

Florida International University
School of Computing and Information Sciences

Software Engineering Focus

Final Deliverable

Project Title:

Water Wand Application

Team Members:

Senior Project: Carlos Martinez-Cortes

Capstone 1: Alexander Jimenez, Bernardo Cruz, Eddy Garcia, Brian Mora, Tomas Alvarez Lopez, Zackary Wright, Musa Jean, Alejandro Ruiz,

Product Owner(s): Biayna Bogosian

Mentor(s):

Instructor: Dr. Masoud Sadjadi

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Abstract

This document presents the information necessary to gain a good understanding of the Water Wand Application. This project aims to create an all-around user friendly application. In which users who have a profile can input as well as insert information about certain locations in the application. Non profile users will be able to look at data but not be able to enter. Creating a better understanding of the flooding data in Miami- Dade County.

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Introduction

Water Wand was introduced by Florida International University team members with an idea to facilitate the Water Wand IOT. The big concept behind this project is to be able to gather data in Miami-Dade County and view it in the palm of your hand.

Water wand is an application that allows users to connect their Water Wand to the application. Doing so will allow users to create a profile. Users who have a profile will be able to collect and input data.

Current System

Even though there was a Swift Version, we decided to go with the Android development.

Purpose of New System

The purpose of this project is to allow the users who have Water Wands to connect with the Application and inputting data reads. Allowing for the storage of geographical points and data to be shared with other users.

USER STORIES

Implemented User Stories

- **User Story #1** As developers the team needs to familiarize ourselves with the work the previous semesters of students have accomplished.
- **User Story #2** As developers the team needs to choose the technological stack that we will be implementing.
- **User Story #3** As developers the team needs to familiarize ourselves with chosen technologies and their integration towards the end of delivering a functioning product.
- **User Story #4** As developers the team needs to outline the general structure of our approach including delineating user stories for implementation (pending reception of previous semesters work), and assigning general roles, and categories of tasks for the sprints ahead.
- **User Story #5** As a Registered User I want to be able to navigate to my account page where I can manage different settings of my account.
- **User Story #6** As a User I want to be able to navigate and see a map of current WaterWand devices from which I can select one and view its status.
- **User Story #7** As a user I want to be able to navigate to a page where I can select what information I wish to share with the WaterWand project.
- **User Story #8** As a Registered User I want to be able to read instructions on how to connect my WaterWand device to the WaterWand project data collection service.
- **User Story #9** As a User I want to be able to change the notification settings for the WaterWand App.
- **User Story #10** As a User I want to be able to contact the administrators of the WaterWand Project through the app.
- **User Story #11** As a user i want to be able to download a list of wand status in a certain area on a map.
- **User Story #12** As developers we need to familiarize ourselves with the MapBox API to be able to serve the core functionality of our App particularly the display of pinned coordinates on a map, and how to make said pins interactive.
- **User Story #13** As a User I want to be able to have the coordinates and information tables of the extant WaterWand Devices shown to me visually through pinned coordinates on a map which I can interact with; I want to be able to add my WaterWand Device to said map.
- **User Story #14** As a user I should have certain access to certain information regarding collected data from the server.

Pending User Stories

- As a user I should have certain access to certain information regarding collected data from the server.
- As a user I should be able to retrieve personal login information saved in the AWS server.
- As a User I should be able to view data that is up to date with every app load-up and not have to download an app update to receive new data.

PROJECT PLAN

This section describes the planning that went into the realization of this project. This project incorporated the agile development techniques and as such required the sprints to be planned. These sprint planning's are detailed in the section. This section also describes the components, both software and hardware, chosen for this project.

Hardware and Software Resources

Visual Studio Code - Development Environment/ Debugging Environment

Github - Code Repository

Java - Programming Language

Draw.io - Blue Print - Mapping

Mapbox - Geographical Location

Sprints Plan

Sprint 1

Sprint Planning Meeting Minutes:

P.O. Biayna Bogosian

Attendees:

Senior Project: Carlos Martinez-Cortes

Capstone 1: Alexander Jimenez, Tomas Alvarez Lopez, Bernardo D Cruz, Brian Mora, Eddy Garcia, Alejandro Ruiz ,
Musa Jean, Zackary Wright

Capstone 2: (Observer) Bryant Vilarreal

Start time: 9:25 pm

End time: 10:00 pm

8/30/21

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

1. <See_Prev_Work> As developers the team needs to familiarize ourselves with the work the previous semesters of students have accomplished(20 hours)
2. <Choose_Tech> As developers the team needs to choose the technological stack that we will be implementing (5 hours)
3. <Read_Tech_Docs> As developers the team needs to familiarize ourselves with chosen technologies and their integration towards the end of delivering a functioning product. (40 hours)
4. <General_Plan> As developers the team needs to outline the general structure of our approach including delineating user stories for implementation (pending reception of previous semesters work), and assigning general roles, and categories of tasks for the sprints ahead (15 hours)

The team members indicated their willingness to work on the following user stories.

- Brian Mora
 - Agreed to contribute to the project and will do everything possible to understand the challenging questions.
 - All User Stories
- Eddy Garcia
 - All User stories
- Carlos Martinez-Cortes
 - All User Stories
- Zackary Wright
 - All User Stories
- Alejandro Ruiz
 - All User Stories

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- Tomas Alvarez Lopez
 - All User Stories
- <Alexander Jimenez>
 - Work Item #2 #3
Agreed to contribute to possible technology requirements documents before the technology decision meeting on Day 2 of this Sprint, and familiarize myself with decided upon meetings
 - Work Item #1 #4
Will contribute to project outline after Product Owner sends previous groups work, and mid sprint meeting with Product Owner.
- Bernardo D Cruz
 - All User Stories
 - Agreed to become familiar with selected technologies and their integration with the goal of producing a working product
- Musa Jean
 - All User Stories.

Sprint 2

Sprint Planning Meeting Minutes:

P.O. Biayna Bogosian

Attendees:

Senior Project: Carlos Martinez-Cortes

Capstone 1: Alexander Jimenez, Tomas Alvarez Lopez, Bernardo D Cruz, Brian Mora, Eddy Garcia, Alejandro Ruiz , Musa Jean, Zackary Wright

Capstone 2: (Observer) Bryant Vilarreal

Start time: 9:25 pm

End time: 10:00 pm

9/13/21

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

1. <Manage_Account> As a Registered User I want to be able to navigate to my account page where I can manage different settings of my account.(5 hours)
2. <Wand_Map_Static>As a User I want to be able to navigate and see a map of current WaterWand devices from which I can select one and view its status.[Static until <MapBox_Integration>, and <Dynamic_Data> are done](10 hours)
3. <Data_Decisions> As a user I want to be able to navigate to a page where I can select what information I wish to share with the WaterWand project(10 hours)

4. <Add_Device_Instructions> As a Registered User I want to be able to read instructions on how to connect my WaterWand device to the WaterWand project data collection service[Geolocation pending <MapBox_Integration>?](5 hours)
5. <Notification_Setings> As a User I want to be able to change the notification settings for the WaterWand App(10 hours)
6. <Contact_Page> As a User I want to be able to contact the administrators of the WaterWand Project through the app.(5 hours)
7. <Data_Storage> As a user i want to be able to download a list of wand status in a certain area on a map.[Pending <MapBox_Integration> and <Dynamic_Data>] (15 hours)
8. <MapBox_Familiarity> As developers we need to familiarize ourselves with the MapBox API to be able to serve the core functionality of our App particularly the display of pinned coordinates on a map, and how to make said pins interactive(20 hours)
9. <MapBox_Inegration> As a User I want to be able to have the coordinates and information tables of the extant WaterWand Devices shown to me visually through pinned coordinates on a map which I can interact with; I want to be able to add my WaterWand Device to said map.(25 hours?)
10. <Retrieving_WaterWand_Data> As a user I should have certain access to certain information regarding collected data from the server (5 hours)
11. <Retrieving_Login_Data> As a user I should be able to retrieve personal login information saved in the AWS server.
12. <Dyanmic_Data> As a User I should be able to view data that is up to date with every app load-up and not have to download an app update to receive new data.[Pending PO data decision](15 hours)

The team members indicated their willingness to work on the following user stories.

- Brian Mora
 - Agreed to contribute to the project and will do everything possible to understand the challenging questions.
 - All User Stories
 - Work Item #7,#11
- Eddy Garcia
 - Work item # 10
 - Work Item # 1
 - All user stories
- Carlos Martinez-Cortes
 - Work Item #1
Researching the front end build so that the user can navigate to the user page when they are in their profile
 - Work Item #3
Researching the front end build so that the user can navigate to the user page To enter desired data that was captured by the Water Wand
- Zackary Wright
 - All User Stories
 - Work item #10
 - Work item #4

- Alejandro Ruiz
 - All User Stories
 - Work item #2 and #3
- Tomas Alvarez Lopez
 - Work item #5
 - Work item #6
 - All User Stories
- <Alexander Jimenez>
 - Work Item #8

Agreed to identify necessary API calls in the documentation to geolocate the devices when adding a device, to display a map, to identify the format in which coordinates need to be entered, and search how to make the pins interactive.
 - Work Item #1

Will create page that links to the other work item pages in the app, entailing the skeleton structure of User navigation
- Bernardo D Cruz
 - Work Item #1, #11
 - Agreed to become familiar with selected technologies and their integration with the goal of producing a working product
- Musa Jean
 - Work Item #10
 - Work Item #11
 - Agree that AWS will store the bulk of our data collected from WaterWand and user information.
 - All User Stories.

Sprint 3

Sprint Planning Meeting Minutes:

P.O. Biayna Bogosian

Attendees:

Senior Project: Carlos Martinez-Cortes

Capstone 1: Alexander Jimenez, Tomas Alvarez Lopez, Bernardo D Cruz, Brian Mora, Eddy Garcia, Alejandro Ruiz , Musa Jean, Zackary Wright

Capstone 2: (Observer) Bryant Vilarreal

Start time: 8:00 pm

End time: 9:00 pm

Dec 7, 2021

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We have decided to split the active group members into the following subgroups for assignation of primary tasks for the reminder of the semester,

9/27/21

UI/UX: Carlos Martinez-Cortes, Alexander Jimenez

Mapbox Connectivity: Alejandro Ruiz, Eddy Garcia

Backend Connectivity: Musa Jean, Zackary Wright, Tomas Alvarez Lopez,

Integration and Q/A: Brian Mora, Bernardo D Cruz

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

UI/UX:

1. <Manage_Account> As a Registered User I want to be able to navigate to my account page where I can manage different settings of my account.(5 hours)
2. <Wand_Map_Static>As a User I want to be able to navigate and see a map of current WaterWand devices from which I can select one and view its status.[Static until <MapBox_Integration>, and <Dynamic_Data> are done](10 hours)
3. <Data_Decisions> As a user I want to be able to navigate to a page where I can select what information I wish to share with the WaterWand project(10 hours)
4. <Add_Device_Instructions> As a Registered User I want to be able to read instructions on how to connect my WaterWand device to the WaterWand project data collection service[Geolocation pending <MapBox_Integration>?](5 hours)
5. <Notification_Setings> As a User I want to be able to change the notification settings for the WaterWand App(10 hours)
6. <Contact_Page> As a User I want to be able to contact the administrators of the WaterWand Project through the app.(5 hours)

Mapbox Connectivity:

7. <MapBox_Familiarity> As developers we need to familiarize ourselves with the MapBox API to be able to serve the core functionality of our App particularly the display of pinned coordinates on a map, and how to make said pins interactive(20 hours)
8. <MapBox_Inegration> As a User I want to be able to have the coordinates and information tables of the extant WaterWand Devices shown to me visually through pinned coordinates on a map which I can interact with; I want to be able to add my WaterWand Device to said map.(25 hours?)

Backend Connectivity:

9. <Data_Storage> As a user i want to be able to download a list of wand status in a certain area on a map.[Pending <MapBox_Integration> and <Dynamic_Data>] (15 hours)

10. <Dyanmic_Data> As a User I should be able to view data that is up to date with every app load-up and not have to download an app update to receive new data.[Pending PO data decision](15 hours)

Integration and Q/A:

11. <Retrieving_WaterWand_Data> As a user I should have certain access to certain information regarding collected data from the server (5 hours)
12. <Retrieving_Login_Data> As a user I should be able to retrieve personal login information saved in the AWS server.
13. <Digest_Previous_Semster> As a developer I want to be able reuse work that the previous semester has already worked upon and not retread the same paces.
14. <Integration_Test> As a developer I wish to be able to make sure the user stories of the other teams integrate smoothly with the main project.

The team members indicated their willingness to work on the following user stories.

Brian Mora

- Work item # 11
- Work item #12

- Eddy Garcia

- Work item # 7
- Work Item # 8

- Carlos Martinez-Cortes

- Work Item #3
Researching the front end build so that the user can navigate to the user page
To enter desired data that was captured by the Water Wand
- Work Item #4
Researching the front end build so that the user can read instructions on how to connect the water wand to the backend service
- Work Item #6
Researching the front end build so that the user can navigate to the user page
To find the desired point of contact for the app or customer service.

- Zackary Wright

- All User Stories
- Work item #11
- Work item #4

- Alejandro Ruiz

- Work item #7
- Work item #8

- Tomas Alvarez Lopez

- Work item #5
- Work item #6

- All User Stories
- <Alexander Jimenez>
 - Work Item #2

Agreed to identify necessary API calls in the documentation to geolocate the devices when adding a device, to display a map, to identify the format in which coordinates need to be entered, and search how to make the pins interactive. Until Mapbox is working, a static image mockup will be used
 - Work Item #1

Will create page that links to the other work item pages in the app, entailing the skeleton structure of User navigation
 - Work Item #5

Will populate the notifications setting page of the application, with the settings outlined during the PO meeting
- Bernardo D Cruz
 - Work Item #13
 - Work Item #14
- Musa Jean
 - Work Item #9, Work Item #10
 - Agree that AWS will store the bulk of our data collected from WaterWand and user information. Most likely use DynamoDB.
 - Create an AWS account and attempt to manipulate the database through code using SDK.

Sprint 4

Sprint Planning Meeting Minutes:

P.O. Biayna Bogosian

Attendees:

Senior Project: Carlos Martinez-Cortes

Capstone 1: Alexander Jimenez, Tomas Alvarez Lopez, Bernardo D Cruz, Brian Mora, Eddy Garcia, Alejandro Ruiz , Musa Jean, Zackary Wright

Capstone 2: (Observer) Bryant Vilarreal

Start time: 8:00 pm

End time: 9:00 pm

10/11/21

We have decided to split the active group members into the following subgroups for assignation of primary tasks for the reminder of the semester,

UI/UX: Carlos Martinez-Cortes, Alexander Jimenez

Mapbox Connectivity: Alejandro Ruiz, Eddy Garcia

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Backend Connectivity: Musa Jean, Zackary Wright, Tomas Alvarez Lopez,

Integration and Q/A: Brian Mora, Bernardo D Cruz

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

UI/UX:

1. <Manage_Account> As a Registered User I want to be able to navigate to my account page where I can manage different settings of my account.(5 hours)
2. <Wand_Map_Static>As a User I want to be able to navigate and see a map of current WaterWand devices from which I can select one and view its status.[Static until <MapBox_Integration>, and <Dynamic_Data> are done](10 hours)
3. <Data_Decisions> As a user I want to be able to navigate to a page where I can select what information I wish to share with the WaterWand project(10 hours)
4. <Add_Device_Instructions> As a Registered User I want to be able to read instructions on how to connect my WaterWand device to the WaterWand project data collection service[Geolocation pending <MapBox_Integration>?](5 hours)
5. <Notification_Setings> As a User I want to be able to change the notification settings for the WaterWand App(10 hours)
6. <Contact_Page> As a User I want to be able to contact the administrators of the WaterWand Project through the app.(5 hours)

Mapbox Connectivity:

7. <MapBox_Familiarity> As developers we need to familiarize ourselves with the MapBox API to be able to serve the core functionality of our App particularly the display of pinned coordinates on a map, and how to make said pins interactive(20 hours)
8. <MapBox_Integration> As a User I want to be able to have the coordinates and information tables of the extant WaterWand Devices shown to me visually through pinned coordinates on a map which I can interact with; I want to be able to add my WaterWand Device to said map.(25 hours?)

Backend Connectivity:

9. <Data_Storage> As a user i want to be able to download a list of wand status in a certain area on a map.[Pending <MapBox_Integration> and <Dynamic_Data>] (15 hours)
10. <Dyanmic_Data> As a User I should be able to view data that is up to date with every app load-up and not have to download an app update to receive new data.[Pending PO data decision](15 hours)

Integration and Q/A:

11. <Retrieving_WaterWand_Data> As a user I should have certain access to certain information regarding collected data from the server (5 hours)
12. <Retrieving_Login_Data> As a user I should be able to retrieve personal login information saved in the AWS server.
13. <Digest_Previous_Semster> As a developer I want to be able reuse work that the previous semester has already worked upon and not retread the same paces.
14. <Integration_Test> As a developer I wish to be able to make sure the user stories of the other teams integrate smoothly with the main project.

The team members indicated their willingness to work on the following user stories.

- Brian Mora
 - Work item # 11
 - Work item #12
- Eddy Garcia
 - Work item # 7
 - Work Item # 8
- Carlos Martinez-Cortes
 - Work Item #3
Researching the front end build so that the user can navigate to the user page
To enter desired data that was captured by the Water Wand adding actions to the User page
 - Work Item #4
Researching the front end build so that the user can read instructions on how to connect the water wand to the backend service
 - Work Item #6
Researching the front end build so that the user can navigate to the user page
To find the desired point of contact for the app or customer service.
- Zackary Wright
 - All User Stories
 - Work item #9
 - Work item #10
- Alejandro Ruiz
 - Work item #7
 - Work item #8
- Tomas Alvarez Lopez
 - Work item #5
 - Work item #6
 - All User Stories
- <Alexander Jimenez>
 - Work Item #2
Agreed to identify necessary API calls in the documentation to geolocate the devices when adding a device, to display a map, to identify the format in which coordinates need to be entered, and search how to make the pins interactive. Until Mapbox is working, a static image mockup will be used
 - Work Item #1
Will create page that links to the other work item pages in the app, entailing the skeleton structure of User navigation
 - Work Item #5
Will populate the notifications setting page of the application, with the settings outlined during the PO meeting

- Bernardo D Cruz
 - Work Item #13
 - Work Item #14
- Musa Jean
 - Work Item #9, Work Item #10
 - Agree that AWS will store the bulk of our data collected from WaterWand and user information. Most likely use DynamoDB.
 - Create an AWS account and attempt to manipulate the database through code using SDK.

Sprint 5

Sprint Planning Meeting Minutes:

P.O. Biayna Bogosian

Attendees:

Senior Project: Carlos Martinez-Cortes

Capstone 1: Alexander Jimenez, Tomas Alvarez Lopez, Bernardo D Cruz, Brian Mora, Eddy Garcia, Alejandro Ruiz , Musa Jean, Zackary Wright

Capstone 2: (Observer) Bryant Vilarreal

Start time: 8:00 pm

End time: 9:00 pm

10/25/21

We have decided to split the active group members into the following subgroups for assignation of primary tasks for the reminder of the semester,

UI/UX: Carlos Martinez-Cortes, Alexander Jimenez

Mapbox Connectivity: Alejandro Ruiz, Eddy Garcia

Backend Connectivity: Musa Jean, Zackary Wright, Tomas Alvarez Lopez,

Integration and Q/A: Brian Mora, Bernardo D Cruz

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

UI/UX:

1. <Manage_Account> As a Registered User I want to be able to navigate to my account page where I can manage different settings of my account.(5 hours)

2. <Wand_Map_Static>As a User I want to be able to navigate and see a map of current WaterWand devices from which I can select one and view its status.[Static until <MapBox_Integration>, and <Dynamic_Data> are done](10 hours)
3. <Data_Decisions> As a user I want to be able to navigate to a page where I can select what information I wish to share with the WaterWand project(10 hours)
4. <Add_Device_Instructions> As a Registered User I want to be able to read instructions on how to connect my WaterWand device to the WaterWand project data collection service[Geolocation pending <MapBox_Integration>?](5 hours)
5. <Notification_Setings> As a User I want to be able to change the notification settings for the WaterWand App(10 hours)
6. <Contact_Page> As a User I want to be able to contact the administrators of the WaterWand Project through the app.(5 hours)

Mapbox Connectivity:

7. <MapBox_Familiarity> As developers we need to familiarize ourselves with the MapBox API to be able to serve the core functionality of our App particularly the display of pinned coordinates on a map, and how to make said pins interactive(20 hours)
8. <MapBox_Inegration> As a User I want to be able to have the coordinates and information tables of the extant WaterWand Devices shown to me visually through pinned coordinates on a map which I can interact with; I want to be able to add my WaterWand Device to said map.(25 hours?)

Backend Connectivity:

9. <Data_Storage> As a user i want to be able to download a list of wand status in a certain area on a map.[Pending <MapBox_Integration> and <Dynamic_Data>] (15 hours)
10. <Dyanmic_Data> As a User I should be able to view data that is up to date with every app load-up and not have to download an app update to receive new data.[Pending PO data decision](15 hours)

Integration and Q/A:

11. <Retrieving_WaterWand_Data> As a user I should have certain access to certain information regarding collected data from the server (5 hours)
12. <Retrieving_Login_Data> As a user I should be able to retrieve personal login information saved in the AWS server.
13. <Digest_Previous_Semster> As a developer I want to be able reuse work that the previous semester has already worked upon and not retread the same paces.
14. <Integration_Test> As a developer I wish to be able to make sure the user stories of the other teams integrate smoothly with the main project.

The team members indicated their willingness to work on the following user stories.

- Brian Mora
 - Work item # 11
 - Work item #12
- Eddy Garcia
 - Work item # 7
 - Work Item # 8
- Carlos Martinez-Cortes
 - Work Item #3

Testing/Debugging User Interface so the user can navigate the app to share certain information.
Documentation of the code to pass on to next lead.

- Work Item #4
Finish the authorization of the Profile fragment. Debugging and testing the User interface of the fragment in place.
- Work Item #6
Researching the front end build so that the user can navigate to the user page
To find the desired point of contact for the app or customer service. Testing and debugging the fragments for the user to navigate to new options/
- Zackary Wright
 - All User Stories
 - Work item #9
 - Work item #10
- Alejandro Ruiz
 - Work item #7
 - Work item #8
- Tomas Alvarez Lopez
 - Work item #5
 - Work item #6
 - All User Stories
- <Alexander Jimenez>
 - Work Item #2
Agreed to identify necessary API calls in the documentation to geolocate the devices when adding a device, to display a map, to identify the format in which coordinates need to be entered, and search how to make the pins interactive. Until Mapbox is working, a static image mockup will be used
 - Work Item #1
Will create page that links to the other work item pages in the app, entailing the skeleton structure of User navigation
 - Work Item #5
Will populate the notifications setting page of the application, with the settings outlined during the PO meeting
- Bernardo D Cruz
 - Work Item #13
 - Work Item #14
- Musa Jean
 - Work Item #9, Work Item #10
 - Agree that AWS will store the bulk of our data collected from WaterWand and user information. Most likely use DynamoDB.
 - Create an AWS account and attempt to manipulate the database through code using SDK.

Sprint 6

Sprint Planning Meeting Minutes:

P.O. Biayna Bogosian

Attendees:

Senior Project: Carlos Martinez-Cortes

Capstone 1: Alexander Jimenez, Tomas Alvarez Lopez, Bernardo D Cruz, Brian Mora, Eddy Garcia, Alejandro Ruiz, Musa Jean, Zackary Wright

Capstone 2: (Observer) Bryant Vilarreal

Start time: 8:00 pm

End time: 9:00 pm

11/08/21

We have decided to split the active group members into the following subgroups for assignation of primary tasks for the remainder of the semester,

UI/UX: Carlos Martinez-Cortes, Alexander Jimenez

Mapbox Connectivity: Alejandro Ruiz, Eddy Garcia

Backend Connectivity: Musa Jean, Zackary Wright, Tomas Alvarez Lopez,

Integration and Q/A: Brian Mora, Bernardo D Cruz

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

UI/UX:

1. <Manage_Account> As a Registered User I want to be able to navigate to my account page where I can manage different settings of my account.(5 hours)
2. <Wand_Map_Static>As a User I want to be able to navigate and see a map of current WaterWand devices from which I can select one and view its status.[Static until <MapBox_Integration>, and <Dynamic_Data> are done](10 hours)
3. <Data_Decisions> As a user I want to be able to navigate to a page where I can select what information I wish to share with the WaterWand project(10 hours)
4. <Add_Device_Instructions> As a Registered User I want to be able to read instructions on how to connect my WaterWand device to the WaterWand project data collection service[Geolocation pending <MapBox_Integration>?](5 hours)
5. <Notification_Setings> As a User I want to be able to change the notification settings for the WaterWand App(10 hours)
6. <Contact_Page> As a User I want to be able to contact the administrators of the WaterWand Project through the app.(5 hours)

Mapbox Connectivity:

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7. <MapBox_Familiarity> As developers we need to familiarize ourselves with the MapBox API to be able to serve the core functionality of our App particularly the display of pinned coordinates on a map, and how to make said pins interactive(20 hours)
8. <MapBox_Inegration> As a User I want to be able to have the coordinates and information tables of the extant WaterWand Devices shown to me visually through pinned coordinates on a map which I can interact with; I want to be able to add my WaterWand Device to said map.(25 hours?)

Backend Connectivity:

9. <Data_Storage> As a user i want to be able to download a list of wand status in a certain area on a map.[Pending <MapBox_Integration> and <Dynamic_Data>] (15 hours)
10. <Dyanmic_Data> As a User I should be able to view data that is up to date with every app load-up and not have to download an app update to receive new data.[Pending PO data decision](15 hours)

Integration and Q/A:

11. <Retrieving_WaterWand_Data> As a user I should have certain access to certain information regarding collected data from the server (5 hours)
12. <Retrieving_Login_Data> As a user I should be able to retrieve personal login information saved in the AWS server.
13. <Digest_Previous_Semster> As a developer I want to be able reuse work that the previous semester has already worked upon and not retread the same paces.
14. <Integration_Test> As a developer I wish to be able to make sure the user stories of the other teams integrate smoothly with the main project.

The team members indicated their willingness to work on the following user stories.

- Brian Mora
 - Work item # 11
 - Work item #12
- Eddy Garcia
 - Work item # 7
 - Work Item # 8
- Carlos Martinez-Cortes
 - Work Item #3
Testing/Debugging User Interface so the user can navigate the app to share certain information.
Documentation of Mapbox/Navigation Bar
 - Work Item #4
Finish the authorization of the Profile fragment. Debugging and testing the User interface of the fragment in place.
 - Work Item #6
Researching the front end build so that the user can navigate to the user page
To find the desired point of contact for the app or customer service. Testing and debugging the fragments for the user to navigate to new options/
- Zackary Wright
 - All User Stories
 - Work item #9
 - Work item #10

- Alejandro Ruiz
 - Work item #7
 - Work item #8
- Tomas Alvarez Lopez
 - Work item #5
 - Work item #6
 - All User Stories
- <Alexander Jimenez>
 - Work Item #2

Agreed to identify necessary API calls in the documentation to geolocate the devices when adding a device, to display a map, to identify the format in which coordinates need to be entered, and search how to make the pins interactive. Until Mapbox is working, a static image mockup will be used
 - Work Item #1

Will create page that links to the other work item pages in the app, entailing the skeleton structure of User navigation
 - Work Item #5

Will populate the notifications setting page of the application, with the settings outlined during the PO meeting
- Bernardo D Cruz
 - Work Item #13
 - Work Item #14
- Musa Jean
 - Work Item #9, Work Item #10
 - Agree that AWS will store the bulk of our data collected from WaterWand and user information. Most likely use DynamoDB.
 - Create an AWS account and attempt to manipulate the database through code using SDK.

Sprint 7

Sprint Planning Meeting Minutes:

P.O. Biayna Bogosian

Attendees:

Senior Project: Carlos Martinez-Cortes

Capstone 1: Alexander Jimenez, Tomas Alvarez Lopez, Bernardo D Cruz, Brian Mora, Eddy Garcia, Alejandro Ruiz , Musa Jean, Zackary Wright

Capstone 2: (Observer) Bryant Vilarreal

Start time: 8:00 pm

End time: 9:00 pm

11/22/21

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We have decided to split the active group members into the following subgroups for assignation of primary tasks for the reminder of the semester,

UI/UX: Carlos Martinez-Cortes, Alexander Jimenez

Mapbox Connectivity: Alejandro Ruiz, Eddy Garcia

Backend Connectivity: Musa Jean, Zackary Wright, Tomas Alvarez Lopez,

Integration and Q/A: Brian Mora, Bernardo D Cruz

The product owner chose the following user stories to be done during the next sprint. They are ordered based on their priority.

UI/UX:

1. <Manage_Account> As a Registered User I want to be able to navigate to my account page where I can manage different settings of my account.(5 hours)
2. <Wand_Map_Static>As a User I want to be able to navigate and see a map of current WaterWand devices from which I can select one and view its status.[Static until <MapBox_Integration>, and <Dynamic_Data> are done](10 hours)
3. <Data_Decisions> As a user I want to be able to navigate to a page where I can select what information I wish to share with the WaterWand project(10 hours)
4. <Add_Device_Instructions> As a Registered User I want to be able to read instructions on how to connect my WaterWand device to the WaterWand project data collection service[Geolocation pending <MapBox_Integration>?](5 hours)
5. <Notification_Setings> As a User I want to be able to change the notification settings for the WaterWand App(10 hours)
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System Design

This section contains information on the design decisions that went into this project. The architecture patterns are outlined and explained. The entire system is shown in a package diagram and the subsystems are explained. Finally, the design patterns used in the project are discussed.

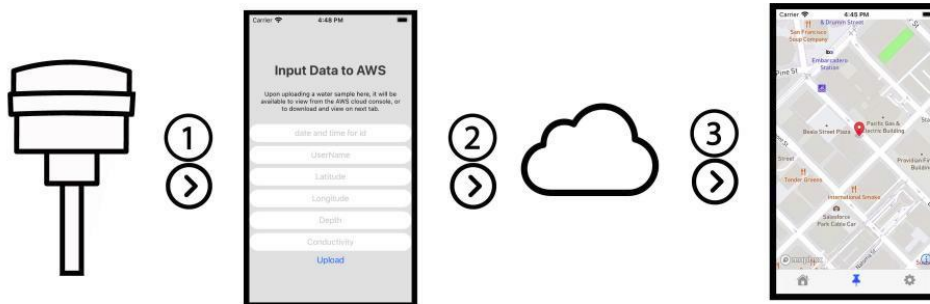
Architectural Patterns

For the architecture pattern of the Water Wand App we decided to go with only Android on Android Studios development. Since there was talk with the product owner, there were difficulties continuing with the Mac OS since we didn't have the hardware to build with. We decided to build an android application. This will be beneficial since there will be a built project for both android and IOS.

System and Subsystem Decomposition

When it comes to the System we decided to go with Android Studios and the usage of Java for the creation of the code. Android Studios allows many benefits that were free and it came all in a package. Due to the Engineering team not having the Water Wand IOT ready we couldn't implement the application with the actual Water Wand nor did we have a database to test out code.

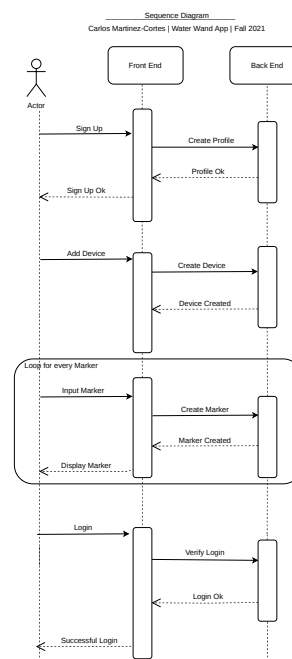
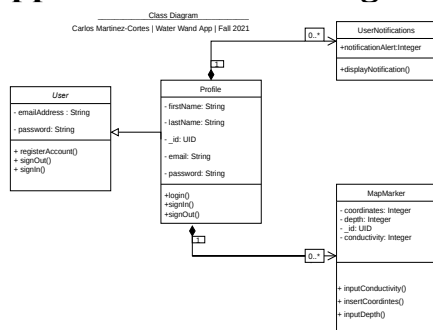
Deployment Diagram

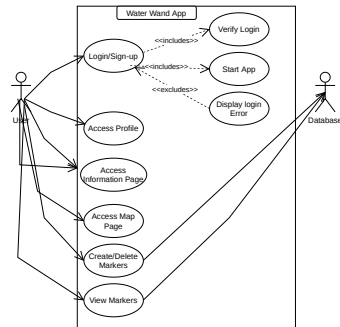


- ①  WaterWand sends sensor data to input tab, which allows users to accept or modify it before uploading.
- ②  Samples are uploaded to AWS cloud storage.
- ③  Samples are downloaded from the cloud onto the MapBox view tab, viewable to all users.

APPENDIX

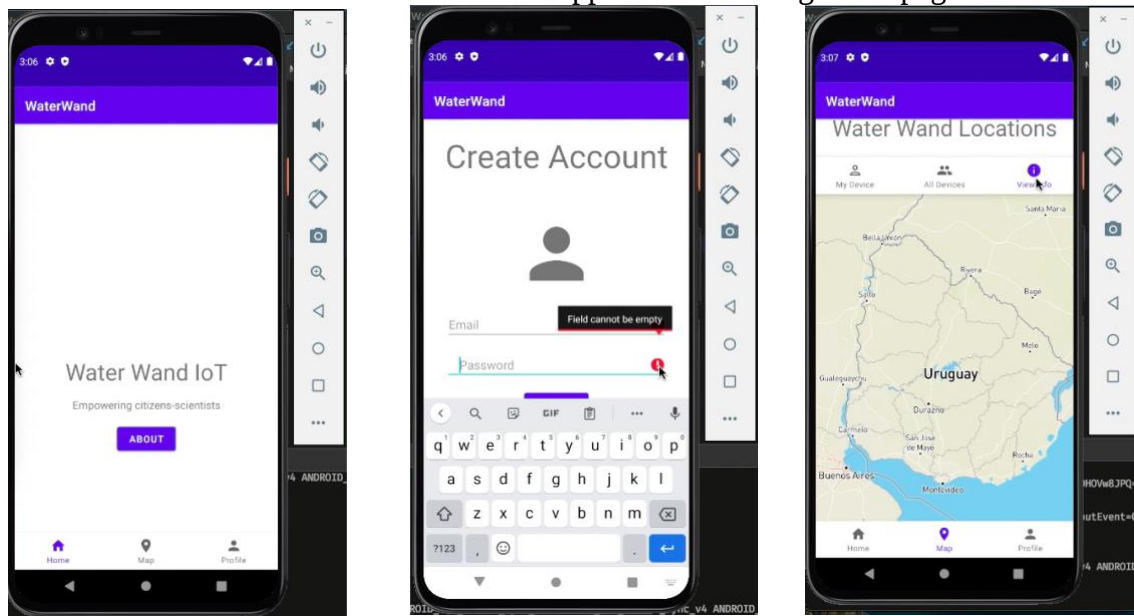
Appendix A - UML Diagrams





Appendix B - User Interface Design

Water Wand Application Landing Homepage



Appendix C - Sprint Review Reports

The Sprint Review Reports are included in the zipfile under the document file.

Appendix D - User Manuals, Installation/Maintenance Document, Shortcomings/Wishlist Document and other documents

The Installation/Maintenance Documents are included in the Zip file under the Documents Folder.