Actual & Projected Hours
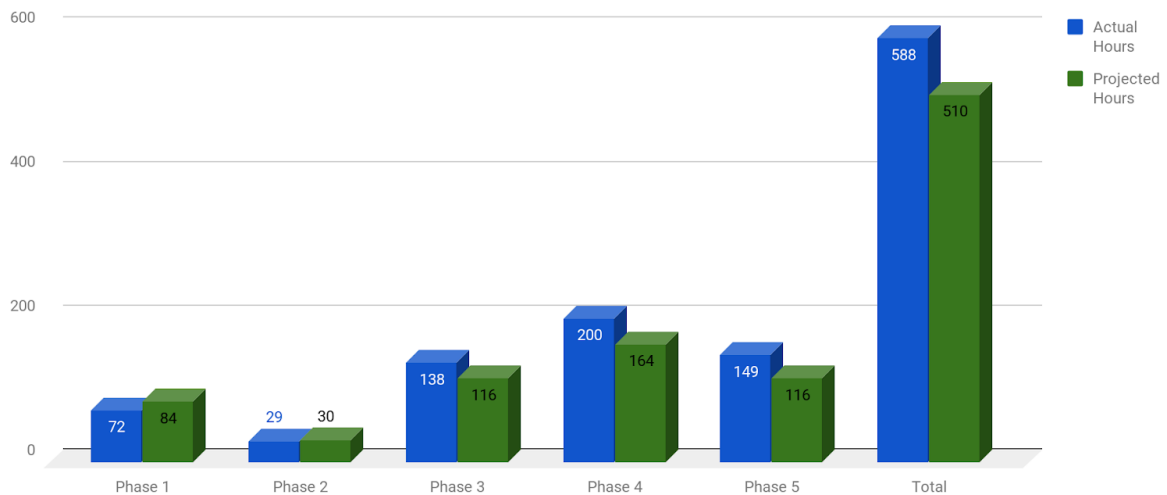
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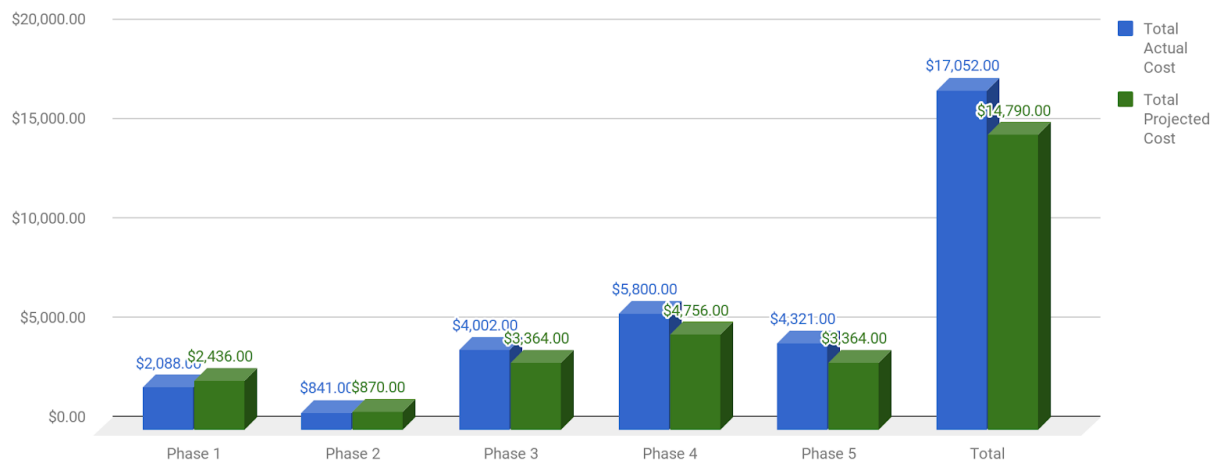
Schedule of Task

ID	TASK NAME	DURATION	START	FINISH	TEAM MEMBER	% COMPLETED
1	**Phase 1 (Week 2- Week 5 ends 2/20)**					
2	Design business logo & prepare business cards/ name tags	2	2/2/2018	2/3/2018	Crystele	100.00%
3	Finalize business cards	1	2/5/2018	2/5/2018	Crystele	100.00%
4	Purchase Avery Printable Template Paper for business cards, name tags, and name tag badges	2	2/6/2018	2/6/2018	Crystele, Henry	100.00%
5	Print business cards & name tags	0.5	2/7/2018	2/7/2018	Crystele	100.00%
6	Collect photos of each team member	0.5	2/6/2018	2/6/2018	Crystele	100.00%
7	Define and appoint team roles to each team member	2	2/1/2018	2/1/2018	All	100.00%
8	Obtain Project Management Software & Create Trello Board	1	2/1/2018	2/1/2018	Crystele	100.00%
9	Download MS Project from CSUSM apps	4	2/1/2018	2/1/2018	All	100.00%
10	Define mission & scope	4	2/5/2018	2/7/2018	All	100.00%
11	Draft possible company mission statement,objective, and team norms	8	2/5/2018	2/7/2018	All	100.00%
12	Schedule Initial meeting to obtain user requirements	1	2/6/2018	2/6/2018	Matt	100.00%
13	Documentation: Prepare JAD1 Meeting Agenda	2	2/6/2018	2/6/2018	Crystele	100.00%
14	JAD1: Think of specific questions for Client	8	2/6/2018	2/7/2018	All	100.00%
15	Meet with Client and Dr. Wu for JAD1	4	2/8/2018	2/8/2018	All	100.00%
16	Finalize JAD1 Agenda Meeting Notes and Email JAD1 Agenda to Client & Dr. Wu	2	2/8/2015	2/8/2018	Matt, Crystele	100.00%
17	Obtain Vortek Solution Source Code & GitHub information and Upload to Team GitHub	2	2/13/2018	2/13/2018	Matt	100.00%
18	Set-Up Slack Communication & Give Team Members Access	1	2/1/2018	2/1/2018	Crystele	100.00%
19	Set-Up Google Drive & Give Team Members Access	1	2/1/2018	2/1/2018	Crystele	100.00%
20	Set-Up & Each Team member has access to the Trello Board to Manage Project	1	2/1/2018	2/1/2018	Crystele	100.00%
21	Set-Up GitHub for Development Platform	1	2/1/2018	2/1/2018	Henry	100.00%
22	Review & Research technologies used in previous project	12	2/13/2018	2/18/2018	All	100.00%
23	Meeting with Dr. Wu regarding JAD1 Meeting & Report 1 Draft	4	2/15/2018	2/15/2018	All	100.00%
24	Make Corrections to Report 1	8	2/15/2018	2/20/2018	All	100.00%
25	**Phase 2 (Week 4 - Week 5 ends 2/20)**					
26	Research and Review Vortek Solutions Documentation and Source Code	12	2/15/2018	2/20/2018	All	100.00%
27	Organize Trello board w/ due dates, documentation requirements, assigning task cards, etc	2	2/1/2018	5/15/2018	Crystele	100.00%
28	Documentation : Draft JAD2 Meeting Agenda	4	2/17/2018	2/18/2018	Matt, Crystele	100.00%
29	JAD2: Think of specific questions for Client	1	2/16/2018	2/18/2018	All	100.00%
30	Meet with Client and Dr. Wu for JAD2	4	2/19/2018	2/19/2018	All	100.00%
31	Finalize JAD2 Agenda Meeting notes and Email JAD2 Agenda to Client & Dr. Wu	2	2/19/2018	2/19/2018	Matt, Crystele	100.00%
32	Finalize Report 1 Corrections	4	2/15/2018	2/19/2018	All	100.00%
33	**Phase 3 (Week 5 - Week 8)**					
34	Download and Run Vortek Solutions source code	3	2/23/2018	2/25/2018	Henry,Matt,Victor	100.00%
35	Meeting with Broc from Vortek Solutions to obtain a better understanding of previous project	4	2/22/2018	2/22/2018	All	100.00%
36	Download all dependencies for source code	1	2/23/2018	2/25/2018	All	100.00%
37	Document any errors and successes in running source code	1	2/23/2018	2/25/2018	All	100.00%
38	Angular 2 Implement Admin Interface Prototype and document any roadblocks,errors, and successes	36	2/26/2018	3/13/2018	All	100.00%
39	Angular 2 Changes/Edit Admin Interface Prototype	16	2/26/2018	3/13/2018	All	100.00%
40	Documentation: Prepare & Draft Report 2	20	2/23/2018	2/26/2018	All	100.00%
41	Meeting with Dr. Wu regarding JAD2 Meeting & Report 2 Draft	4	3/1/2018	3/1/2018	All	100.00%
42	Make corrections to Report 2	8	3/2/2018	3/5/2018	All	100.00%
43	Finalize Report 2	4	3/5/2018	3/5/2018	All	100.00%
44	Schedule & Confirm manufacturing tour with client	1	2/26/2018	2/26/2018	Matt, Crystele	100.00%
45	Manufactoring Tour at NGC	4	3/6/2018	3/6/2018	All	100.00%
46	Schedule & Confirm Prototype I meeting	1	2/26/2018	2/26/2018	Matt, Crystele	100.00%
47	Draft SRS version 1	8	3/8/2018	3/18/2018	All	100.00%
48	Team Zoom Meeting	4	3/8/2018	3/8/2018	All	100.00%
49	Documentation & Team Meeting 3/11 : Prepare & Draft Prototype I Meeting Agenda	18	3/10/2018	3/12/2018	All	100.00%
50	Meet with Client and Dr. Wu for Prototype I	4	3/13/2018	3/13/2018	All	100.00%
51	Finalize Prototype I Meeting Agenda Notes and Email Meeting Agenda to Client & Dr. Wu	1	3/13/2018	3/15/2018	Matt, Crystele	100.00%
52	**Phase 4 (Week 9 - Week 12)**					
53	Draft Implement Code different themes for workflow diagram	36	3/16/2018	3/24/2018	All	100.00%
54	Draft Implement Code node collapse/expansion feature	36	3/24/2018	3/29/2018	All	100.00%
55	Draft Implement Code zoom feature	36	3/29/2018	4/3/2018	All	100.00%
56	Research on rendering D3 Library & Research on other technologies/ applications/ tools	36	3/16/2018	3/30/2018	All	100.00%
57	Moving away from Angular 2: Implement Admin Interface & Change/Edit prototype	16	4/3/2018	4/8/2018	All	100.00%
58	Documentation: Prepare & Draft Report 3	16	3/15/2018	3/26/2018	All	100.00%
59	Meeting with Dr. Wu regarding Prototype I Meeting and Report 3 Draft Corrections	4	3/29/2018	3/29/2018	All	100.00%
60	Make Corrections to Report 3	8	3/29/2018	4/2/2018	All	100.00%

61	Finalize Report 3	4	4/2/2018	4/2/2018	All	100.00%
62	Schedule & Confirm Prototype II meeting	1	4/3/2018	4/5/2018	Matt, Crystele	100.00%
63	Documentation: Prepare & draft Prototype II Meeting Agenda	2	4/7/2018	4/8/2018	Matt, Crystele	100.00%
64	Meet with Client and Dr. Wu for Prototype II	4	4/10/2018	4/12/2018	All	100.00%
65	Finalize Prototype II Meeting Agenda Notes and Email Meeting Agenda to Client & Dr. Wu	1	4/10/2018	4/12/2018	Matt, Crystele	100.00%
66	**Phase 5 (Week 13 - Week 16)**					
67	Changes/ Edits after Prototype II meeting & Implement shop floor visualization	60	4/13/2018	4/20/2018	All	100.00%
68	Quality Assurance / Testing Widget	29	4/20/2018	4/23/2018	All	100.00%
69	Documentation: Prepare & Draft Report 4	16	4/16/18	4/19/2018	All	100.00%
70	Meeting with Dr.Wu regarding Prototype II Meeting Agenda & Report 4 Draft Corrections	4	4/19/2018	4/19/2018	All	100.00%
71	Make Corrections to Report 4	8	4/20/2018	4/22/2018	All	100.00%
72	Finalize Report 4	4	4/23/2018	4/23/2018	All	100.00%
73	Prepare / Draft Final Product Presentation	16	4/26/2018	5/8/2018	All	100.00%
74	Change/Edit Final Product Presentation	8	5/9/2018	5/9/2018	All	100.00%
75	Present Final Product	4	5/15/2018	5/15/2018	All	100.00%

Product Breakdown Structure

Work Breakdown Structure

Statement of Deliverables

Deliverables	Due Dates
Report 1	2/20/2018
Report 2	3/6/2018
Prototype 1	3/15/2018
Report 3	4/3/2018
Prototype 2	4/12/2018
Report 4	4/24/2018

Other Deliverables due on 5/15/2018
1. **SRS**
2. **Documented Code**
3. **User Documentation**
4. **Working Examples**

Outline of Resources

What resources we will need from Northrop Grumman:
- They have provided us with the following material:
    1. Vortek Solutions Source Code
    2. Project Presentation
- Timely feedback on requirements clarification and approval.
- Northrop Grumman will no not provide is with access to their network and production data.

What resources we need from the Instructor:
- The instructor needs to give us access to a group server for database, development, and testing.
- Timely response on questions regarding project and guidance.

What resources will TSP: The Solid Project supply:
- Open source software that is needed for development and research purposes
- Github Repository
- Testing environment to show the widget in production
- All research and developed material will be given to Northrop Grumman

Recommendation for Future Development
- Workflow Widget should not be restricted to a certain amount of distance between nodes.
- ShopFloor Nodes should be customizable in shape and size
- ShopFloor Nodes should have the ability to group or collect together
- Implement Delete Node for Shop Floor Visualization Widget
- Add Zoom for Shop Floor Visualization Widget
- Admin Restrictions for dragging nodes for Shop Floor Visualization Widget

Gantt Chart of Major Phases

ID	Task Name	Duration	Start	Finish
1	Phase 1			
2	Define and appoint team roles to each team member	1 day	Thu 2/1/18	Thu 2/1/18
3	Set-Up Slack for Communication & Give Team Members Access	1 day	Thu 2/1/18	Thu 2/1/18
4	Set-Up Google Drive for Documentation & Give Team Members Access	1 day	Thu 2/1/18	Thu 2/1/18
5	Set-Up GitHub for Development Platform & Give Team Members Access	1 day	Thu 2/1/18	Thu 2/1/18
6	Download MS Project from CSUSM apps	1 day	Thu 2/1/18	Thu 2/1/18
7	Obtain Project Management Software & Create Trello Board	1 day	Thu 2/1/18	Thu 2/1/18
8	Set-Up & Each Team member has access to the Trello Board to Manage Project	1 day	Fri 2/2/18	Fri 2/2/18
9	Design business logo & prepare business cards/ name tags	2 days	Fri 2/2/18	Sat 2/3/18
10	Finalize business cards	1 day	Mon 2/5/18	Mon 2/5/18
11	Define mission & scope	1 day	Mon 2/5/18	Mon 2/5/18
12	Draft possible company mission statement, objective, and team norms	2 days	Tue 2/6/18	Wed 2/7/18
13	Purchase Avery Printable Template Paper for business cards, name tags, and name tag badges	1 day	Tue 2/6/18	Tue 2/6/18
14	Print business cards & name tags	1 day	Tue 2/6/18	Tue 2/6/18
15	Collect photos of each team member	1 day	Tue 2/6/18	Tue 2/6/18
16	Schedule initial meeting to obtain user requirements	1 day	Tue 2/6/18	Tue 2/6/18
17	Documentation: Prepare JAD1 Meeting Agenda	1 day	Tue 2/6/18	Tue 2/6/18
18	JAD1: Think of specific questions for Client	2 days	Tue 2/6/18	Wed 2/7/18
19	Meet with Client and Dr. Wu for JAD1	1 day	Thu 2/8/18	Thu 2/8/18
20	Finalize JAD1 Agenda Meeting Notes and Email JAD1 Agenda to Client & Dr. Wu	1 day	Fri 2/9/18	Fri 2/9/18
21	Obtain Vortek Solution Source Code & GitHub Information and Upload to Team GitHub	1 day	Tue 2/13/18	Tue 2/13/18
22	Review & Research technologies used in previous project	5 days	Wed 2/14/18	Tue 2/20/18
23	Meeting with Dr. Wu regarding JAD1 Meeting & Report 1 Draft	1 day	Thu 2/15/18	Thu 2/15/18
24	Make Corrections to Report 1	2 days	Fri 2/16/18	Mon 2/19/18
25	Phase 2			
26	Research and Review Vortek Solutions Documentation and Source Code	4 days	Wed 2/14/18	Mon 2/19/18
27	Organize Trello board w/ due dates, documentation requirements, assigning task cards, etc	1 day	Thu 2/15/18	Thu 2/15/18
28	JAD2: Think of specific questions for Client	2 days	Fri 2/16/18	Sun 2/18/18
29	Documentation: Draft JAD2 Meeting Agenda	1 day	Mon 2/19/18	Mon 2/19/18
30	Meet with Client and Dr. Wu for JAD2	1 day	Mon 2/19/18	Mon 2/19/18
31	Finalize JAD2 Agenda Meeting notes and Email JAD2 Agenda to Client & Dr. Wu	1 day	Tue 2/20/18	Tue 2/20/18
32	Finalize Report 1 Corrections	1 day	Tue 2/20/18	Tue 2/20/18
33	Phase 3			
34	Meeting with Broc from Vortek Solutions to obtain a better understanding of previous project	1 day	Thu 2/22/18	Thu 2/22/18
35	Download all dependencies for source code	2 days	Fri 2/23/18	Sun 2/25/18
36	Download and Run Vortek Solutions source code	2 days	Fri 2/26/18	Tue 2/27/18
37	Document any errors and successes in running source code	1 day	Wed 2/28/18	Wed 2/28/18
38	Documentation: Prepare & Draft Report 2	1 day	Fri 2/23/18	Wed 2/28/18
39	Implement Admin Interface Prototype and document any roadblocks,errors, and successes	12 days	Mon 2/26/18	Tue 3/13/18
40	Changes/Edit Admin Interface Prototype	12 days	Mon 2/26/18	Tue 3/13/18
41	Schedule & Confirm manufacturing tour with client	1 day	Mon 2/26/18	Mon 2/26/18
42	Schedule & Confirm Prototype I meeting	1 day	Mon 2/26/18	Mon 2/26/18
43	Meeting with Dr. Wu regarding JAD2 Meeting & Report 2 Draft	1 day	Tue 2/27/18	Tue 2/27/18
44	Make corrections to Report 2	2 days	Fri 3/2/18	Mon 3/5/18
45	Finalize Report 2	1 day	Tue 3/6/18	Tue 3/6/18
46	Manufacturing Tour at NGC	1 day	Tue 2/27/18	Tue 2/27/18
47	Draft SRS version 1	3 days	Thu 3/8/18	Mon 3/12/18
48	Team Zoom Meeting	1 day	Thu 3/8/18	Thu 3/8/18
49	Documentation & Team Meeting 3/11 : Prepare & Draft Prototype I Meeting Agenda	2 days	Sat 3/10/18	Mon 3/12/18
50	Meet with Client and Dr. Wu for Prototype I	1 day	Tue 3/13/18	Tue 3/13/18
51	Finalize Prototype I Meeting Agenda Notes and Email Meeting Agenda to Client & Dr. Wu	2 days	Wed 3/14/18	Thu 3/15/18
52	Phase 4			
53	Documentation: Prepare & Draft Report 3	8 days	Thu 3/15/18	Mon 3/26/18
54	Implement different themes for workflow diagram	7 days	Fri 3/16/18	Sat 3/24/18
55	Implement node collapse/expansion feature	5 days	Sat 3/24/18	Thu 3/29/18
56	Implement zoom feature	4 days	Thu 3/29/18	Tue 4/3/18
57	Meeting with Dr. Wu regarding Prototype II Meeting and Report 3 Draft Corrections	1 day	Tue 3/27/18	Tue 3/27/18
58	Make Corrections to Report 3	1 day	Fri 3/30/18	Fri 3/30/18
59	Finalize Report 3	1 day	Tue 4/3/18	Tue 4/3/18
60	Changes/Edit workflow diagram prototype if needed	5 days	Tue 4/3/18	Sun 4/8/18
61	Schedule & Confirm Prototype II meeting	3 days	Tue 4/3/18	Thu 4/5/18
62	Documentation: Prepare & draft Prototype II Meeting Agenda	2 days	Wed 4/4/18	Thu 4/5/18
63	Meet with Client and Dr. Wu for Prototype II	3 days	Tue 4/10/18	Thu 4/12/18
64	Finalize Prototype II Meeting Agenda Notes and Email Meeting Agenda to Client & Dr. Wu	3 days	Fri 4/13/18	Tue 4/17/18
65	Phase 5			
66	Changes/ Edit after Prototype II meeting & Implement shop floor visualization	5 days	Fri 4/13/18	Thu 4/19/18
67	Changes / Quality Assurance / Testing Widget	2 days	Fri 4/20/18	Mon 4/23/18
68	Documentation: Prepare & Draft Report 4	3 days	Mon 4/16/18	Wed 4/18/18
69	Meeting with Dr. Wu regarding Prototype II Meeting Agenda & Report 4 Draft Corrections	1 day	Thu 4/19/18	Thu 4/19/18
70	Quality Assurance / Testing Widget	2 days	Fri 4/20/18	Mon 4/23/18

Legend: Task | Split | Milestone | Summary | Project Summary | Inactive Task | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | External Tasks | External Milestone | Deadline | Progress | Manual Progress

ID	Task Mode	Task Name	Duration	Start	Finish
71		Make Corrections to Report 4	2 days	Fri 4/20/18	Sun 4/22/18
72		Finalize Report 4	1 day	Mon 4/23/18	Mon 4/23/18
73		Prepare / Draft Final Product Presentation	9 days	Thu 4/26/18	Tue 5/8/18
74		Change/Edit Final Product Presentation	4 days	Wed 5/9/18	Mon 5/14/18
75		Present Final Product	1 day	Tue 5/15/18	Tue 5/15/18