

FINAL YEAR PROJECT REPORT  
**SOLAR WATER COOLER USING  
PELTIER EFFECT**



**A PROJECT REPORT**

*Submitted by*

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*in partial fulfillment of the requirements for the award of degree  
of*

**BACHELOR OF SCIENCE  
IN  
ELECTRICAL ENGINEERING**

APPROVED

Project Advisor \_\_\_\_\_ Director Projects \_\_\_\_\_

**DEPARTMENT OF ELECTRICAL ENGINEERING**

**SCHOOL OF ENGINEERING**

**UNIVERSITY OF MANAGEMENT AND TECHNOLOGY**

SEPTEMBER 2014

# ESTIMATED PROJECT TIMELINE

TASK	WEEK																										
	1 1 / 1	1 1 / 8	1 1 / 5	1 1 / 2	1 1 / 9	1 2 / 6	1 2 / 3	1 2 / 0	1 2 / 7	1 / 3	1 / 0	1 / 7	1 / 4	1 / 1	2 / 7	2 / 4	2 / 1	2 / 8	3 / 7	3 / 4	3 / 1	3 / 8	4 / 4	4 / 1	4 / 8	4 / 5	
Decide Topics of Interest																											
Literature Review																											
Decide on Specific Project Idea																											
Decide Project Modules																											
Search of related projects																											
Set up Programming Environment																											
FYP-1 Progress Report																											
Prepare presentation																											
Create Initial Test Data Plan																											
Decide the Prototype to use																											
Decide Project Proceedings																											
Perform Software Simulations																											



9



University of Management & Technology  
 School of Engineering  
 Department of Electrical Engineering  
**Senior Year Project- I Evaluation**

Project ID: 9 Date: 23/04-2014  
 Project Title: Solar Based Water Cooler

Particulars of the Students

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S.No	Topic	Max Marks	Obtained Marks
1	Problem Statement	10	7
2	Objective/Scope	10	6
3	Methodology	10	7
4	Scope of the Project/Utilization	10	6
5	Literature Review/Data collection	10	6
6	Design and Analysis	10	7
7	Expected Output/Outcome/Final Deliverable	10	7
8	Conclusion and Recommendation	10	7
9	FYP-1 Documentation	20	14

$\frac{190}{300} \times 20 = 12.66$

$\frac{14}{67}$

Suggested Changes
<ul style="list-style-type: none"> <li>→ Temp feedback system with 2°C resolution.</li> <li>→ 2-axis tracking control.</li> <li>→ compact integrated solution.</li> </ul>

Name: Dr. Amir Masood Khalid Role: (adviser/member) member Signature: [Signature]

## **Declaration of Originality**

We hereby declare that all the work related to this project is our own. To the best of our knowledge it doesn't comprise of any other's material work published in any article, blog or book or written at any source which have been endured for the award of any other degree in this institution or at any other institution and that this report has been written in our words rather than the quoted and material with citation, which are drawn from the literature and researches.

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M. Farooq-e-Azam                      Signature: \_\_\_\_\_

## **Acknowledgement**

First of all our deepest and utmost thanks to Almighty Allah for providing us power, courage and stamina. Our deepest gratitude to our project advisor Miss. Ayesha Iqbal for her entire guidance and support throughout the project. Without her we could have never done with this project. Our ultimate appreciation to our families for their care, love and supporting us morally and financially. We would also like to thank our friends, batch mates for sharing their knowledge and wishing us, specially our dear friend Mr. Ali Sajjad for his greatness.

## **ABSTRACT**

During the past few decades the demand of alternating energy source has been dramatically increased. The need of this alternating energy is due to increased fatigue in the current renewable energy resources. PV panels are considered to be the best sources to convert the infinite amount of solar energy in to the electricity. Our project comprises of the simulation of the circuits, design, mechanism and construction of the system which comprises of PV panel, controlled by the dual axis tracker whose movement is further controlled by the PIC microcontroller 16F877A. Solar panels followed by the solar trackers accelerate the power efficiency. The mechanism of the solar panel states when the solar light strikes the panel, the photons present in the sun radiations and electrons in a semiconductor materials forms junctions and produces small amount of voltage. Cooling the drinking water via solar energy is a good concept. The cooling section includes two Peltier devices, heat sink, two cooling fans and temperature control sensors which would cut off the voltage supply to the Peltier and cooling stops. The efficiency is improved up to 30% due to dual axis tracker rather than using a static panel.

# TABLE OF CONTENTS

<b>CHAPTER 1: INTRODUCTION.....</b>	<b>14</b>
<b>1.1 PROBLEM STATEMENT.....</b>	<b>15</b>
<b>1.2 OBJECTIVES.....</b>	<b>15</b>
<b>CHAPTER 2: REVIEW OF LITERATURE.....</b>	<b>17</b>
<b>2.1 SOLAR PANEL.....</b>	<b>17</b>
<b>2.1.1 WORKING OF SOLAR PANEL.....</b>	<b>18</b>
<b>2.2 SOLAR TRACKER.....</b>	<b>19</b>
<b>2.2.1 SINGLE AXIS TRACKER.....</b>	<b>19</b>
<b>2.2.2 DUAL AXIS TRACKER.....</b>	<b>20</b>
<b>2.3 GEARED DC MOTOR.....</b>	<b>21</b>
<b>2.3.1 GEAR BOX CONSTRUCTION AND FEATURES.....</b>	<b>22</b>
<b>STANDARD TYPE.....</b>	<b>22</b>
<b>HEAVY LOAD.....</b>	<b>22</b>
<b>PLANETARY GEAR MECHANISM.....</b>	<b>23</b>
<b>2.4 PELTIER.....</b>	<b>23</b>
<b>THERMO-ELECTRIC EFFECT.....</b>	<b>24</b>
<b>SEEBECK EFFECT.....</b>	<b>24</b>
<b>PELTIER EFFECT.....</b>	<b>25</b>
<b>PELTIER THERMO ELEMENT.....</b>	<b>25</b>
<b>CONSTRUCTION OF PELTIER ELEMENT.....</b>	<b>26</b>
<b>CHARACTERISTIC CURVES OF PELTIER.....</b>	<b>27</b>
<b>ADVANTAGES OF THERMO-ELECTRIC COOLING.....</b>	<b>30</b>

<b>2.5 LDR SENSORS.....</b>	<b>31</b>
<b>WORKING OF LDR.....</b>	<b>32</b>
<b>TRACKER USING LDR AS A SENSOR.....</b>	<b>32</b>
<b>2.6 MICROCONTROLLER PIC 16F877A.....</b>	<b>34</b>
<b>2.7 SEPIC REGULATOR.....</b>	<b>37</b>
<b>CHAPTER 3: DESIGN PROCEDURE.....</b>	<b>42</b>
<b>3.1 ELECTRICAL DESIGN DETAILS.....</b>	<b>43</b>
<b>3.2 MECHANICAL DESIGN DETAILS.....</b>	<b>43</b>
<b>CHAPTER 4: PRACTICAL IMPLEMENTATION.....</b>	<b>45</b>
<b>CHAPTER 5: COMPONENT AND COST.....</b>	<b>52</b>
<b>CHAPTER 6: TESTING AND EVALUATION.....</b>	<b>53</b>
<b>CHAPTER 7: RESULTS AND ERROR ANALYSIS.....</b>	<b>54</b>
<b>CHAPTER 8: DIFFICULTIES FACED.....</b>	<b>55</b>
<b>CHAPTER 9: MANUFACTURABILITY, USABILITY AND SUSTAINABILITY.....</b>	<b>56</b>
<b>CHAPTER 10: FUTURE DEVELOPMENT.....</b>	<b>57</b>
<b>CHAPTER 11: SOCIETAL ISSUES.....</b>	<b>58</b>
<b>ETHICAL.....</b>	<b>58</b>
<b>SOCIAL.....</b>	<b>58</b>
<b>ECONOMICAL.....</b>	<b>58</b>
<b>HEALTH AND SAFETY.....</b>	<b>59</b>
<b>ENVIRONMENTAL IMPACT.....</b>	<b>60</b>

<b>CHAPTER 12: CONCLUSION AND RECOMMENDATION.....</b>	<b>61</b>
<b>CHAPTER 13: REFERENCES.....</b>	<b>62</b>
<b>CHAPTER 14: BIBLIOGRAPHY.....</b>	<b>64</b>
<b>CHAPTER 15: APPENDICES.....</b>	<b>65</b>
<b>APPENDIX A: DATA SHEET.....</b>	<b>65</b>
<b>APPENDIX B: SIMULATION.....</b>	<b>68</b>
<b>APPENDIX C: CODE.....</b>	<b>70</b>

# List of Figures

**Figure 1: P-N Junction**

**Figure 2: Single-axis solar tracker on three different axes**

**Figure 3: Movement of Dual-axis solar tracker**

**Figure 4: DC Gear Motor**

**Figure 5: Standard Type Gear Box**

**Figure 6: Heavy Load Gear Box**

**Figure 7: Planetary Gear Mechanism**

**Figure 8: Peltier Device**

**Figure 9: Seebeck Effect**

**Figure 10: Peltier Effect**

**Figure 11: Peltier with Battery cells**

**Figure 12: P-N Junction in Peltier Element**

**Figure 13: P-N Junction in a rectangular symmetry**

**Figure 14: Temperature-Power curve**

**Figure 15: Relation b/w temperature difference & Heat Pump Capacity**

**Figure 16: Temperature Difference-Voltage curve**

**Figure 17: LDR Sensors**

**Figure 18: Working of LDR**

**Figure 19: Behavior of Solar tracker when light falling on LDR**

**Figure 20: Structure of Solar tracker provided with Solar Panel and LDR**

**Figure 21: Microcontroller**

**Figure 22: Pin Description of PIC16F877A**

**Figure 23: SEPIC Regulator**

**Figure 24: Operation of SEPIC Regulator**

**Figure 25: Circuit Diagram of SEPIC**

**Figure 26: Output Ripples and Square Wave Graph**

**Figure 27: Inductor Ripples, Capacitor Charging & Discharging and Input Square Wave Graph**

**Figure 28: Triangle wave and Sinusoidal control wave Graph.**

**Figure 29: Controlled square wave Graph.**

**Figure 30: Block Diagram of Design Procedure**

**Figure 31: Movement of Tracker**

**Figure 32: Position of LDR attached to the tracker**

**Figure 33: Hardware Designs**

# LIST OF TABLE

**Table 2-1 Peripheral Features of PIC16F877A**

**Table 5-1 Complete Component Guide with Prices**