FEU INSTITUTE OF TECHNOLOGY

COLLEGE OF COMPUTER STUDIES

IT0043L
(Web Design with Client Side Scripting)

PROJECT PROPOSAL

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1. Project Title

"PubliToilet: Public Toilet Finder and Report System"

The name was formed from the combination of the words "Public" and "Toilet", prompting the clear main purpose of the website which helps users to easily find public restrooms. The project title mainly speaks directly to its mission of improving access to safe, clean and inclusive sanitation facilities for everyone. The title was chosen for its simplicity and familiarity, leaving easy recognition for the real and daily need for proper restrooms in the community. By combining such two words, it ideally connects users to the idea of shared responsibility in their communities that also symbolizes the shift towards modern solutions bridging technology with basic human needs. Public Toilet supports a broader call to initiate in practicing and promoting hygiene, protecting public health and strengthening initiative toward achieving Sustainable Development Goal 6 Development Goal 6: Clean Water and Sanitation.

2. Executive Summary

A web-based application aligned to promote the goals of Sustainable Development Goal 6: Clean water and Sanitation. The project addresses the growing need for clean, accessible and properly maintained public restrooms particularly for individuals with diverse accessibility and inclusivity needs. Providing a user-centered platform that utilizes map integration with filtering options and real-time reporting system. The project's main purpose is to help individuals, communities and Local Government Unit (LGU) in locating nearby public restrooms, evaluate the condition and submit maintenance reports when necessary. Through features such as water and facility cleanliness ratings, maintenance alerts and accessibility filters for the instances that require persons with disabilities access and gender-inclusive facilities that encourages a culture of shared responsibility for public hygiene.

In addition to providing practical features, the platform also supports public health education raising the awareness of the importance of sanitation, responsible water management and hygiene. With educational materials within the system emphasizing the significance of clean water and sanitation for sustainable development and protecting public health. The expected to improve access to clean and safe public toilets, provide a faster response to maintenance issues that encourage the community to participate in sanitation management. Effectively promotes recognizing the inclusivity that all users need, and provides solutions for promoting Sustainable Development Goal 6 corresponding to clean water and sanitation in building more sustainable communities. This project is expected to be efficiently and effectively useful and usable to its target users, while recognizing the skills of learners' empathy to achieve such outcomes.

3. Background and Problem Statement

According to the World Health Organization (2023), globally there are over 1.5 billion people that lack the access to sanitation services, 419 million people who are practicing unhygienic defecation in open areas leading to the spread of related diseases. The United Nations also addresses that 2 billion people globally do not have access to clean water similarity with 3.6 billion individuals that lack the access to safely managed sanitation services. These highlights the urgent need of efforts in promoting proper sanitation and preserving clean water around the world. The Sustainable Development Goal (SDG 6- Clean Water and Sanitation) is one of the 17 global goals that was established by the United Nations as part of the 2030 Agenda for sustainable development that addresses and ensures the availability of sustainable management of water and sanitation for every individual. Despite existing ongoing effort, the Philippines is still dealing with significant challenges in acquiring the goal of SDG 6 targets. Water org (2022) addresses that only 48% of the population had the access to safely managed water services and 63% had the cases to safe sanitation services, revealing the count of population that lacks reliable access to clean water and sanitation facilities. Including the 323 municipalities in the country that continue to deal with the lack of sustainable access to safe water, hygiene services and sanitation. Addressing these issues that require solutions, a website could play a role in improving the access to clean and safe sanitation across communities.

PubliToilet: Public Toilet Finder and Report System a valuable web application that provides an easy and efficient solution for the ongoing issues within the access of clean and safe public restrooms. A platform idea that was based on experience with a goal to allow diverse users to locate nearby restrooms, opportunity to rate their cleanliness and report maintenance issues directly to local government units. Promoting the inclusivity by allowing individuals to be involved in acquiring accessible sanitary facilities. This website not only improves public health in relation to sanitation management but also to raise the awareness of the importance of advancing initiatives and effort toward achieving SDG 6: Clean Water and Sanitation . Through this initiative aligned with the necessary contribution of every individual to building healthier and more sustainable communities.

Statement of the Problem

1. The lack of safe, clean and accessible public toilets that affects public health and inclusivity among travelers and persons with disabilities.
2. The lack of response from LGUs causes management and maintenance issues in public toilets.

4. Project Objectives

The objective of this project aligned both with the functionality of the website and the goal of contributing to the achievement of Sustainable Development Goal 6: Clean water and Sanitation. These objectives includes:

1. Enable users to easily access, locate and pin nearby well-maintained public toilets.
2. Offers features that allows users to filter maps for toilets based on cleanliness and accessibility, ensuring that diverse groups, including people with disability utilize suitable facilities.
3. Provide an efficient platform for users to report maintenance issues directly towards Local government units.
4. Engage the community by allowing them to actively initiate in the management of clean water and sanitation goals and rate restroom facilities through ratings, reports and feedbacks.
5. Promote the awareness of the importance of hygiene and sanitation, contributing to the better public health and align with SDG 6: Clean Water and Sanitation.

5. Scope of the Project

● In-scope features and functionalities.

Web Application Module	Module Features	List of Pages
Map Display	Shows public toilet locations based on the user's current location	Map Page
Search and Filter	Search toilets and filter by accessibility, cleanliness, gender-neutral, PWD-friendly	Map Page, Filter Section
Review and Ratings	Users can leave a rating and review for a specific toilet	Review Page
Report Issue	Allows users to submit a maintenance issue report to LGUs	Report Issue Form Page
Educational Materials	Provides public health education regarding sanitation and hygiene	Educational Page
Admin Dashboard	Admin (LGUs) can view reports, manage toilet entries, respond to maintenance issues	Admin Dashboard Page

- Out-of-scope items (to manage expectations).

Web Application Module	Module Features	List of Pages
Offline Mode	Using the app without internet connection (excluded due to live data/map needs)	None
Private Restrooms	Showing private toilets from malls, cafes, and restaurants	None

6. Target Users / Audience

Users	User Persona	Web Application Module (Assigned)
General Public	Daily commuters, Tourists, Etc.	Map Display, Search Filters
Persons with Disabilities	User needing wheelchair-accessible, PWD friendly restrooms	Search and Filter Accessibility Features
Gender Diverse Individuals	Users needing access to gender-neutral or inclusive toilets	Search and Filter for Gender-Neutral Toilets
LGU Officers	LGU admins responsible for maintaining public toilets	Admin Dashboard Management
Health Advocates	Users promoting sanitation, hygiene, and sustainability awareness	Educational Materials Section

7. System Features and Functional Requirements

Functional Requirements	Description	User Story	Evidence (List of Pages)
Map and Location Services	Display nearby toilets, including MRT and LRT station	"Sometimes when I'm commuting to work and get stuck in	Map Page

	restrooms	traffic. It's really hard to find a public restroom. I want to quickly see where the nearest toilet is."	
Search and Filter Options	Search toilets and filter by accessibility features, and cleanliness	"I usually travel with my grandmother who uses a wheelchair. I want to easily find a clean and wheelchair-accessible restroom nearby."	Search and Filters Section
Review and Rating System	Submit ratings and feedback on toilets' cleanliness and accessibility	"Sometimes the toilets are clean, sometimes they're not. I want to leave a review to help others know which ones are good."	Review Page
Report Maintenance Issues	Report dirty or broken toilets to the LGUs	"There are times when the public toilets have no water or are clogged. I want to immediately report it so the city government can fix it right away."	Report Issue Form
Admin Management Panel	View reports, update public toilet information and manage maintenance actions	"As an LGU officer, I need to monitor toilet reports and updates so we can respond faster and maintain public facilities properly."	Admin Dashboard

8. Technology Stack

Stack	Use Description	Web Application Module
● Frontend (ReactJS)	A JavaScript library to use for a quick and interactive user interface to see the map showing public toilets, toilet report form for submission, and the login/signup page	Homepage, Report page, and User dashboard
● Backend (Node.js + Express.js)	Node.js and Express.js work together to control the process of sending toilet information, saving user reports, and managing user accounts	API routes for reports, Authentication system, and Admin updates
● Database (MongoDB Atlas)	Data such as users information, toilet locations, and reports are safely stored online and organized (secured in cloud)	Toilet Database, Review Records, and Maintenance Report Records
● Tools (Git + GitHub)	For project code management, track its changes, and teammate collaboration	Source code repository and Collaboration
● Mapping Service (Google Maps API)	A real-time map to locate and show public toilets visually to users	Map Display on Homepage

9. System Architecture and Design

Architecture	
User Device	Mobile Device / Desktop Device
Web Server	Node.js and Express.js (Javascript)
Cloud Database	MongoDB Atlas
Database Schema	
User Data	Name, Email, and Current Location

Public Toilet	Location and Condition
Reports	User, Toilet condition, and Timestamp
Reviews	Ratings from users

10. Development Timeline / Project Milestones

Activity	1	2	3	4	5	6	7	8	9	10	11	12	13
Planning	04/26/2025												
Creation of proposal	04/26/2025												
Wireframing													
Design													
Coding													
Usability Testing													
Deployment													
Post-launch and maintainance													

11. Team Roles and Responsibilities

Role	Responsibilities	Name
Web Project Leader	- Manage the project budget - Manage team members - Project monitoring - Managing project scope - Risk management - Ensuring project	Criscana Cadag

	quality	
Web Developer (Front-End Developer)	- Converts UI mockups into functional HTML, CSS, and JavaScript code. -	Elisha Joyce Cancino
Web Developer (Back-End Developer)	- Performance optimization - Creation of website architecture - Debug and troubleshoot the application	Angel Clarise Tolentino
UI/UX Designer	- Wireframing - Usability testing - Visual design - Interaction Design (IxD) - Ensuring visual Consistency - Creating mock-ups	John Henrich Doroteo
QA tester	- Test cases execution - Test Planning - Test strategy	John Henrich Doroteo

12. Budget and Resources (Optional)

Item	Unit	Quantity	Sub-total
Web Hosting (RENDER)	Php0.00 (starter plan)	1	Php0.00 (starter plan)
Domain Name (.com or .ph)	Php855.00 per year	1	Php855.00
Google Maps API (free unless heavy use)	Php0.00 (to start)	1	Php0.00
Database (MongoDB Atlas Free Tier)	Php0.00	1	Php0.00

13. Risk Management

Assumption	Risk	Mitigation (Activity)
Users location sharing is accurate	Hard to find nearby toilets because of some users may block GPS/location permissions	Additional feature "manual location search" that will let the users type their barangay or street name
LGUs quick response to toilet reports	LGUs might not response or a delay of action on reports	Updating by sending automated monthly reports with summary data to LGUs
Stability with internet connection	Loss of connection in submitting reports	Allow to save the report locally, resubmission, and auto submission
Google Maps API usage remains free	Additional API costs due to heavy traffic or map loads	Monitor Google Maps usage and set usage alerts
No spam reports	Fake or prank reports	Requiring users to submit a photo as proof of evidence

14. Evaluation and Success Criteria

Usability testing is a great way to measure how successful a web application, while also keeping track of its uptime. During usability testing, the main focus is on gathering performance metrics and user feedback to find areas for improvement. This can be done either through face-to-face interviews or by using survey forms. These methods help developers see how effective, efficient, and successful the system is. Nonetheless, using monitoring tools can also give essential insights into the web application's overall performance by tracking error rates, response times, availability, and stability.

15. Appendices / Supporting Documents

- Wireframes, mockups, flowcharts, references.

References:

United Nations. (n.d.). *Goal 6: Ensure availability and sustainable management of water and sanitation for all*. United Nations.
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https://www.who.int/news-room/fact-sheets/detail/sanitation