DTIL PROJECT REPORT
ON

Rain Water Harvesting System

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(F.Y.BTech CSE(Cyber Security))

Guide

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CERTIFICATE

This is to certify that

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(F.Y. BTech Computer(Cyber Security))

Have successfully completed their DTIL project report on

Rain Water Harvesting System

Towards the partial fulfillment of Bachelor's Degree

In Computer Science Engineering

During the academic year 2024-25

Prof. Pravin Chakokkar **Dr. Ajit Muzumdar**

Acknowledgement

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Report

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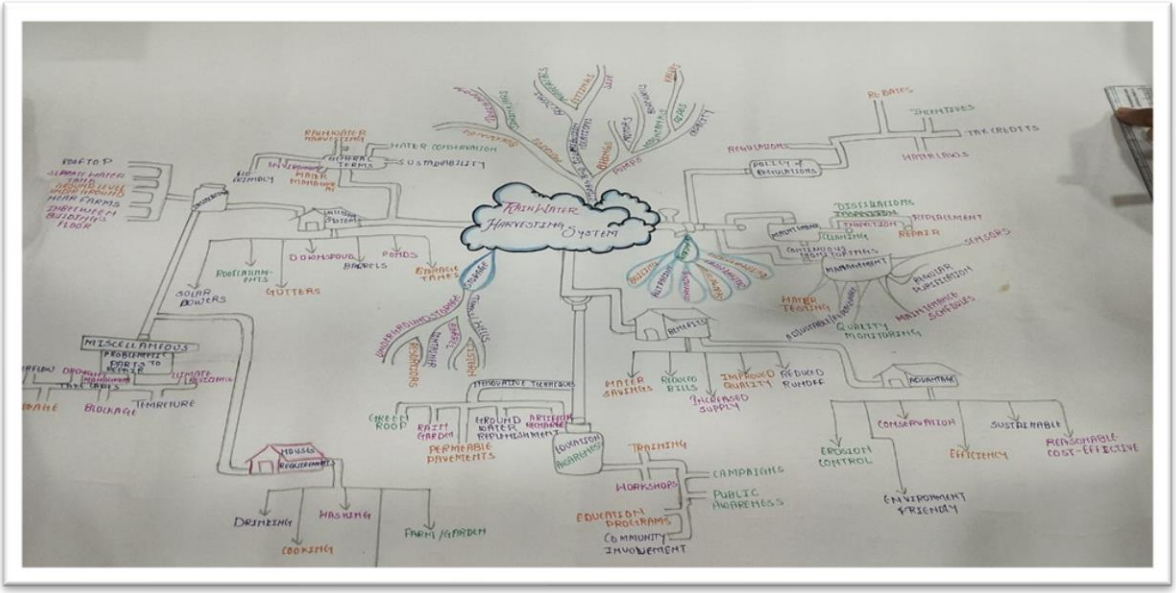
SDG TOPIC SELECTION

For our project, we were tasked with choosing a topic from the Sustainable Development Goals (SDGs), which included areas like mobility systems, maternity care, and reducing poverty through skilling. Our team chose to focus on the topic of Rainwater Harvesting Systems. This decision aligns with our goal to address environmental sustainability while ensuring efficient water management for communities in need.

Mindmap

Our next task was to create a mind map based on our topic. A mind map is a visual tool with a central idea at the center, and subtopics branching out from it to explore different aspects of the topic. For our project, the central idea was Rainwater_Harvesting_Systems.



5W1H

The 5W's and 1H activity involves asking questions like What?, Who?, Why?, Where?, When?, and How? We framed five questions for each type and researched their answers about rainwater harvesting. This helped us understand its impact, benefits, and how it can be effectively implemented.

WHY	WHY USER SHOULD USE THIS RWH SYSTEM
	WHY THERE IS NO FILTRATION IN CURRENT SYSTEM
WHAT	WHAT ARE THE DRAWBACKS
	WHAT WILL HAPPEN IF THERE IS NO RAIN
WHEN	WHEN DOES TANK SHOULD BE CLEANED
WHERE	WHERE DOES WATER GET CONTAMINATED
	WHERE DOES CURRENT SYSTEM FAILS
WHO	WHO IS RESPONSIBLE FOR REGULAR MAINTENANCE
HOW	HOW TO TRACK QUALITY & QUANTITY OF WATER
	HOW TO RESOLVE ANY QUERY ABOUT SYSTEM
	HOW TO INSTALL A PROPER SYSTEM

Theory of Prioritization

In this activity, we identified various problems faced during the project's implementation and ranked them based on their importance, using weights like 10gm, 100gm, and 1000gm. This process helped us prioritize the issues and gain a clearer understanding of the key problem to focus on for finding a solution.

WHY USER SHOULD USE THIS RWH SYSTEM					
100	10	100	10	100	320
WHY THERE IS NO FILTRATION IN CURRENT SYSTEM					
1000	1000	1000	100	10	3110
WHAT ARE THE DRAWBACKS					
100	100	10	100	10	320
WHAT WILL HAPPEN IF THERE IS NO RAIN					
1000	100	10	1000	100	1310
WHERE DOES WATER GET CONTAMINATED					
1000	1000	1000	1000	100	4100
WHEN DOES TANK SHOULD BE CLEANED					
1000	100	1000	1000	1000	4100
WHERE DOES CURRENT SYSTEM FAILS					
1000	1000	100	100	10	2210
WHO IS RESPONSIBLE FOR REGULAR MAINTANANCE					
1000	1000	1000	1000	1000	5000
HOW TO TRACK QUALITY & QUANTITY OF WATER					
100	1000	1000	100	100	2300
HOW TO RESOLVE ANY QUERY ABOUT SYSTEM					
1000	1000	1000	1000	1000	5000
HOW TO INSTALL A PROPER SYSTEM					
100	1000	1000	100	1000	3200

Problem Statement

From the Theory of Prioritization, we framed our problem statement as: "Water shortages in Maharashtra are caused by inefficient rainwater harvesting systems and poor management, despite adequate rainfall." This helped us clearly define the problem and focus on finding an effective solution.

SCAMPER Activity:

Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, Reverse.

Combine:

We will use Solar-powered filtration system for drinking or irrigation.

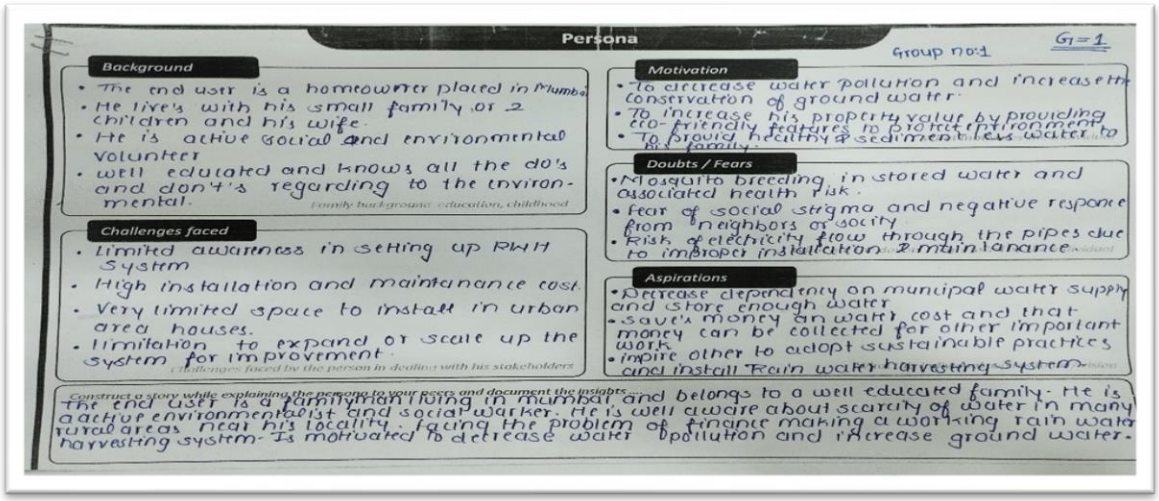
Modify:

We will include sensors and smart technology that monitor water levels and usage, like the design.

End-User Persona

The end user is an active social environmentalist living in Mumbai. Despite

being well-educated and passionate about sustainability, they face challenges such as limited awareness about rainwater harvesting systems, high installation and maintenance costs, and very limited space to install such systems in urban homes. Additionally, there is a lack of collective interest and cooperation among community members to adopt these solutions. This activity helped us to understand our end user well, to recognize the challenges and issues they face in the context of rainwater harvesting systems.



Journey Map

The journey map helped us understand the user experience when using our app. The Y-axis represented the user's confidence level, while the X-axis showed the different stages of using the model. We created one journey map, which allowed us to identify key points and areas for improvement in the model.

EVENT 1	The user explores the app to learn about the rainwater harvesting system and places an order.
EVENT 2	The user receives an order confirmation, including delivery details and estimated installation date.
EVENT 3	The user tracks the status of delivery and schedules the installation through the app.
EVENT 4	The system is installed, and the app provides a walkthrough to set up monitoring features.
EVENT 5	The user configures the app to monitor water levels, usage patterns, and system performance.
EVENT 6	The app sends alerts for maintenance needs and provides system performance updates.
EVENT 7	The app generates monthly reports on water savings and environmental impact, along with personalized tips for improvement.

Model Prototype or Design

Working of the model

a. User installs app from the playstore.
b. User registers themselves on the app
c. He login into the app
d. He visits the new system page for buying a new system & some additional componants
e. He uses the app for real time monitoring , maintenance and to resolve their doubts and queries about the system .

Discussion on the usability of the model

a. Strengths:

- Accessibility through mobile app format.
- Easy integration of advanced rainwater harvesting technology.
- Scalability to different urban and rural settings.

b. **Challenges:**

- Ensuring internet access in remote or underserved areas.

Overcoming installation and maintenance costs for low-income

Conclusion

The "HYDRO_HELPERS" app offers advanced rainwater harvesting systems, along with maintenance and monitoring tools to optimize water usage. It empowers users to manage water efficiently, especially in urban and

underserved areas, while promoting inclusivity through strategic partnerships. and user-focused designs.