STUDY OF SOLAR POWER

A DISSERTATION SUBMITTED TO ST. XAVIER'S COLLEGE MAHUADANR

AFFILIATED TO NILAMBER PITAMBER UNIVERSTY
BACHELOR OF SCIENCE

BY

RANJIT KUMAR

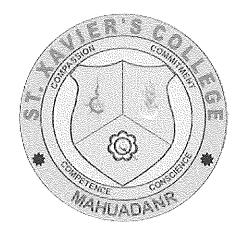
(Reg. No - NPU2020013241)

(Roll no.210251100236, Sem-6th)

Under the supervision of

Asst. Prof. Mr. Ajay Kumar Saw

DEPARTMENT OF PHYSICS



ST. XAVIER'S COLLEGE MAHUADANR

Nationally accredited with Grade 'B' (NAAC)

MAHUADANR, LATEHAR, JHARKHAND-822119

CERTIFICATE

This is to certify that the project work entitled "SOLAR POWER SYSTEM" submitted to St. Xavier's college Mahuadanr in partial fulfillment of requirement for the award of bachelor of science in Physics to be awarded by the Affiliated to Nilamber Pitamber University is a bonafide record of the work carried out by Mr. RANJIT KUMAR (Reg. No.-NPU2020013241) during the academic year 2020-2023.

14:11

Cef

Department of Physics St.Xavier's College Mahuadanr.Latehar Jharkhand - 822119

MD. ZAFAR AQUBAL

Head of the department

Department of Physics,

St. Xavier's College Mahuadanr,

-822119

Asst. Prof.- AJAY KUMAR SAW

Project Guide

St. Xavier's College Mahuadanr

-822119

ACKNOWLEDGEMENT

First of all I praise and thank the **ALMIGHTY GOD** from the depth of my heart for showering his grace, love and blessing to make this Endeavour possible.

I am profoundly thankful to my beloved principle, **Dr. Fr. MK Joseph SJ** for allowing me to study the under-Graduate course in this historical institution.

I thank Prof. Md. Zafar Aqubal, (MSC. NET), Head of the department of physics, St. Xavier's College, Mahuadanr -822119, for allowing me to take this project and permission to use the lab and the instruments available in the department.

Asst. Prof. Ajay Kumar Saw was also my guide for this project work. I am extremely grateful for his inspiring guidance, useful discussions and encouragement throughout the project whose meticulous and patient guidance has enriched me personally and intellectually.

I thank Fr. Dr. Samir Toppo S.J, Administrator of St. Xavier's College Mahuadanr, who allowed to me use the computer all the time during the college hour.

I express my heartfelt thanks to all my fellow students who encouraged me to finish this project work successfully.

RANJIT KUMAR

Rouget Kumar

Session 2020-2023

CONTENTS

CHAPTER 1 An introduction to solar power or solar energy		
_	Conversion of solar energy	(2-3)
	Types of solar power plant	(4)
-	The different forms of solar energy	(4-7)
-	Application of solar power	(8-12)
-	Solar power advantage and disadvantage	(12-13)
СНАР	PTER 2	
On-C	Grid, Off-Grid and hybrid solar power system	
_	ON-Grid solar power system	(14-15)
	Components	(15-16)
-	How to install On Grid solar power system?	(17)
_	How to choose a solar system capacity for my home?	(18)
_	How much will the grid-tied system cost?	(18-19)
-	What happens when my power consumption is very low?	(19)
_	Which solar brands and products are the best?	(19)
-	Off-Grid solar power system	(19)
-	What is off grid solar power system?	(20)
-	How does an off-grid solar system works?	(21)
	How can I calculate off-grid solar system?	(21)
_	What is the difference between On-Grid and Off-Grid solar power system?	(21)
***	What is latest technology trends in solar inverters?	(22)
-	How much would an Off-grid solar system cost	(22-23)
	How can I install Off-grid solar system capacity?	(23-24)
-	Hybrid solar power system	(25)
-	What is hybrid solar system	(25-27)
***	Component in hybrid solar system	(27)
_	Types of hybrid solar inverters	(27-28)
-	Hybrid solar system cost	(28)

Advantage of hybrid solar inverters.....(28-29)

Conclusion:

We summaries the above content in solar energy that the solar energy can be used to power electronic appliances while not polluting the environment. Our goal is to learn how solar energy works, and in which situations it can be used.

Solar energy reduces greenhouse gas emission in the atmosphere because it harnesses the power of sun energy with little to no gasses bring released. The amount of carbon dioxide released to atmosphere is way less from solar energy compared to coal plants when seeking is produced the same amount of KWh per year. The benefits of solar power to the environment include the prevision of an inexhaustible supply of energy from the sun. Solar power captures the suns energy with no harm to the environment. Therefore solar power is easier on health impacts, land use, water, and carbon emission than energy generation means, such as natural gas in fossil fuel and coal energy plants.

The result of our research proved that solar power caused no pollution whatsoever. We are also mentioned solar energy can be used to power houses and their electronic appliances, such as flashlights, electric motors and even such things as refrigerators. It can also be used to hest water and cool building!

There are many possible ways of demonstrating how solar energy can be used. One way would be to demonstrate physically, such as building a model that runs on solar energy such as a car or something that uses an electric motor. Another way to demonstrate would be to compare solar energy to other alternative energy sources to see which one produces the most power or less pollution.

This has been a wonderful learning experience for us. We have learned much more about how solar energy can be used to make electricity wand power everyday applications. We also learned about the structure of the PV cell, which itself is the absorber of solar energy. This was a fantastic topic to research, and we have accomplished many things.

A-fay kermon Squ