Air Quality App Plan

FANTASTIC FOUR TEAM:

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Project Summary

With the aim of creating a robust and open source of air quality data for the city of Denton, the Open Denton group has set out to establish a network of air quality sensors to gather and compile that data. In order to help achieve this goal, our group has been tasked with the following:

- Create an API that records and displays air quality data in a readable manner
- Implement a scalable database to hold and model recorded data
- Integrate sensors and controllers that will read and relay data to the database over the internet
- Create documentation that allows community members to add sensors to the network

Project Name	Denton Air Monitoring Network
Client	Open-Denton
Date Assigned	9/18/2017
On Schedule	Yes
Last Completed Task	Project Deliverable Plan
Current Task	Project Plan
Next Scheduled Task	Status Report 1

Points of Contact

Team Members

Position	Name	Phone	E-Mail
Manager	Alyssa Thurston	(801)866-5851	alyssathurston@my.unt.edu
Editor	James Sabetti	(972)757-6437	jamssabetti@my.unt.edu
Compiler	Breuna Riggins	(214)298-7008	breunariggins@my.unt.edu
Analyst	Travis Goral	(940)465-9422	travisgoral@my.unt.edu

Client- Open Denton

Name	E-Mail
Kyle Taylor	kyletaylored@gmail.com
Dan Minshew	danminshew@gmail.com

Project Charter

Problem
The city of Denton lacks robust and available air quality data. Denton is the most polluted city in the state of Texas and there is a strong need for a community-oriented air quality monitoring network.

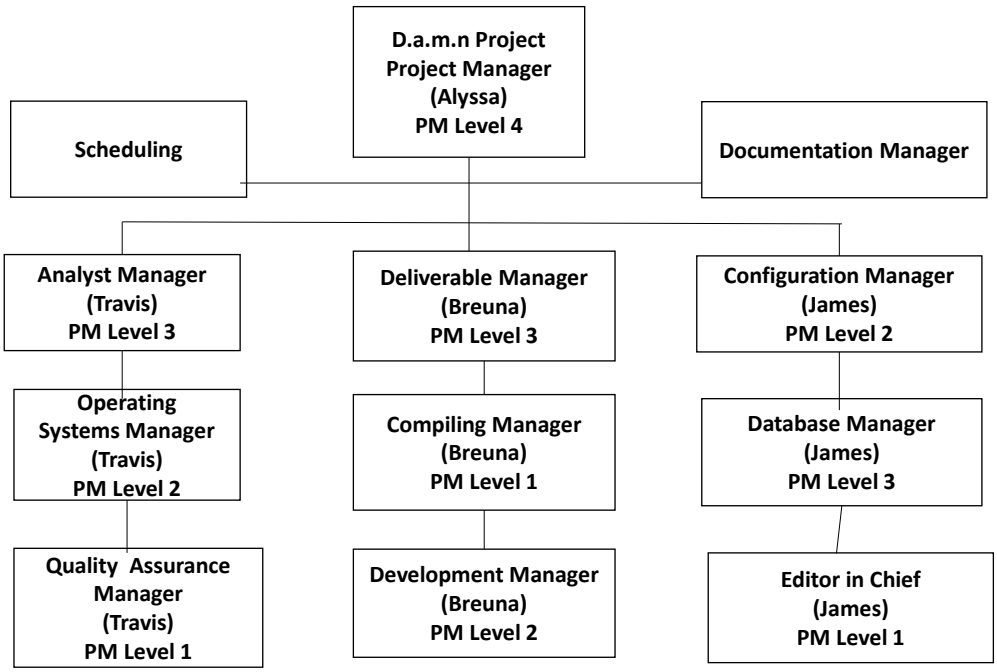
Statement of work
Document requirements for a full working system by October 26th., have a final design report for the project ready by the end of the semester, and build a working prototype database and API before the start of Spring 2018.

Objectives

Objectives may change over time as more project details are available. In general, our objectives are:

- Meet with the client to discuss specific project details
- Produce a living status report and detailed plan
- Document requirements and specifications
- Test requirements with sensor controller
- Draw up project design plan
- Submit final design report along with presentation.

Organization



Activity List

The following is a list of activities pertinent to this project. Each draft and final form of a document has an internal due date of 24 hours before the final deadline, to accommodate any unforeseen obstacles related to the completion of this project.

Activity Number	Activity Description	Internal Due Date	Due Date
1.0	Project Plan Lecture	--	9/19/2017
1.1	Project Plan Plan	9/20/2017	9/20/2017
1.2	Project Plan Draft	9/25/2017	9/26/2017
2	Team Meeting (During Class)	--	9/26/2017
3	Status Report 1	9/28/2017	9/28/2017
1.3	Project Plan	9/28/2017	9/29/2017
1.4	Project Plan Report	10/2/2017	10/2/2017
4.0	Requirements Lecture	--	10/3/2017
4.1	Requirements Specifications Plan	10/3/2017	10/3/2017
5	Team Meeting (During Class)	--	10/10/2017
6	Status Report 2	10/12/2017	10/12/2017
4.2	Requirements Specifications Draft	10/13/2017	10/14/2017
4.3	Requirements Specifications	10/16/2017	10/17/2017
7.0	Preliminary Design Lecture	--	10/17/2017
4.4	Requirements Specifications Report	10/18/2017	10/18/2017

7.1	Preliminary Design Plan	10/23/2017	10/23/2017
8	Status Report 3	10/26/2017	10/26/2017
9	Requirements Review	10/24/2017- 10/26/2017	10/24/2017- 10/26/2017
10	Team Meeting (During Class)	--	10/31/2017
7.2	Preliminary Design Draft	10/30/2017	10/31/2017
7.3	Preliminary Design	11/2/2017	11/3/2017
7.4	Preliminary Design Report	11/6/2017	11/6/2017
11.0	Detailed Design Lecture	--	11/7/2017
12	Status Report 4	11/9/2017	11/9/2017
13	Team Meeting (During Class)	--	11/14/2017
11.1	Detailed Design Plan	11/13/2017	11/13/2017
11.2	Detailed Design Draft	11/27/2017	11/28/2017
14	Wrap-up Lecture	--	11/28/2017
15	Status Report 5	11/30/2017	11/30/2017
11.3	Detailed Design	11/30/2017	12/1/2017
11.4	Detailed Design Report	12/4/2017	12/4/2017
16	Design Review	12/5/2017-12/7/2017	12/5/2017-12/7/2017
17	Status Report 6	12/7/2017	12/7/2017

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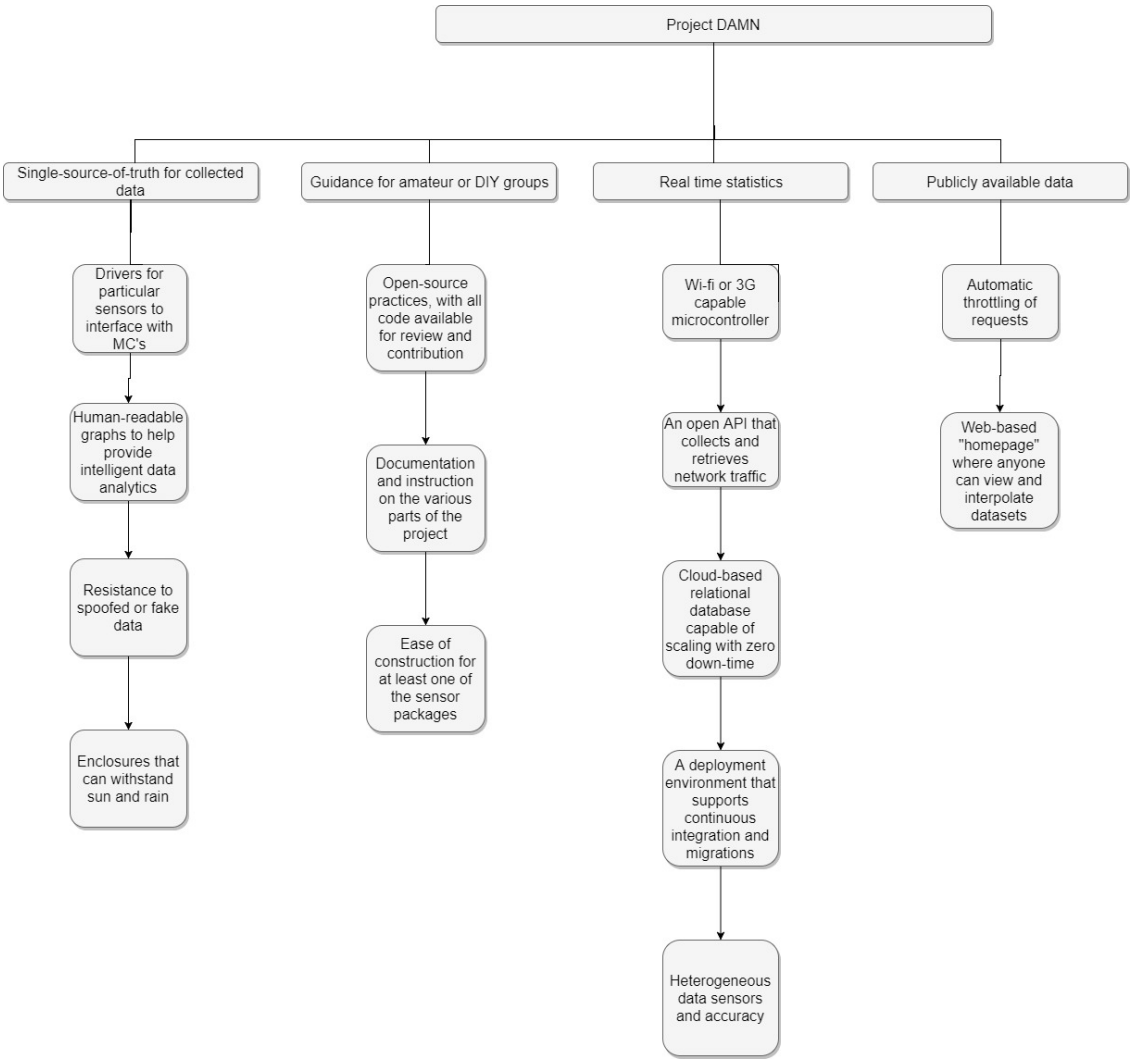


Work Products

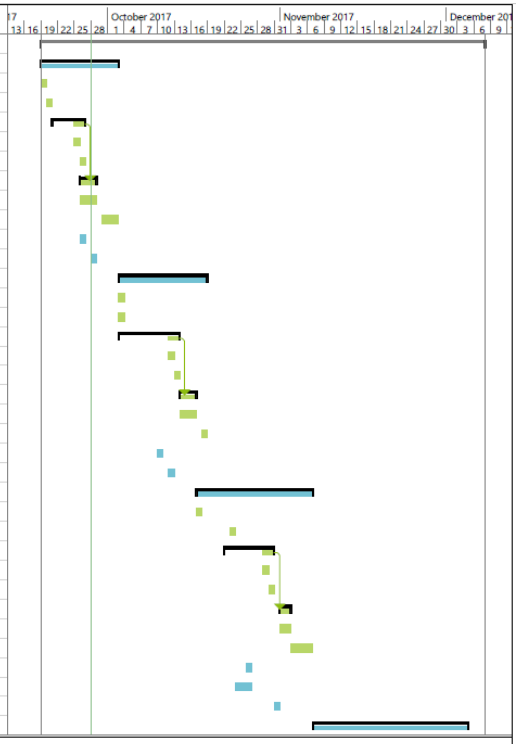
Deliverable Name	Due Date	Date Delivered	Point of Contact
Deliverable Project Plan	Sept 20th	Sept 19th	Breuna
Status Report (One)	Sept 28th	Sept 28th	Alyssa
Project Plan	Sept 29th	Sept 29th	Breuna
Deliverable Report for Project Plan	Oct 2nd		
Deliverable Plan for Requirements	Oct 3rd		

Status Report (Two)	Oct 12th		
Requirements Spec	Oct 17th		
Deliverable Report for Requirement Spec	Oct 18th		
Deliverable Plan for Prelim Design	Oct 23rd		
Status Report (Three)	Oct 26th		
Prelim Design	Nov 3rd		
Deliverable Report for Prelim Design	Nov 6th		
Status Report (Four)	Nov 9th		
Deliverable Plan for Detailed Design	Nov 13th		
Status Report (Five)	Nov 30th		
Detailed Design	Dec 1st		
Deliverable Report for Detailed Design	Dec 4th		
Status Report (Six)	Dec 7th		

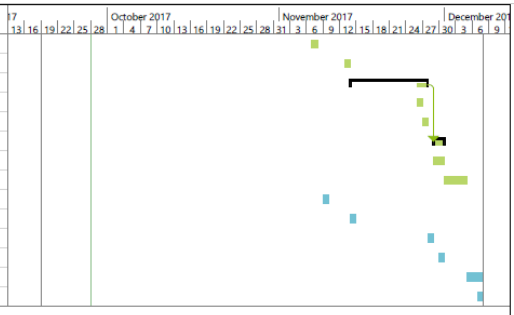
Schedule

For each assignment, those that are turned in to either the client or the professor, the assignment is due (internally) 48 hours before the draft is due. This will allow 24 hours to compile the document together, and 24 hours to edit the document and turn it in by the due date. On this note, the Gantt Chart is provided on the next page.

ID	Task Mode	Task Name	Duration	Start	Finish
0		**Schedule**	**59 days**	**Tue 9/19/17**	**Thu 12/7/17**
1		**Project Plan**	**11 days**	**Tue 9/19/17**	**Mon 10/2/17**
2		Project Plan Lecture	1 day	Tue 9/19/17	Tue 9/19/17
3		Project Plan Plan	1 day	Wed 9/20/17	Wed 9/20/17
4		**Project Plan Draft**	**5 days**	**Thu 9/21/17**	**Tue 9/26/17**
5		Document Compilation	1 day	Mon 9/25/17	Mon 9/25/17
6		Document Editing	1 day	Tue 9/26/17	Tue 9/26/17
7		**Project Plan- Final**	**3 days**	**Tue 9/26/17**	**Thu 9/28/17**
8		Necessary Revisions	3 days	Tue 9/26/17	Thu 9/28/17
9		Project Plan Report	2 days	Sat 9/30/17	Mon 10/2/17
10		Team Meeting (During Class)	1 day	Tue 9/26/17	Tue 9/26/17
11		Status Report 1	1 day	Thu 9/28/17	Thu 9/28/17
12		**Requirements Specifications**	**12 days**	**Tue 10/3/17**	**Wed 10/18/17**
13		Requirements Lecture	1 day	Tue 10/3/17	Tue 10/3/17
14		Requirements Specifications Plan	1 day	Tue 10/3/17	Tue 10/3/17
15		**Requirements Specifications Draft**	**9 days**	**Tue 10/3/17**	**Fri 10/13/17**
16		Document Compilation	1 day	Thu 10/12/17	Thu 10/12/17
17		Document Editing	1 day	Fri 10/13/17	Fri 10/13/17
18		**Requirements Specifications- Final**	**2 days**	**Sat 10/14/17**	**Mon 10/16/17**
19		Necessary Revisisions	2 days	Sat 10/14/17	Mon 10/16/17
20		Requirements Specifications Report	1 day	Wed 10/18/17	Wed 10/18/17
21		Team Meeting (During Class)	1 day	Tue 10/10/17	Tue 10/10/17
22		Status Report 2	1 day	Thu 10/12/17	Thu 10/12/17
23		**Preliminary Design**	**15 days**	**Tue 10/17/17**	**Mon 11/6/17**
24		Preliminary Design Lecture	1 day	Tue 10/17/17	Tue 10/17/17
25		Preliminary Design Plan	1 day	Mon 10/23/17	Mon 10/23/17
26		**Preliminary Design Draft**	**7 days**	**Sun 10/22/17**	**Mon 10/30/17**
27		Document Compilation	1 day	Sun 10/29/17	Sun 10/29/17
28		Document Editing	1 day	Mon 10/30/17	Mon 10/30/17
29		**Preliminary Design- Final**	**2 days**	**Wed 11/1/17**	**Thu 11/2/17**
30		Necessary Revisions	2 days	Wed 11/1/17	Thu 11/2/17
31		Preliminary Design Report	2 days	Fri 11/3/17	Mon 11/6/17
32		Status Report 3	1 day	Thu 10/26/17	Thu 10/26/17
33		Requirements Review	3 days	Tue 10/24/17	Thu 10/26/17
34		Team Meeting (During Class)	1 day	Tue 10/31/17	Tue 10/31/17
35		**Detailed Design**	**20 days**	**Tue 11/7/17**	**Mon 12/4/17**



ID	Task Mode	Task Name	Duration	Start	Finish
36		Detailed Design Lecture	1 day	Tue 11/7/17	Tue 11/7/17
37		Detatiled Design Plan	1 day	Mon 11/13/17	Mon 11/13/17
38		**Detailed Design Draft**	**10 days**	**Tue 11/14/17**	**Mon 11/27/17**
39		Document Compilation	1 day	Sun 11/26/17	Sun 11/26/17
40		Document Editing	1 day	Mon 11/27/17	Mon 11/27/17
41		**Detailed Design- Final**	**2 days**	**Wed 11/29/17**	**Thu 11/30/17**
42		Necessary Revisions	2 days	Wed 11/29/17	Thu 11/30/17
43		Detailed Design Report	2 days	Fri 12/1/17	Mon 12/4/17
44		Status Report 4	1 day	Thu 11/9/17	Thu 11/9/17
45		Team Meeting (During Class)	1 day	Tue 11/14/17	Tue 11/14/17
46		Wrapup Lecture	1 day	Tue 11/28/17	Tue 11/28/17
47		Status Report 5	1 day	Thu 11/30/17	Thu 11/30/17
48		Design Review	3 days	Tue 12/5/17	Thu 12/7/17
49		Status Report 6	1 day	Thu 12/7/17	Thu 12/7/17



Risks

With a project of this size, there is going to be some level of risk. Risks are listed below by level of severity along with possible ways to mitigate those risks.

High

- Scope creep – The project scope may grow immensely, forcing the group to push back deadlines. In some cases, deadlines may have to be moved to earlier dates to allow a certain amount of time slack.
- Learning curve – Group members will need to quickly familiarize themselves with client frameworks and current databases. Significant time will need to be spent learning how to interact with their existing sensors and databases.

Medium

- Other classwork – Homework and projects from other classes may eat into time to work on Capstone. Not much can be done about this risk except to make sure that individual group members do their work and communicate with the group.
- Lack of Skills – Group members may not possess sufficient skills in coding, documentation or other areas needed to complete the project. Although this is not a huge risk for the first semester, it can become a big risk by the Spring if group members do not take the time to learn and hone their skills

Low

- Group member availability – A group member may be busy with other things or unable to meet or turn in work. Other group members should be able to pick up the slack. Google Hangouts and Drive will be used as an alternative to personal meetings as needed.

Configuration Management

CCM Responsibility Manager: J. Sabetti Additional Staff for CM: To be recruited as needed.

Configuration Items: ensure that CM is implemented throughout the project's life cycle.

No.	Item	Comments
1.	Database	Need to be researched and established with Open Denton (PostGress?)
2.	API key	Needs to be researched/interest in a timescale.db plugin
3.	Dashboard	Dashboard.io (for the time being/possibly could change)

Quality

Per the project proposal guidelines, the quality of this app/database should be simple yet efficient. Due to the goal of making the project accessible to everyone and allow for users to interact with the system and utilize it properly. In addition, the information that we gather needs to be publicly accessible and 100% accurate, with little to no room for error or false information. This means that the quality of our database needs to be absolutely authentic, as well as leaving room for user interaction.

Issues and Action Items

For now, because the project is just starting out, there aren't many issues. There are a few action items that are being worked on. Should any issues arise down the road, this document will be updated to include the following items: Description of the issue, when the issue was identified, when the issue was resolved, and who is responsible for the resolution.

Listed below are the top five action items as the project currently stands.

Action Item Number	Action Item Description	Assigned Person(s)	Open Date	Closed Date	Status
1	Research database servers	All	9/26		In progress
2	Research and discuss possible API solutions	All	TBD		In progress
3	Research EPA requirements for what constitutes as clean air and dirty air	All	9/26		In progress
4	Learn how to best utilize Slack (our means of communication with our sponsors)	All	9/26		In progress
5	Research dashboard options	All	TBD		In progress