

## CHAPTER VI

### PROJECT MANAGEMENT

The chapter discussed the factors and resources needed to implement the system functionalities seamlessly. The team identified the web application that met the expectations of the targeted users and their impressions when using it. The section discussed the development strategies, methods of production, and effective management of these activities.

#### 6.1 User Classes and Characteristics

In this section, developers outlined the different user classes and their characteristics. The developers described each stakeholder and clarified the advantages of using the device and the application to tackle issues defined in the study. The team identified the following groups expected to benefit from the project.

##### 6.1.1 Public and Private Organizations

The project assisted private and public organizations in obtaining information such as pH level, alkalinity, and acidity of tested water. Given the information and data, organizations determined the quality of water. Furthermore, this capability enhanced their ability to improve public health and environmental sustainability. This data also enabled organizations to identify potential risks to water sources and implement targeted interventions. As a result, they were able to ensure safer, cleaner water for communities while contributing to broader environmental conservation goals.

### 6.1.2 Consumers

Consumers were considered end-users who directly benefited from the application functionalities. Many consumers relied on the system for accurate water quality assessments, ensuring the safety of the water they consumed. This system provided a user-friendly interface to accommodate individuals with varying levels of technical expertise, thereby promoting widespread use and trust in its capabilities.

## 6.2 Product Feasibility Assessments

To reach intended users and maximize project impact regarding the deployment of the project, the team generated strategies to publicize the application, highlight its advantages, and promote the project and its benefits. Prior sections discussed the aspects of the project technical feasibility, specifying the hardware and software requirements for the project implementation. The section discussed the multiple aspects of the feasibility study necessary to accomplish the project purpose, including promotion, management, and economics.

### 6.2.1 Marketing

The HydroSense project adopted a targeted marketing approach tailored to its locally accessible design. The device, which operates exclusively within a localized network, allows users to interact with its functionalities directly through a connected browser on the device itself. This localized approach ensured that users in remote or resource-constrained areas benefit from the system without relying on external internet connectivity.

Affordability was a key focus, achieved using cost-efficient hardware components without compromising quality. At an early stage in the market, the team capitalized on the opportunity to leave a lasting impression by offering an innovative and user-friendly solution for water quality management. Promotional efforts included informative video advertisements showcasing the product functionalities and benefits.

Social media plays a significant role in advertising, enabling a broad reach and facilitating user recommendations based on positive experiences. The marketing materials effectively enhanced the project visibility and credibility by integrating visually appealing product and team logos. The promotional campaign also emphasized HydroSense consumer-friendly design, ensuring users of all technical backgrounds access clean and safe water through accurate data provided by the device.

#### 6.2.1.1 HydroSense Logo

The product logo is present in Appendix H. This application logo was used for product packaging and other materials and platforms to promote the project. The logo symbolized the letter "S" for sense and represented a droplet with radio waves, signifying a water sensor. Additionally, the developers discussed the application droplet shape structure and the sensor illustration, which resembled its purpose.

#### 6.2.1.2 Stealthy Kitten Logo

It included the members, their roles, the platforms they worked on, and the technical consultant. The group name was Stealthy Kitten, and the

group logo was seen in Appendix I. The team logo was a collaborative effort involving all members and was mutually agreed upon. The logo symbolizes the teams unity and dedication.

#### 6.2.1.3 Product Advertisement

The device was advertised through social media platforms, and a great consumer experience enabled users to recommend it to interested others. HydroSense was promoted through video advertisements that showcased its purpose, capabilities, features and uses. Moreover, it provided an overview of the device functionalities and the web application.

#### 6.2.1.4 Product Packaging

The product packaging incorporated elements representing the application itself. It included the team logo, the device name, the manual, features, and a device description. This packaging emphasized both functionality and brand identity. The design and details of the product packaging are shown in Appendix K.

### 6.2.2 Management

The project was an application and device owned by Stealthy Cat. The application was developed by its members. The project team was accountable for maintaining and producing the application and device. Appendix C depicts the activities and scheduling concerns of the project.

The application was enhanced, and there was room for improvement. In this project focus area, team members considered private and public organizations and consumers with digital and technological literacy. The target user did not require a

complex skill set, as a manual was provided in the product packaging. The users' responsibilities included testing the water, reviewing data results generated by the software, considering the margin of error, and accounting for any other external factors that affected the data-gathering process.

As mentioned previously, the project was an Arduino and web-optimized for desktop or laptop computers. It was important to note that the device only covered liquids, which meant user error still occurred. Finally, to fully appreciate the application, data and result generation were presented through statistics intended for users to gather information and results accurately.

#### 6.2.3 Production

The project was a device and web-based, and the finished product used web hosting services. Before implementing the hosting and creating the device, it was necessary to conduct testing activities to ensure that the project criteria were accurate and on time. The Program Evaluation and Review Technique (PERT) indicated the development activities from planning to production (see Appendix C). By following the diagram, the project was approved for its initial release. The consultants and advisers performed inspections and quality control to help assess the system further.

### 6.3 Time Management

Effective time management was required to ensure the project progress and completion. It allowed the team to allocate resources by setting clear timelines and deadlines. Team members prioritize tasks and allocate their time appropriately to meet

project milestones. By breaking down the project into tasks and allocating time for each, the team created a structured and optimized workflow, reducing the risk of bottlenecks and delays. Team members were likely to be more productive. Clear timelines and task priorities enabled team members to focus on their assigned tasks, reducing distractions and increasing overall productivity. Appendix C depicts the entire endeavor, which took 36 weeks of development to complete the application.

#### 6.4 Communications, Coordination, and Team Composition

This section highlighted the team initiatives and collaborative efforts. Communication platforms such as Facebook Messenger and Microsoft Teams were used to share updates, discuss challenges, and exchange ideas. Developers were assigned specific tasks to streamline the project workflow and ensure timely completion. The use of tools like Google Drive facilitated document sharing and version control, promoting transparency and efficiency. This coordinated approach fostered a productive environment and contributed to the overall success of the project.

##### 6.4.1 Communications

To achieve success in any project hinged on the cornerstone of effective communication, serving as the linchpin that propelled the team towards their goals. Team members' remote activities were conducted through Facebook Messenger and Microsoft Teams. These communication platforms actively shared ideas, suggestions, and opinions, creating a collaborative environment that fueled the project progress. Furthermore, the team harnessed the power of Google Drive and Google Docs to streamline document management processes. The meeting minutes

ensured team members had suggestions, opinions, and recommendations to improve the final output quality.

#### 6.4.2 Coordination

The three team members collaborated, shared, and communicated to ensure project continuity. The requirements created by the team were uniquely broken down, so they shared the allotted tasks within the time constraints set by the company. The team considered using time management tools to update progress and address any errors encountered during development. The teams writer communicated concisely with the lead developer about the effective functionality of the system program, with the help of the front-end developer for the application of the system user interface.

#### 6.4.3 Team Composition

The team was composed of a hardware developer, a software developer, and a writer, each assigned distinct and essential tasks. Roles were clearly defined, enabling members to take responsibility for specific areas such as hardware implementation, software development, and documentation. By dividing responsibilities effectively, team members collaborated to seamlessly integrate their efforts. This structured approach ensured the project was completed efficiently and successfully, meeting its objectives.

##### 6.4.3.1 Hardware Developer

The hardware developer played a crucial role in the team, focusing on designing, implementing, and testing the device physical components.

They possessed expertise in circuitry, sensor integration, and

microcontroller programming, ensuring the seamless operation of the device. To collaborate closely with software developers, the hardware developer contributed to the overall system architecture, ensuring compatibility and reliability. Additionally, they conducted rigorous testing to validate the functionality and performance of the hardware components. Their attention to detail and problem-solving skills were instrumental in overcoming technical challenges and delivering a high-quality, functional device for water quality assessment.

#### 6.4.3.2 Software Developer

The software developer held a pivotal role within the team, spearheading the development of the digital components of the project. Their expertise lies in coding, debugging, and optimizing software functionalities to ensure seamless operation and user interaction. To collaborate closely with the hardware developer, they ensured the integration of software and hardware components, maintaining compatibility and functionality. They also contributed to designing and implementing the web application interface, leveraging programming languages such as HTML, CSS, and JavaScript. Through rigorous testing and debugging processes, the software developer guaranteed the reliability and efficiency of the system, enhancing its overall performance and user experience.



#### 6.4.3.3 Writer

The writer was pivotal in the team and was responsible for meticulous documentation of every phase, update, and action throughout the project development. To collaborate closely with the lead and front-end developers, the writer facilitated discussions on challenges and resource-related issues. This role ensured comprehensive and accurate documentation, providing valuable support for the project progress and serving as a critical reference for future stages.

This chapter provides a comprehensive overview of the project management strategies for the HydroSense system. It identified key user groups, including public organizations and consumers, and detailed the benefits they gained from using the application. The feasibility assessment highlighted marketing efforts, cost-effective production, and technical considerations for successful deployment. Time management was crucial in meeting milestones and ensuring efficient task allocation. Communication and coordination tools, such as Microsoft Teams and Google Drive, enhanced team collaboration. Clear role definitions for hardware, software, and documentation contributors ensured seamless integration and quality assurance. Overall, strategic planning and execution enabled the successful development of a reliable water quality assessment solution. The project was completed within the defined timeline, adhering to the budget and quality standards. This success reflects the teams effective coordination and commitment to delivering a high-quality product.