Software Project Deliverable 2

Buckle Up Inc.

Smart Aqua

Team Number

Group 6

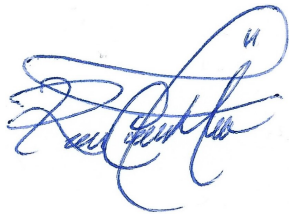
Student's names and ID's

Alvaro Rodrigo Chavez Moya	N01455107
Denis Shwaloff	N01422583
Nicholas Dibiase	N01367109
Paolo Adrian Quezon	N01424883

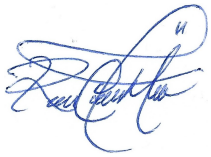
Table of Contents

Table of Contents 2
- Team Signature List 3
- Members Info and Participation 3
- Project Scope and Goals 4
- GitHub Repository Link 4
- GitHub Strategy 4
- GitHub Invitation 5
- Project Stories (screenshot) 6
- Tasks which are marked done, explain how did you meet the 8
- DoD criteria 8
- Business Model Canvas - Building Blocks 9
  - Customer Segments 10
  - Value Propositions 11
  - Channels 11
  - Customer Relationships 12
  - Revenue Streams 13
  - Key Activities 14
  - Key Resources 14
  - Key Partnerships 15
  - Cost Structure 16
- Gantt Chart 16
- Cloud Database 17
- Coding work progress since deliverable 1. What additional 18
- features/functionality added since deliverable 1 18
- A Table of records for the daily stand-ups outcome 19
- Table, include date and info. Show minimum of 3 meetings 19

Team Signature List

Alvaro Rodrigo Chavez Moya	Denis Shwaloff	Nicholas Dibiase	Paolo Adrian Quezon
			

Members Info and Participation

Name	ID	Signature	Effort
Denis Shwaloff	N01422583		100
Alvaro Rodrigo Chavez Moya	N01455107		100
Nicholas Dibiase	N01367109		100
Paolo Adrian Quezon	N01424883		100

Project Scope and Goals

Our main objective is to provide a comprehensive set of features that enable real-time monitoring of essential water parameters. The data's clear display within the app will enable users to stay up to date on the water quality and make educated decisions. The process of developing software includes activities like requirement gathering, UI/UX design, database design, and integration of multiple sensors and actuators for data collection and system control. We will employ Agile Methodology for development approaches to preserve flexibility and adaptation to shifting project requirements.

The project will also employ an iterative development methodology to ensure that the Smart Aqua Android app is continually improved. This procedure allows for internal testing, evaluation, and modification of the app's features and user interface. Regular updates and feature additions will improve the app's overall usefulness and usability. Using this iterative development approach, the project team will gather input and data from internal testing and assessments. These recommendations will be used to address the areas that might be worked on, as well as any issues or challenges that might surface throughout the development process. By continuously developing and enhancing the app's features and capabilities, the project hopes to provide a solution that fulfills its goals and objectives.

When all objectives have been achieved and all required actions have been effectively carried out, the Smart Aqua Android application development project will be deemed complete. This entails developing and thoroughly testing the app to ensure that it complies with the established standards and requirements. To name a few of the elements that must be properly completed, real-time monitoring, automatic alerts, and management of water treatment and filtration systems are all necessary for the project to be declared complete.

GitHub Repository Link

https://github.com/DenisShwaloff2583/SmartAqua.git

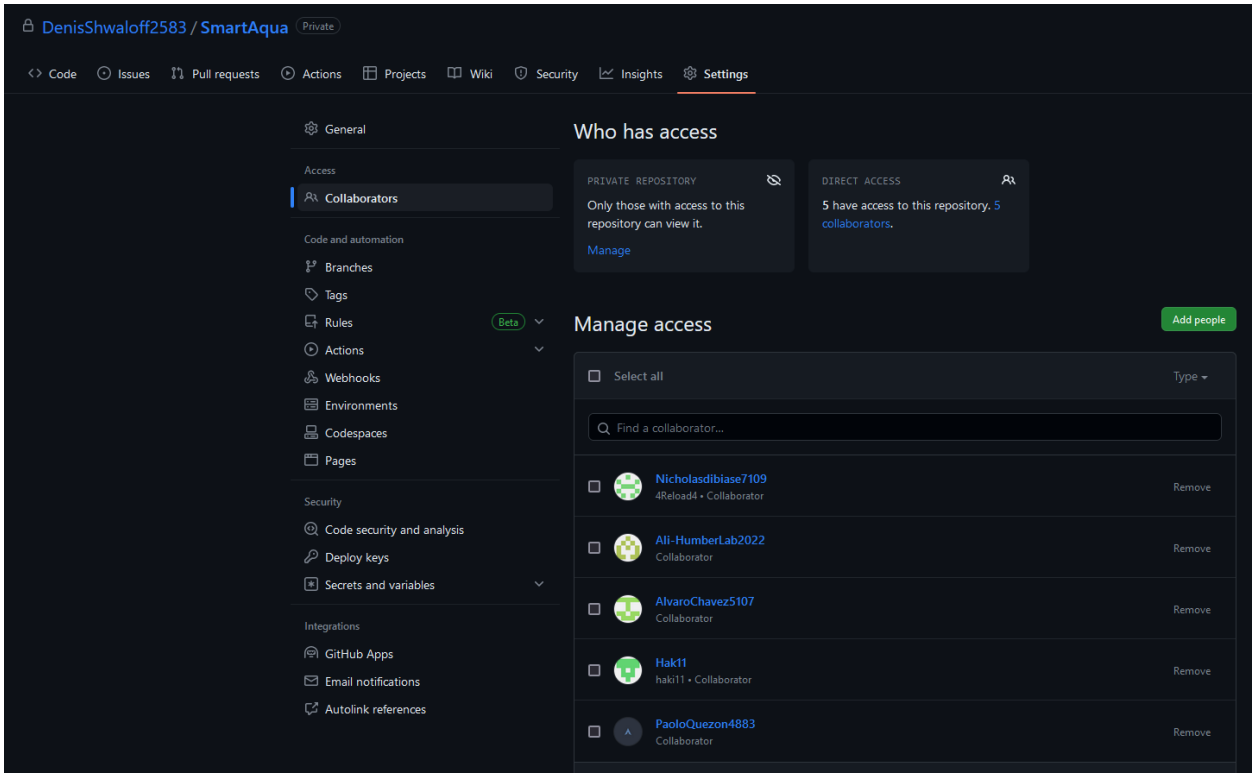
GitHub Strategy

Our GitHub strategy for the Smart Aqua project follows a collaborative approach to ensure smooth development and minimize conflicts. To maintain code consistency, all team members work within the same master branch, reducing potential issues related to merging and outdated code. Before making any changes, we prioritize pulling the project to incorporate any recent updates. Once we complete, implement, and thoroughly test an objective or task, we commit and push the changes. Effective communication plays a

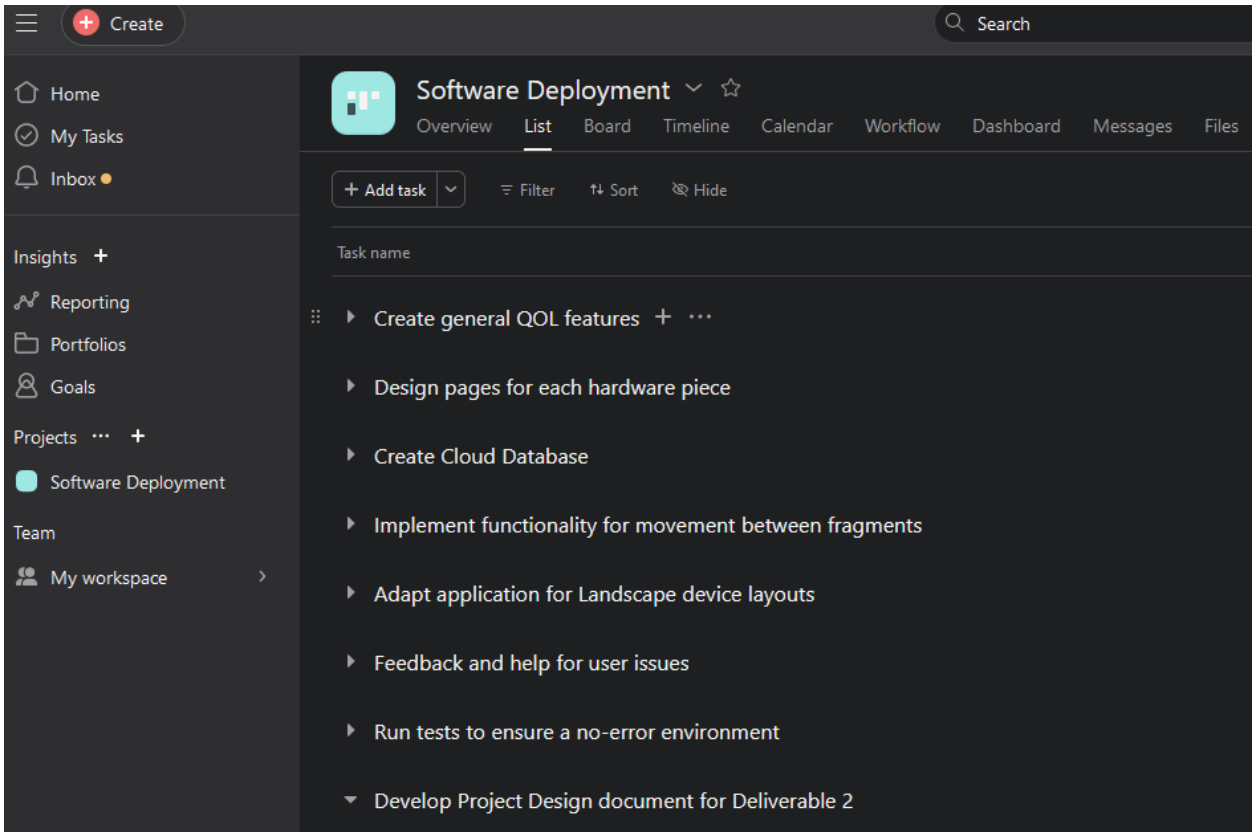
crucial role in our workflow, as we strive to notify one another about our ongoing tasks and any major changes that will be pushed, preventing interference and promoting a harmonious work environment. In addition to our collaborative GitHub approach, we have established a specific schedule during the week to work together as a team, aiming to expedite and enhance our development process. This dedicated time allows us to address any challenges collectively, brainstorm solutions, and synchronize our efforts. Moreover, we recognize the importance of individual productivity, and thus, we allocate specific periods where team members have autonomy to work on their assigned tasks at their own pace. This balance between collaborative sessions and individual focus time ensures a dynamic workflow that maximizes both speed and effectiveness in our development endeavors.

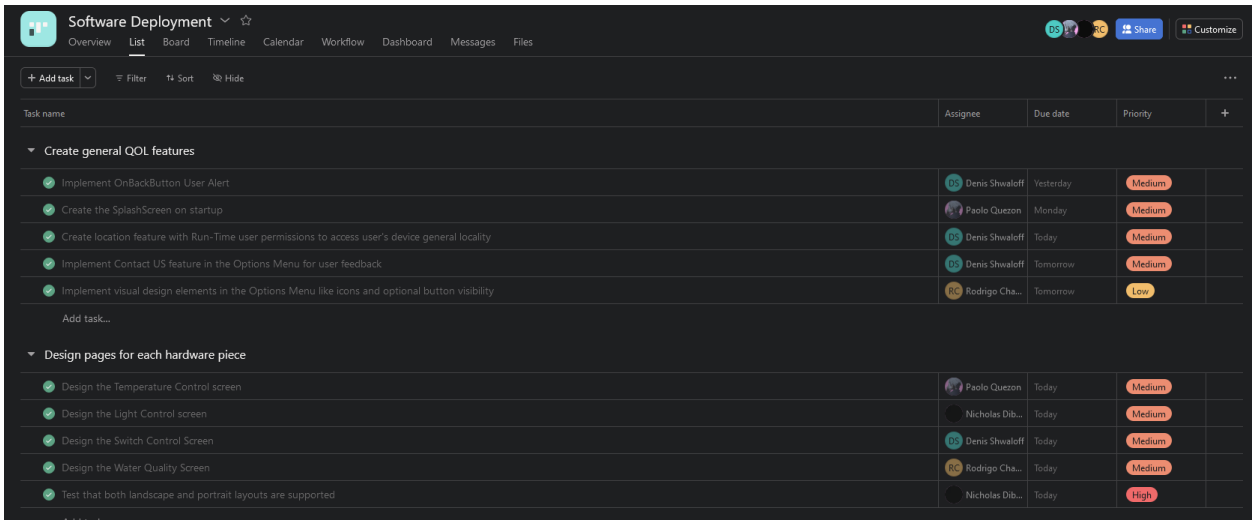
GitHub Invitation

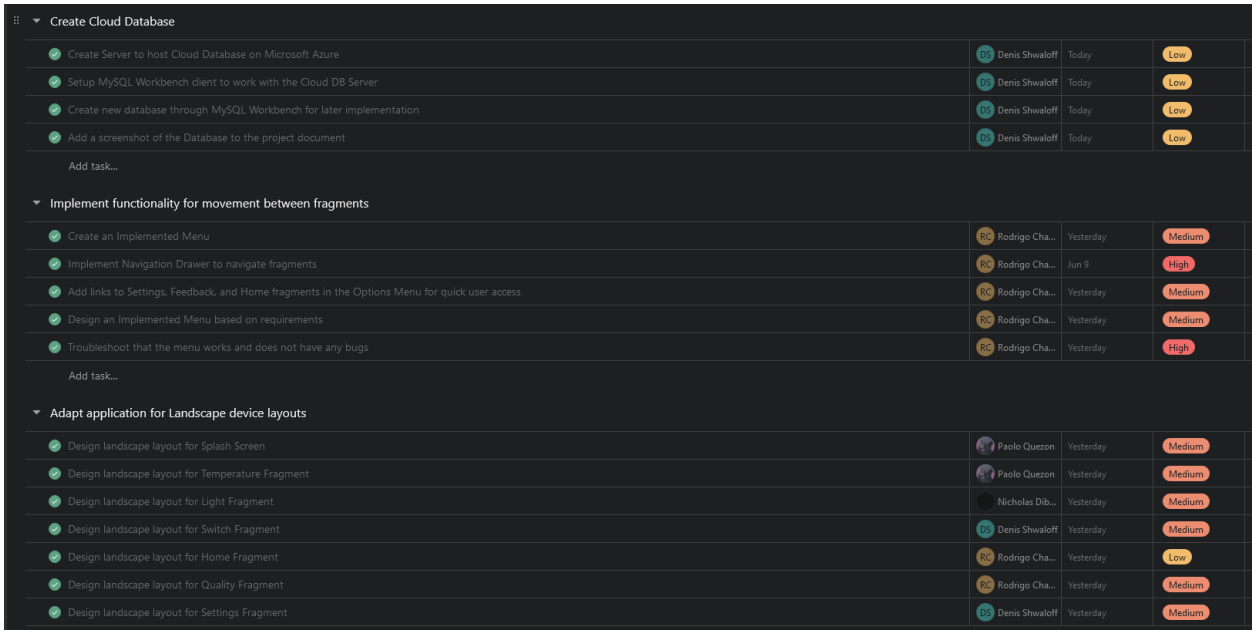
(Invite Hardware Prof - Ali Maki)

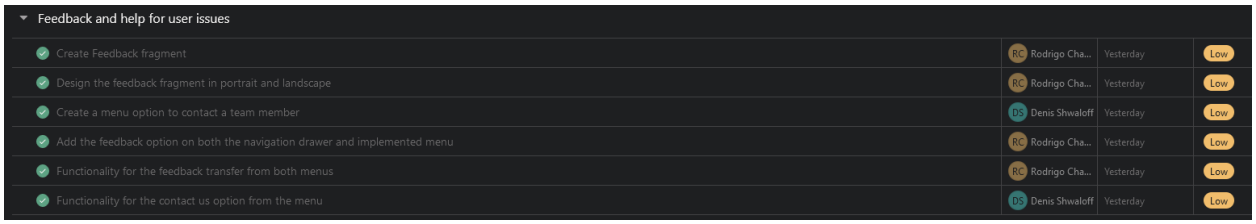


Project Stories (screenshot)






Create Cloud Database
Create Server to host Cloud Database on Microsoft Azure
Denis Shwaloff
Today
Low
Setup MySQL Workbench client to work with the Cloud DB Server
Denis Shwaloff
Today
Low
Create new database through MySQL Workbench for later implementation
Denis Shwaloff
Today
Low
Add a screenshot of the Database to the project document
Denis Shwaloff
Today
Low
Add task...
Implement functionality for movement between fragments
Create an Implemented Menu
Rodrigo Cha...
Yesterday
Medium
Implement Navigation Drawer to navigate fragments
Rodrigo Cha...
Jun 9
High
Add links to Settings, Feedback, and Home fragments in the Options Menu for quick user access
Rodrigo Cha...
Yesterday
Medium
Design an Implemented Menu based on requirements
Rodrigo Cha...
Yesterday
Medium
Troubleshoot that the menu works and does not have any bugs
Rodrigo Cha...
Yesterday
High
Add task...
Adapt application for Landscape device layouts
Design landscape layout for Splash Screen
Paolo Quezon
Yesterday
Medium
Design landscape layout for Temperature Fragment
Paolo Quezon
Yesterday
Medium
Design landscape layout for Light Fragment
Nicholas Dib...
Yesterday
Medium
Design landscape layout for Switch Fragment
Denis Shwaloff
Yesterday
Medium
Design landscape layout for Home Fragment
Rodrigo Cha...
Yesterday
Low
Design landscape layout for Quality Fragment
Rodrigo Cha...
Yesterday
Medium
Design landscape layout for Settings Fragment
Denis Shwaloff
Yesterday
Medium


Feedback and help for user issues
Create Feedback fragment
Rodrigo Cha...
Yesterday
Low
Design the feedback fragment in portrait and landscape
Rodrigo Cha...
Yesterday
Low
Create a menu option to contact a team member
Denis Shwaloff
Yesterday
Low
Add the feedback option on both the navigation drawer and implemented menu
Rodrigo Cha...
Yesterday
Low
Functionality for the feedback transfer from both menus
Rodrigo Cha...
Yesterday
Low
Functionality for the contact us option from the menu
Denis Shwaloff
Yesterday
Low

Tasks which are marked done, explain how did you meet the DoD criteria

Cloud Database DOD

- Created a server to host our database on Microsoft Azure
- Setup MySQL Workbench client to work with the Cloud DB Server
- Created new database through MySQL workbench for later implementation

Feedback and help screen DoD

- Create Feedback fragment
- Designed feedback screen to be fit landscape mode
- Add the feedback option on both the navigation drawer and implemented menu
- Functionality for the feedback transfer from both menus
- Functionality for the contact us option from the menu

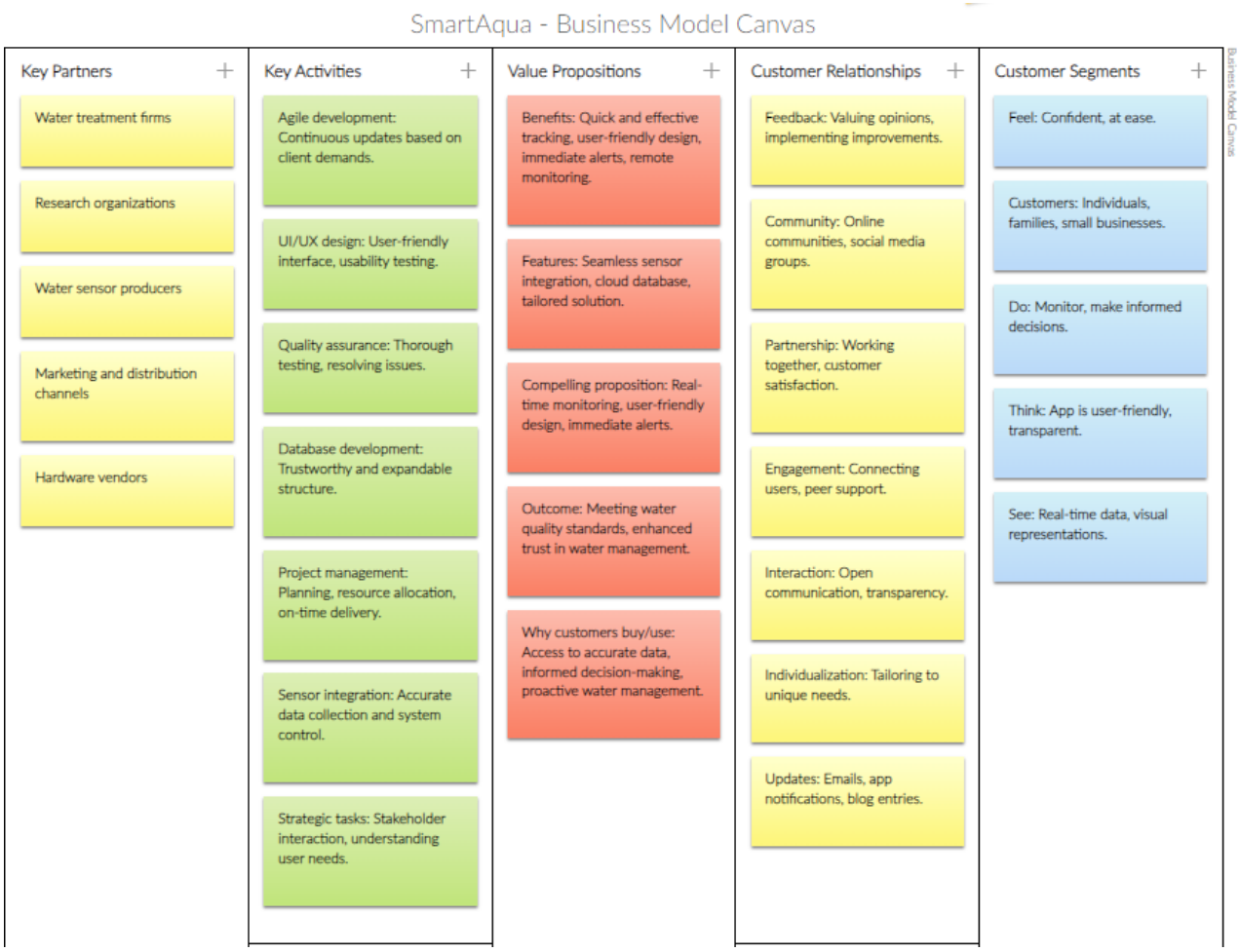
Designed pages for each team member DOD

- Designed Temperature Control screen
- Designed Switch Control Screen
- Designed Water Quality Screen
- Made sure both landscape and portrait layouts are supported

Create general QOL (Quality of Life) features

- Implement on Back Key button User Alert
- Added a Contact US option to the Options Menu so that users can contact the development team
- Used icons and optional button visibility in the Options Menu as visual design components

Business Model Canvas - Building Blocks



Customer Segments

A wide range of users, including individuals, families, and even small businesses like pet stores and zoos, can use the Smart Aqua app. Our objective is to offer a user-friendly, intuitive app that offers transparent, understandable data on aquatic parameters. We are aware of the significance of accurate and trustworthy data when making decisions about the real-time monitoring of water quality. Because of this, our app will have an appealing dashboard that shows real-time data and offers helpful visual representations like data logs. Through notifications and alerts, we also make sure to keep our users informed and promptly alert them to any deviations from the desired standards.

With real-time water quality information at their fingertips and the ease of remote monitoring, Smart Aqua wants to provide its clients peace of mind. We think it's important to arm users with information and insights, so they can rely on our app's dependability and accuracy for their needs relating to water quality. Whether it's adjusting treatments or starting maintenance, we encourage routine monitoring and acting on the data that is received. We really value the opinions of our users regarding the features and usability of the app, as well as any updates they could suggest. If a user found our app useful, we would really appreciate it if they told other people who engage in water-related activities about it.

Value Propositions

Customers have access to an effective and quick approach to track key water parameters in real-time thanks to the Smart Aqua Android app. It guarantees that as a customer, you are always aware of the water quality, enabling users to stay informed and take the appropriate actions. The app's user-friendly design makes data accessible and clear, enabling users to make knowledgeable decisions about water management. Customers can depend on the app to provide appropriate warnings, ensuring that users are immediately informed of any possible issues that need attention. With the help of this feature, the user may act right away to maintain the best possible water quality. Additionally, our software offers the flexibility to access and evaluate data from anywhere, at any time, by enabling customers and users to remotely monitor small enclosed water bodies through a mobile device.

The Android app offers thorough monitoring capabilities to meet all required water quality standards by seamlessly integrating with different sensors for data collecting and system control. Incorporating a cloud database guarantees secure data storage, providing ease and peace of mind. By selecting the Smart Aqua Android app, one is making an investment in a solution that is especially created to meet their needs for water quality monitoring. Customers will be able to successfully maintain the appropriate water quality requirements thanks to its innovative features and capabilities, which will boost trust in water management processes.

Channels

Our main goal is to connect with our target market, which includes small businesses like fish shops, zoos with aquariums, homeowners, and people. We will use a variety of digital marketing tools, such as online adverts, social media sites, and targeted email campaigns, to publicize the Smart Aqua Android software. Our goal is to raise awareness of the app's special features and advantages so that our target clients are aware of how it might be useful to them. By making the app available for download on well-known

mobile app shops like the Google Play Store, we'll make sure it's simple to find. We also appreciate the comments and viewpoints of our users. We honestly invite people to share their opinions on the Google Play and the app's feedback page. This feedback will play a crucial role in helping us continuously improve the app based on their valuable input.

We attempt to provide an incredible experience for users by listening to our clients and making improvements in response to their requirements. In addition, we are aware of the influence of recommendations from others. We are aware that recommendations from friends to other friends have a lot of weight. We also invite our current customers to share their good experiences and to suggest the Smart Aqua Android app to their friends who might find it useful. These direct recommendations could potentially reach a larger audience and provide a network effect, in our opinion. The release and successful promotion of the Smart Aqua Android app to our target market are our ultimate objectives in order to ensure its widespread adoption and usage. We think we can offer a useful product that satisfies the particular requirements of our target market by implementing these techniques and keeping the lines of communication open with our users.

Customer Relationships

We at Smart Aqua highly value the relationships that we make with our customers. Being able to relate to them on a personal level is just as important as offering a service. Considering we actually care about how they feel, we make it a point to keep in touch with them at every stage. Assuring that our consumers are always informed, we value open, transparent communication. We wish to keep our clients with the most recent changes and modifications, whether it be via helpful emails, beneficial app notifications, or interesting blog entries. Since we're always looking for ways to improve customer experience with Smart Aqua, we want them to feel engaged and included.

But that's not where our commitment stops. We promote an actual sense of community among our users. We recognize that people who enjoy keeping aquariums, small-business owners, and homeowners all have interesting perspectives to offer. Because of this, we plan to develop online communities, social media groups, and user-focused platforms. We support our customers in connecting with one another, exchanging suggestions and advice, and developing close connections. We're thrilled to help make these connections and see the impact that peer support and collaboration can have. Every person has unique needs and preferences, which Smart Aqua genuinely acknowledges. We dislike the idea of a one-size-fits-all strategy. Instead, we pay close attention to what our clients have to say and take their suggestions and unique demands into consideration.

The criticism we get from clients is something our team take very seriously. Their opinions and ideas are extremely important in determining how our software will develop in the future. We intentionally seek out their views and opinions because we really want to grow and transform as a result of their advice. It's important for our customers to understand that we value their feedback and are dedicated to implementing significant improvements that suit their needs. We see ourselves as partners on this journey, working together to create the ideal software for their aquatic requirements. As Smart Aqua, we're committed to providing great service and significant involvement. We don't take the experiences of our consumers lightly, even though this is a project for school. We recognize the value of providing a product that really meets their expectations and fulfills their requests. Our main objective is to build reliable relationships with our clients in order to ensure their satisfaction during their whole interaction with us.

Revenue Streams

As Smart Aqua, we firmly believe in the benefits of teamwork and ties with local businesses like aquariums and zoos. These companies serve as key partners in our attempts to improve water quality and sustainability, in our view. Through creating such partnerships, we are able to meet the specific needs of our partners while also creating amazing potential for revenue growth. We are happy to provide the Smart Aqua Android app without any strings attached as part of our commitment to accessibility. We are aware of the financial difficulties faced by small companies and aim to make our software available to everyone, regardless of their financial status. Furthermore, we have made the decision to make our software freely available because we genuinely enjoy and support these businesses.

In addition to providing the app without charge, we actively seek out partnerships with aquariums and zoos since we acknowledge and value their knowledge of the field they work in. We build partnerships based on revenue-sharing or licensing costs by integrating the Smart Aqua app into the products they sell. In addition to maintaining our operations and development, these partnerships offer our partners the latest resources they need to improve what they do while offering unique benefits to their customers. We also promote local businesses by providing customized advertisements and sponsorships within the app. In order to produce useful placements like banner advertisements or sponsored content, we work with relevant advertisers and sponsors in the zoo and fish shop industries.

Data safety and privacy are top priorities of Smart Aqua. We use extra precautions whilst storing the water quality data gathered through the app, ensuring privacy and dedication to privacy regulations. We look for moral methods to use this collected data, giving universities, environmental associations, and other organizations access to anonymized data. Using this strategy, we are able to preserve the trust and confidence of

our users, while delivering important advances in knowledge and changes in the area of water quality. Our revenue streams are specifically created to satisfy the special needs of small enterprises like zoos and marketplaces for fish. We support partnerships that are honest and open because they lead to growth and success for both parties.

Key Activities

To Smart Aqua, we put a lot of effort into the important tasks that move our idea. First, we interact with stakeholders in order to fully understand user needs and limitations for our product. This makes it easier for us to modify the Smart Aqua Android app to match the needs of our intended users. Second, we give UI/UX design a high priority, designing an interface that blends usability and usefulness. To make sure that the user experience is straightforward and improves user journeys, we collect user input and do usability testing. In order to handle the water quality data we get, we thirdly develop a trustworthy and expandable database structure. As a result, data integrity and real-time monitoring are assured, providing accurate data for reasonable decisions. Furthermore, we facilitate the integration of sensors and actuators, giving accurate data collecting and system control. This improves our app's quality and functionality. We use Agile development approaches to remain ahead by releasing small updates and features that address changing client demands. The importance of quality assurance drives the thorough testing we do to make sure our software runs without a hitch. To guarantee a great experience for our clients, we handle into account any issues that arise. Planning ahead, using resources effectively, and maintaining quality standards all help ensure delivery on time.

In conclusion, our key responsibilities are to understand customer needs, creating a user-friendly interface, building a trustworthy database, integrating sensors, implementing Agile development, carrying out thorough testing, and effectively managing projects. These actions enable us to offer a useful water quality monitoring software that satisfies our users' demands.

Key Resources

To compete effectively, Smart Aqua relies on several key resources. Firstly, we need reliable and accurate data collection systems, including sensors and actuators. These systems are crucial for monitoring water parameters in real-time, ensuring that we collect precise and trustworthy data. Secondly, building a strong brand and reputation in the water monitoring industry is essential. We achieve this through positive customer experiences, effective marketing strategies, and a focus on delivering high-quality solutions. By establishing ourselves as a reputable brand, we can attract and retain customers.

Thirdly, customer data and insights play a vital role in our success. The data we gather from our app users provides valuable information about water quality trends, user behavior, and preferences. By leveraging this data, we can make product improvements, create personalized experiences, and develop targeted marketing campaigns that resonate with our customers. Furthermore, regulatory compliance is a critical resource for us. We prioritize adhering to relevant regulations and standards in the water monitoring industry. By ensuring that our app meets legal requirements, we build trust with our customers and mitigate any potential legal issues. In summary, Smart Aqua's key resources include reliable data collection systems, a strong brand and reputation, valuable customer data and insights, and a commitment to regulatory compliance. These strategic assets empower us to compete effectively and provide a high-quality water monitoring solution.

Key Partnerships

Smart Aqua may create partnerships that allow it to zero in on its core duties. The first benefit of working with water sensor producers is that you may get high-quality sensors and actuators for tracking water factors. The company may avoid investing in sensor research and development by working with trustworthy suppliers, enabling it to solely focus on the primary tasks at hand. Second, by collaborating with hardware vendors, Smart Aqua can find the supplies and tools required to include sensors into the app. Through this partnership, the business is able to spend its time on software integration and development while utilizing the knowledge of hardware vendors for the actual physical components.

Working with water treatment firms also provides access to significant industry information and experience. By collaborating with well-known water treatment firms, Smart Aqua may learn about best practices, regulations, and water quality management, which improves its fundamental operations. Another beneficial approach is to form partnerships with research organizations that focus on environmental and water quality research. These collaborations provide Smart Aqua access to the latest research, innovative equipment, and expert guidance, enabling us to incorporate the most recent results into its mobile app.

Furthermore, working with marketing and distribution connections is important. The company may use existing networks to advertise and distribute the app while focusing on its main strengths and reaching a larger consumer base by working with established channels like app stores, water treatment equipment retailers, or environmental organizations. In conclusion, Smart Aqua could form important partnerships with producers of water sensors, hardware suppliers, water treatment businesses, academic institutions, and marketing/distribution channels. By forming such partnerships, the

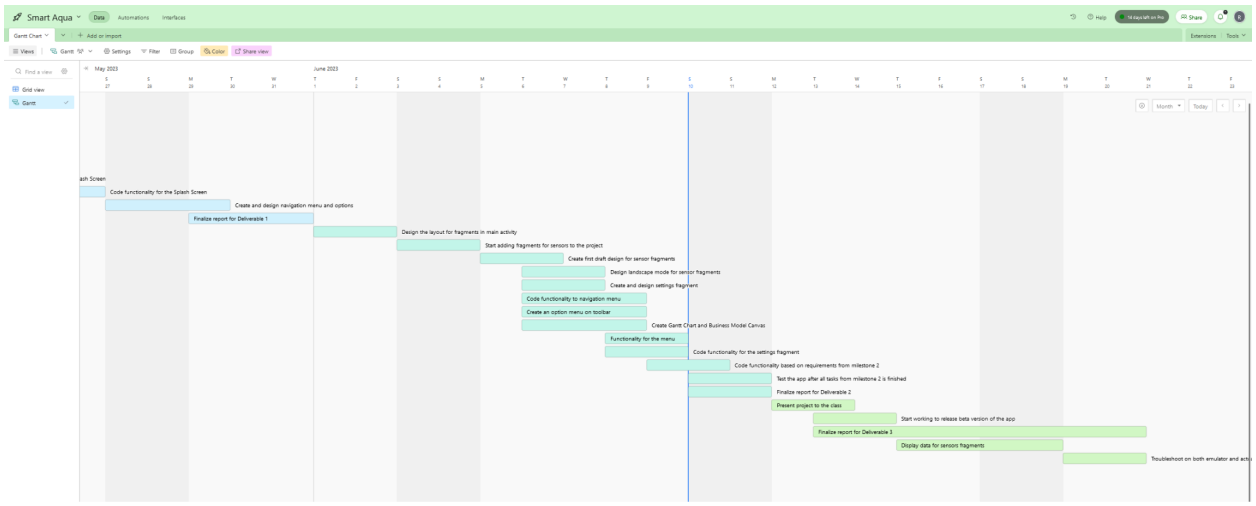
business is able to focus on its key strengths while gaining access to its partners' knowledge, resources, and larger network.

Cost Structure

The primary cost factors for developing the Smart Aqua Android app as a team project with four students primarily have to do with the resources and activities needed to complete the project. Even while it might not instantly lead to income, human resources, which make up the team's time and effort, are important cost elements. Additionally, there are costs associated with the technical framework, such as the hardware, software, and cloud services required for app development. Smartphones and testing devices are examples of materials and equipment that go into prices, since they are necessary for developing and evaluating the operation of apps. Performing tests to assure accuracy and functioning, as well as purchasing or gaining access to sensors and actuators for data collecting, are all spendings related to developing and verifying procedures. The last factor that influences the successful conclusion of a project is the cost of project management, which includes duties like scheduling meetings and arranging project documents. While earning revenue may not be the main goal, knowing how much something costs may help businesses manage resources efficiently and guarantee that our project can be accomplished given the team's resources and time limitations.

Gantt Chart

Sample of Gantt Chart. Follow the Link for more details, this picture does not cover milestones after Deliverable 2.

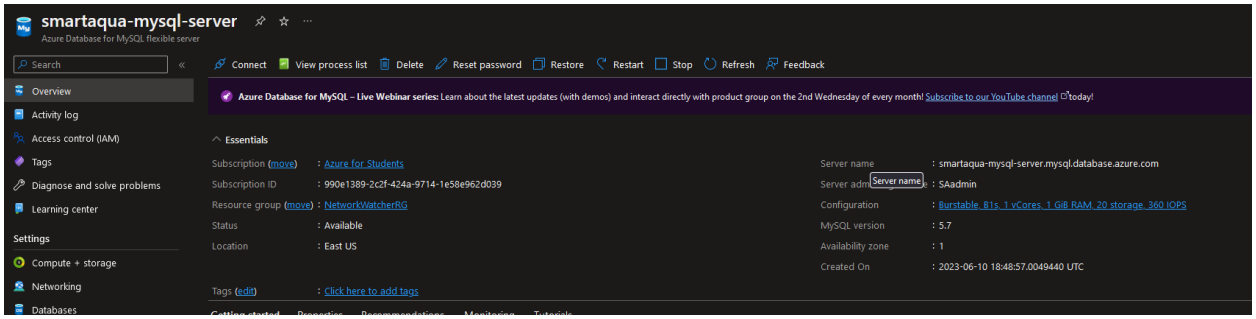


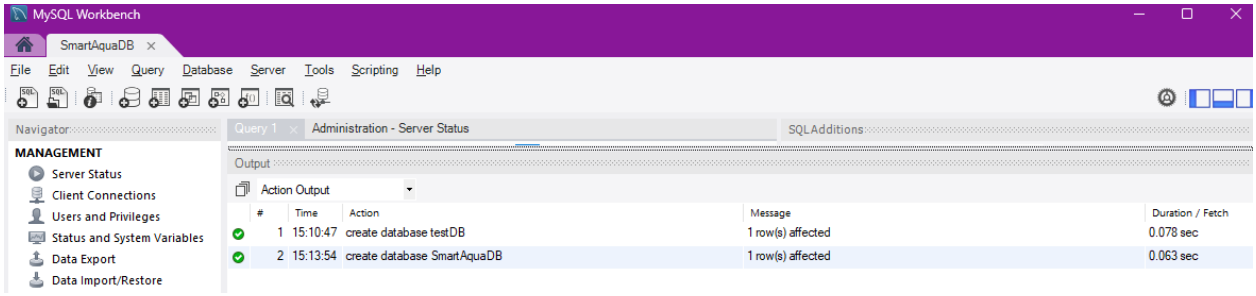
https://airtable.com/shrxi8vRClk6vPuaz

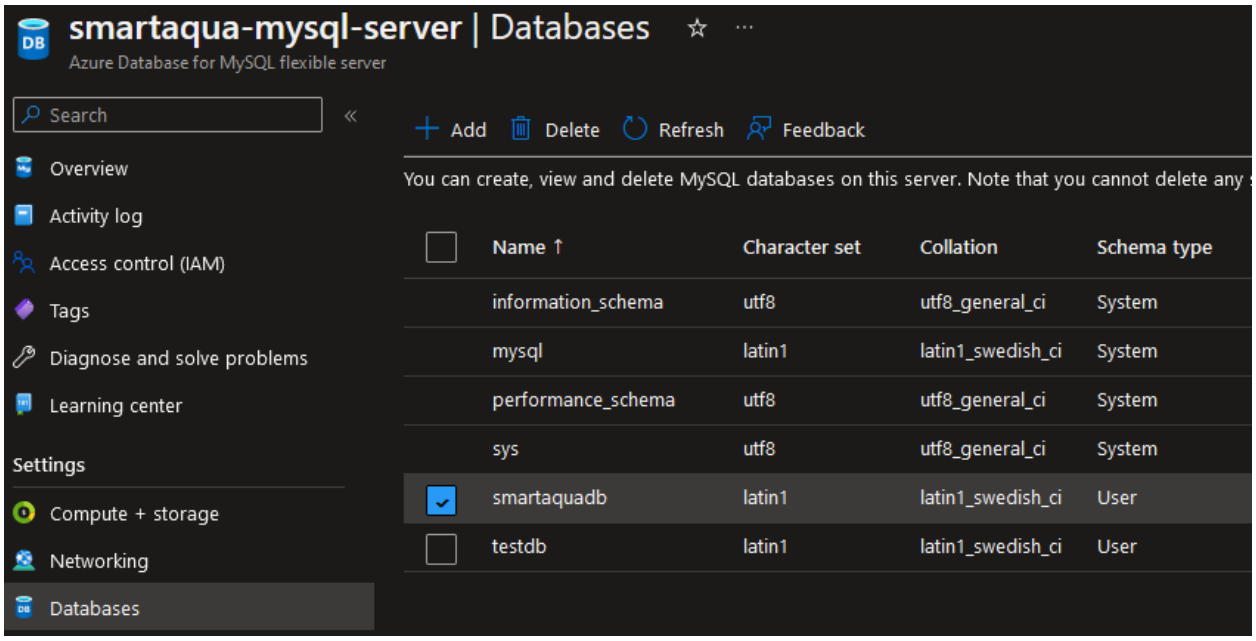
Cloud Database

Our group decided to use Microsoft Azure MySQL Database for the Cloud Database, since an Azure for Students subscription is provided by Humber.

This Cloud Database will be used to facilitate the collection, storage, and retrieval of sensor data obtained from our hardware device. This way, the database would enable real-time synchronization, allowing users to conveniently access and visualize the collected sensor data.







Coding work progress since deliverable 1. What additional features/functionality added since deliverable 1.

- Finished the designs of each individual screen (total: 10)
- Added home button that takes you to home page
- Made a feedback screen that allows you to let us know how our app is
- Made a settings screen that allows you to lock portrait screen layout
- The switch control screen has an air pump switch and a bubble bath switch to turn on and off
- The water quality screen has a start button to start reading the PPM levels
- The light screen has an on and off button allows you to turn off and on the interior lights
- Created a landscape XML file for each screen and adjusted the images and buttons to fit landscape and portrait mode
- Resized all screen design features and buttons to fit screen in both landscape and portrait
- Created a colors.xml pallet with different types of colors were to add for texts, buttons and background etc.
- Added Contact Us button in the Option's Menu as alternative for user feedback

A Table of records for the daily stand-ups outcome

Table, include date and info. Show minimum of 3 meetings.

Date	Info
2023-05-25	We all joined an online call and discussed each individual member's tasks. We had some troubles with implementing the splash screen, but, using past references, we were able to figure out what was causing problems and fix it. Furthermore, we also had a brief discussion regarding which navigation drawer we were going to use, and we came to the conclusion that the navigation drawer suited our project best. Discussed design for our application such as color scheme, logo, pictures, and general layout.
2023-05-27	After class, we have all joined an online call and decided to put work into the deliverable 1 PDF document. We split up parts of the document into tasks and assigned everyone an equal amount of work. A major topic was the Themes and Epics section, we brainstormed different variations and layouts, as well as how to fill out Stories and Tasks.
2023-06-05	Had a meeting at Humber in-person. Discussion was focused on which tasks were crucial for development and had to be prioritized for deliverable 2. Each member started with designing their dedicated sensor screens. Minor tasks like updating colors file, updating back-key alert, etc. were also assigned to team members
2023-06-08	Gathered on an online call, discuss what has already been done for deliverable, any leftover work that needed to be finished up quickly, and what tasks were left to be done. Separated topics on the deliverable 2 document between team members. Outlined that it was time to create landscape variations for our screens, as the designs were done.