

Thermax Minimize reject during water purification

A PROJECT REPORT

Submitted by,

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Under the guidance of,

Mr. JOHN BENNET JOHNSON

in partial fulfillment for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

**COMPUTER SCIENCE AND ENGINEERING, COMPUTER ENGINEERING,
INFORMATION SCIENCE AND ENGINEERING Etc.**

At



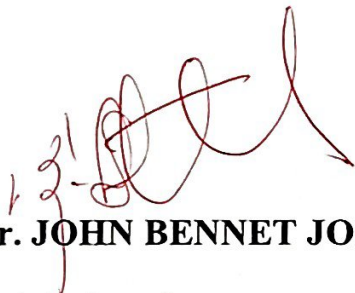
PRESIDENCY UNIVERSITY

BENGALURU

DECEMBER 2024

PRESIDENCY UNIVERSITY
SCHOOL OF COMPUTER SCIENCE ENGINEERING
BONAFIDE CERTIFICATE

This is to certify that the Project report “**Thermax Minimize reject during water purification**” being submitted by “Asif Pasha. B, Ismail Ahmed Khan, Mohamed Azeem Fardeen Pasha, Aftab Hussain, Beldona Visweswara” Bearing roll number(s)“20211CAI0030,20211CAI0106,20211CAI0059,20211CAI0130, 20211CAI0176” in partial fulfillment of the requirement for the award of the degree of Bachelor of Technology, is a bonafede work carried out under my supervision.



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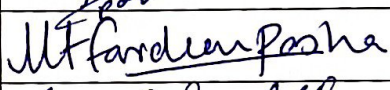
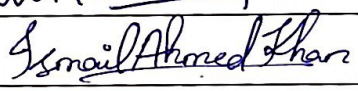


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SCHOOL OF COMPUTER SCIENCE ENGINEERING
DECLARATION

We hereby declare that the work, which is being presented in the project report entitled **Thermax Minimize reject during water purification** in partial fulfillment for the award of Degree of **Bachelor of Technology** is a record of our own investigations carried under the guidance of Mr. **John Bennet Johson**, School of Computer Science and Engineering, Presidency University, Bengaluru.

We have not submitted the matter presented in this report anywhere for the award of any other Degree.

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ABSTRACT

Water purification is a critical process to ensure safe and sustainable water for human consumption, industrial applications, and environmental conservation. However, a common challenge in water treatment facilities is the generation of significant volumes of reject water—wastewater that remains after purification. This reject water not only represents a loss of valuable resources but also poses environmental risks due to its high concentration of contaminants. The need to minimize reject water has become increasingly vital in addressing global water scarcity and reducing operational costs in treatment plants.

This report investigates strategies to reduce reject water during purification by analyzing existing methods, identifying gaps, and proposing an optimized methodology. By focusing on operational adjustments, advanced filtration technologies, and recycling mechanisms, this study outlines approaches to significantly reduce waste while maintaining water quality standards. Results from case studies and simulations suggest that proper parameter tuning, such as optimizing pressure, flow rates, and chemical dosing, combined with innovative solutions like energy-efficient membranes and hybrid systems, can lead to a 30-50% reduction in reject water. These measures enhance the efficiency of water treatment processes, reduce environmental impact, and improve cost-effectiveness. This report contributes to sustainable water management practices, emphasizing the importance of balancing resource conservation with technological innovation.

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PIP2001 Capstone Project Submission check list

SL. No	ITEM	Give Completion Status as Yes / No. If No - Mention the problem you have.
1	Are the contents in the report arranged in the specified sequence?	Yes ✓
2	Are the page dimensions and binding specifications followed?	Yes ✓
3	Are the typing instructions followed as given?	Yes ✓
4	Proof of publications/Conference Paper Presented /Certificates of all students enclosed?	Yes ✓
5	Include certificate(s) of any Achievement/Award won in any project-related event enclosed if any	Yes ✓
6	Similarity Index / Plagiarism Check report clearly showing the Percentage (%) - first page enclosed?	Yes ✓
7	Details of mapping the project with the Sustainable Development Goals (SDGs) enclosed?	Yes ✓
8	Are the Documents uploaded by students in GITHUB and Drive Shared 1. Complete Code (with all the supporting files). 2. Signed Final Report PDF. 3. Final Review PPT.	Yes ✓

Guide Name: Mr. John Bennet Johnson

Guide Signature:



Course Code: PIP2001

PIP2001

Course Name: Capstone project

CAPSTONE PROJECT

Semester: 7th

7

Reporting HoD Name: Dr. Zafar Ali Khan.

Date:

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School of Computer Science and Engineering
PIP2001-Capstone Project Check list

SUBMISSION CHECK LIST		
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1	Are the contents arranged in the specified sequence? 1.Cover & Title Page 2.Certificate 3.Declaration 4.Abstract 5.Acknowledgement 4.List of Tables, Figures & Table of Contents 5.Chapters (Introduction, Literature review, Research Gaps of Existing Methods, Proposed Methodology, Objectives, System Design & Implementation, Timeline for execution of Project, Results & Discussions, Conclusion, References) 6.Appendices A, B & C.	Yes
2	Are the page dimensions and binding specifications followed ? •The dimension of the report should be in A4 size. •The project report should be hard bound using a flexible cover of the thick art paper. •Outer Binding should be of CREAM (#FFFDD0) color. •ONE copy of the report (hard copy only) should be submitted to the School. •ONE copy of the report (hard copy only) should be submitted to the Supervisor. •Each student in the batch should have one copy.	Yes
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Group No: CEI-13

Program: B.tech

Title: Mobile Camera Application to Monitor Residential Society Vehicle Activity

Team Leader Name:K Srujan Kumar

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