G H Raisoni Institute of Engineering and Technology, Nagpur

(Formerly Known as G H Raisoni Academy of Engineering & Technology)
(An Autonomous Institute)

Department of Mechanical Engineering

Acknowledgement

We are extremely thankful to our guide **Prof. Nilesh C. Kanojiya** under whom our project took the shape of reality from mere idea. We are thankful to our guide for enlightening us with his precious guidance and constant encouragement. We thank our guide for providing us with ample support and valuable time. We are indebted to our guide who constantly provided a stimulus to reach our goals.

We are grateful to **Prof. Tejpal Parshiwanikar**, HOD, Mechanical Engineering, GHRIET, for kind co-operation and timely help.

We express our gratitude towards **Dr. Swati Dixit**, Dean Academics, GHRIET, for her neverending support, planning and motivation.

We are blessed to have **Dr. Vivek Kapur**, our beloved Director Sir as our mentor who is an immense source of motivation and encouragement.

Lastly, we would like to thank all those who were directly or indirectly related to our project and extended their support to make the project successful.

Name of the Projectees

- 1. Mr. Kaushik C. Kirpade
- 2. Mr. Saiprasad I. Shellikeri
- 3. Mr. Sahil D. Kolhe
- 4. Mr. Yash D. Meshram
- 5. Ms. Rohini Gutte

INDEX

CHAPTER	TITLE NAME	PAGE
NO.		NO.
	List of Figures	I-III
	List of Tables	IV-V
	List of symbols & Abbreviations	VI-VII
	Abstract	VIII
1	INTRODUCTION	1
	1. Overview	2
	1.1 General parameters affecting the performance of solar stills	3
	1.2 Comparison between Active and Passive Methods	4
	1.3 Comparison between Pyramid Triangular and Tubular Solar still	5
	1.4 Problem Statement	5-6
	1.5 Thesis Objectives	7
	1.6 Thesis Contributions	7
2	LITERATURE SURVEY & REVIEW	8
	2.1 Review Of Literature	9-11
	2.2 Patent Search	12-13
3	METHODOLOGY AND EXPERIMENTATION WORKDONE	14
	3. Methodology and Experimentation	15
	3.1 Components & Equipment's used in Project	16
	3.2 Case-I - Without Absorbing Material	17
	3.3 Case-II - Iron Rod	18
	3.4 Case III – Limestone	19
	3.5 Case IV - Black Paint	20
	3.6 Case V - Tiles	21
	3.7 Case VI - Sand	22
	3.8 Case VII – River Stone	23
	3.9 Circuit Diagram	24
	3.10 Work Plan	25
4	DESIGN & CALCULATION	26
	4. Design & Calculation	27
	4.1 Design of Experimental Setup	27
	4.2 Efficiency of Solar Heater	27
	4.3 Readings & Tabulations	28
	4.4 Observation and Calculation of Winter Session	29-35
	4.5 Winter Daily Efficiency for 5cm Water Depth-Daily Efficiency of	36
	still without absorbing material	
	4.6 Winter Daily Efficiency of Passive Still for 5 cm Water Depth	37
	4.7 Winter Daily Efficiency for 2cm Water Depth-Daily Efficiency of	45
	still without absorbing material	
	4.8 Winter Daily Efficiency of Passive Still for 2cm Water Depth	46
	4.9 Observation and Calculation of Summer Session	47-53
	4.10 Daily Efficiency of still without absorbing material with 5cm	54
	water depth	
	4.11 Summer Daily Efficiency of Passive Still for 5cm Water Depth.	55

CHAPTER NO.	TITLE NAME	PAGE NO.
	4.12 Daily Efficiency of still without absorbing material with 2cm water depth	63
	4.13 Summer Daily Efficiency of Passive Still for 2cm Water Depth.	64-65
5	RESULTS AND DISCUSSION	66
	5.1 Result and Discussion on Graphs	67-94
	5.2 Explanation of Showing Result in Graphs	95-99
	5.3 Limitation	100
6	CONCLUSIONS	101
	6.1 Conclusion	102
	6.2 Cost Analysis	103
7	LITERATURE CITED	104
	7.1 Literature Cited	105
8	REFERENCES	106
	8.1 References	107-109
	List of Publications	110-115
	List of Participation	116-120
	Author's Note	121
	Photo of Projectees along with the Guide and Project	122