[WATER HEATER WITH TEMPERATURE DISPLAY]

A report submitted in partial fulfillment of the Academic requirements for the award of the degree of

Bachelor of Technology

Submitted by

M YOSHITH GOUD (21H51A0543)

OJAS GARPALLIWAR (21H51A0544)

NITIN GOJE (21H51A0438)

Y SAHITHI (21H51A0452)

UNDER THE COURSE

INTRODUCTION TO SOCIAL INNOVATION

CENTRE FOR ENGINEERING EDUCATION RESEARCH

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)
(NAAC Accredited with 'A+' Grade & NBA Accredited)
(Approved by AICTE, Permanently Affiliated to JNTU Hyderabad)
KANDLAKOYA, MEDCHAL ROAD, HYDERABAD-501401

2021-22

CENTRE FOR ENGINEERING EDUCATION RESEARCH

CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous)
(NAAC Accredited with 'A+' Grade & NBA Accredited)
(Approved by AICTE, Permanently Affiliated to JNTU Hyderabad)
KANDLAKOYA, MEDCHAL ROAD, HYDERABAD-501401

CERTIFICATE

This is to certify that the report entitled **"WATER HEATER WITH TEMPERATURE DISPLAY"** is a bonafide work done by **M YOSHITH GOUD (21H51A0543), OJAS GARPALLIWAR (21H51A0544), NITIN GOJE (21H51A0438), Y. SAHITHI (21H51A0452)** of I B.Tech, in partial fulfillment of the requirements for the award of the degree of Bachelor of Technology, submitted to Centre for Engineering Education Research, CMR College of Engineering & Technology, Hyderabad during the Academic Year 2021-22.

(Names of the Project Coordinators)
1.P. MAHESH BABU Asst. Professor, MECH/CEER
2. K. RAJU Asst. Professor, ECE/CEER
3. B. SIREESHA Asst. Professor, CSE/CEER

(Dr. A. KOTISHWAR)
HEAD(CEER)

DECLARATION

We, the students of I B. Tech of Centre for Engineering Education Research, **CMR COLLEGE OF ENGINEERING & TECHNOLOGY**, Kandlakoya, Hyderabad, hereby declare, that under the supervision of our course coordinators, we have independently carried out the project titled "**WATER HEATER WITH TEMPERATURE DISPLAY**" and submitted the report in partial fulfillment of the requirement for the award of Bachelor of Technology in by the Jawaharlal Nehru Technological University, Hyderabad (JNTUH) during the academic year 2021-2022.

Name	**Roll Number**	**Signature of the students**
M.YOSHITH GOUD	(21H51A0543)	
OJAS GARPALLIWAR	(21H51A0544)	
NITIN GOJE	(21H51A0438)	
Y. SAHITHI	(21H51A0452)	

ACKNOWLEDGEMENT

We are obliged and grateful to thank **Dr. A. KOTISHWAR**, Head (CEER), CMRCET, for his cooperation in all respects during the course.

We would like to thank the Principal of CMRCET, **Dr.V.A. NARAYANA**, for his support in the course of this project work.

We would like to thank my Project coordinators **Mr. P. MAHESH BABU** Asst. Professor, MECH/CEER, **Mr. K. RAJU** Asst. professor, ECE/CEER and **Mrs. B. SIREESHA** Asst. professor CSE/CEER for his/her guidance to complete my project work.

Finally, we thank all our faculty members and Lab Assistants for their valuable support.

We own all our success to our beloved parents, whose vision, love and inspiration has made us reach out for these glories.

TABLE OF CONTENTS

LIST OF FIGURES

ABSTRACT

Every year, we observe that there is lot of wastage of electricity due to many reasons. To save the electricity, many solutions had come into existence like using other alternatives that is by using solar energy, hydroelectric energy and many more. So in order to save the electricity a little bit, we came up with our project “Heater with temperature display”.

Generally we can save electricity by solar water heater in which the heater is running by the solar power and this is one of the remarkable solution in water heaters. This work deals with the designing of a control mechanism based on the sensed temperatures, along with the water flow rates from the two systems, primary (hot water source) and secondary (cold water source), which are continuously monitored. This mechanism proposes a solution to the problem of obtaining warm water at a desired temperature and fulfilling the temperature specific activities as it estimates the amount of cold water to be supplied from the secondary source.

The only drawback in the solar water heater is efficiency, it is not that efficient as the electricity. The main problem in the water heater is not knowing the accurate temperature of water, so our team has built a project based on all this points that is “Heater with temperature display”. In which, by the help of thermostat we can find the accurate temperature of the water by which we switch off the heater by time so that we can save a lot of power, as it is run on the electricity even the efficiency is high while using it.

CHAPTER 1

INTRODUCTION

There are many solutions made by using the technology, but we thought something which should be according to the development so we want to implement our ideas which we are leant by our professors in the collage As we have said that we have an idea on heating water using water heater with thermostat, as we can see in our daily life, most of us use hot water for bathing which is done by using geyser, heater etc….. to heat the water and in that the most used material is heater. Water heater is one of the best things to heat the water, but the only defect in the water heater is it doesn't display exact temperature of the water, this is the only drawback in the water heater. All our team members had decided to do a project, that is water Heater with Thermostat, by which we can get the accurate temperature of the water.

1.1 Community visit report

Community Visited Place: YELLAMPET

Date Of The Visit: 04-01-2022

Description about the visit:

The place we visited was Yellampet which is about 10km from our college. Yellampet is a rural area which is located in medchal. As the youth of that village were not in their houses the most of the people we interacted with were old age people. We even interacted with the middle age people but just two or three. When we asked about their problems most of them were having no problems. After exploring the village, we got to know few problems of the people of that village which are listed below.

People we interacted with: farmers, workers, employees, students and teachers of government school, sarpanch of the village etc.

Photos of the visit:

Fig 1.1: Community visit photos

1.2 PROBLEMS IDENTIFIED:

1. Water heaters with display.
2. Detection of animals entering into the field.
3. Polluted Water
4. Overflow of dustbins.
5. Automatic plant watering system using sensor.
6. Ultrasonic sensors for blind people.
7. Sensor while using laptops.
8. Fingerprint door locking system.

1.3 Root cause of the problem

In winters the weather is so cool. For Taking bath we need hot water. When we are using water heaters, there is no detection of temperatures. Then what will happen, if we forget to turn off the water heater, the water will get over heated which will lead to usage of more electricity. And also for the water which we wanted to use becomes more hot and we may accidentally get our skin burn because of that temperature. Which is leading to wastage of power.

CHAPTER 2

LITERATURE REVIEW

Our team visited the community YELLAMPET, a rural area which is located in medchal. After that we met many people in that community and discussed about their problems. As it is a rural area there is no much development, Finally we observed that there is so much of wastage of electricity and water heater is also one of them which cause wastage of electricity. Water heater is one of the thing which is causing wastage of power and the solution for this is to know the accurate temperature of the water this can be done by using thermostat so that it displays the temperature by which we can reduce the wastage of power by switching it off at correct time.

Existing solutions

1. We can check the temperature of water by just looking at the water it is like if we can see the vapors coming from the water we can know that the water is boiled but it is not accurate.

Fig 2.1: Heating Water

2. We can also check the waters temperature by a thermometer, but it is dangerous because we may burn our hand in the process.

Fig 2.2: Checking water temperature using thermometer

3. We can also know the temperature of the water by putting our hand in the water, but if the water is too much boiled then our hands may burn.

Fig 2.3: Checking temperature of water using hand

CHAPTER 3

METHODOLOGY

"Heater with temperature display" is a simple and very innovative project in which we can control the temperature and we can also set the required temperature. When we put the heater in the water it heats the water and simultaneously it display the temperature of the water at each and every point, so that we can know the temperature of water at each and every moment. when it reached to our required temperature, we can switch off the power supply and we also have the option to set temperature to required level so when reached that temperature the power supply will cut off automatically and LED also will be put off. This indicates that water had reached the required temperature and we don't need to check it every time. So that it saves the electricity and time. We can minimize or maximize the temperature using the powerful digital thermostat. We can save a lot of electricity by using this kind of heaters and very useful. The thermostat heater which is proposed by our team, is not only used to heat water but also for heating different types of liquids like oil, chemicals and even to stabilize gas within their tanks. This kind of thermostat heaters are shockproof, so that we will be safe if we touch it unfortunately while in operation. The usage of this appliance, is quite simple and easy, fill up a bucket with water and immerse the digital thermostat heater into it and put the plug in the socket.

3.1 PROBLEM STATEMENT

Actually, this project is built to stop the wastage of electricity and to get the accurate value of temperature of the water with the help of a thermostat.

3.2 OBJECTIVE

1. By using this project, we can reduce a bit wastage of electricity.

2. User friendly.

3. Efficient in working.

4. Affordable by everyone.

3.3 REQUIREMENT ANALYSIS

1. Water Heater

Fig 3.1: water heater

2. Temperature display

Fig 3.2: temperature display

3. Sensor

Fig 3.3: Water temperature sensor

4. Copper Wires

Fig 3.4: copper wires

3.4 BLOCK DIAGRAM

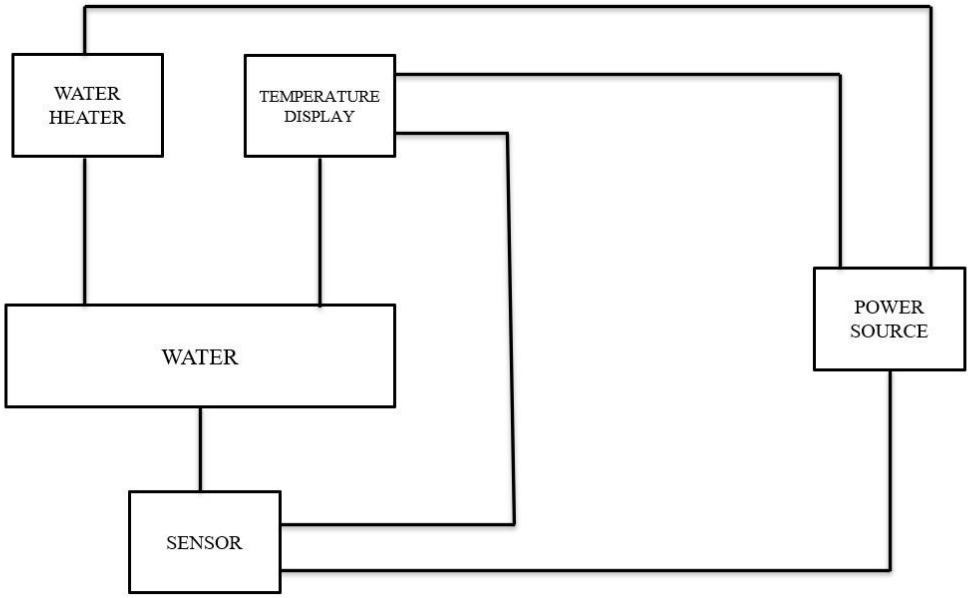

Fig 3.5: Block diagram

3.5 Design description

The thermostat display the temperature of the water at each and every moment the thermostat heaters are designed, such that everyone can afford it, these heater are designed with high quality products like copper heating element and digital thermostat. In terms of safety it stands first because of its shockproof nature. The main elements used in designing this product is a powerful digital thermostat and a pure copper heating element.

Fig 3.6: Product design

CHAPTER 4

RESULTS AND DISCUSSION:

The thermostat display the temperature of the water at each and every moment the thermostat heaters are designed, such that everyone can afford it, these heater are designed with high quality products like copper heating element and digital thermostat. In terms of safety it stands first because of its shockproof nature. The main elements used in designing this product is a powerful digital thermostat and a pure copper heating element.

CHAPTER 5

CONCLUSION

The proposed work has many major advantages, it consumes less energy. In this project we are displaying temperature as well.

This works as follows

1. The heater consists with thermostat and led
2. When water heats at required temperature, thermostat displays the temperature
3. LED will get off at required temperature

REFERENCES

1. Buy Rico Immersion Rod Water Heater | Electric Immersion Shock Proof Rod For Home | 1000 Watts | Portable Heater For Bathroom | Heating Coil For Hot Water Online at Low Prices in India - Amazon.in
2. https://www.electronicscomp.com/w1209-digital-temperature-controller-thermostat-module-india?gclid=Cj0KCQjw_4-SBhCgARIsAAlegrV66KoEk7w8gQqTrO7pt21292vsHYYxQC_-Ycj-PDi5sAEM-RXNvWUaAu7JEALw_wcB
3. DAYTONA Corp. Water-Oil Temperature Sensor - buy cheap ▷ FC-Moto

M YOSHITH GOUD

21H51A0543

OJAS GARPALLIWAR

21H51A0544

NITIN GOJE

21H51A0438

YASKI SAHITHI

21H51A0452

Fig 5.1: Photos of Team Members