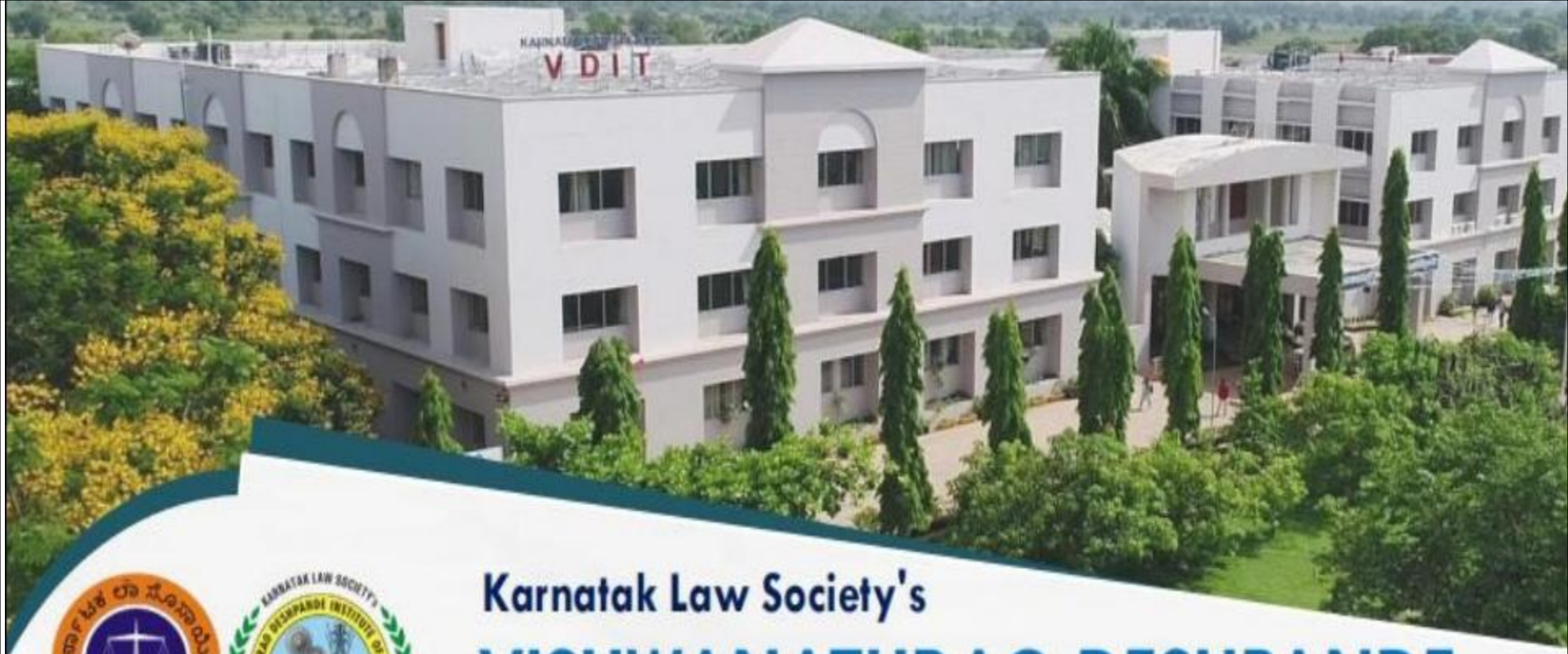

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Mini Project Presentation entitled

Solar Tracker using arduino

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Presentation Outline

- Motivation
- Introduction
- Literature Survey
- Objectives
- Principle of Operation
- Block Diagram
- Applications
- Expected Outcomes
- References
- Acknowledgement
- Thank You Slide

Motivation

- The primary motivation behind implementing solar trackers is to maximize energy production from solar power systems.
- The project's motivation is to optimize the energy efficiency of the solar installation.
- Reducing energy losses and maximizing the utilization of available solar resources.
- In regions with limited land availability, the motivation behind a solar tracker project is to optimize land use.
- The project's motivation is to enhance grid stability, meet peak load requirements, and improve the overall reliability of the electricity supply.
- A key motivation behind solar tracker projects is to promote environmental sustainability

Introduction

- India has one of the highest solar energy potentials in the world.
- With its geographical location and ample sunshine, the country receives a significant amount of solar irradiation, making solar energy a valuable and reliable resource for power generation.
- Solar trackers play a significant role in India's solar power sector.
- Solar trackers increase the efficiency and energy generation of solar power plants.
- By orienting solar panels to face the sun throughout the day, trackers optimize the amount of sunlight captured, leading to higher energy output.

Literature Survey

Title	Author	Publication date
“Dual Axis Solar Tracker Using Arduino for Maximum Power Generation”	T.S.Rathore	2018
“Solar Tracking System Using Arduino Microcontroller”	M.H.Sabirin	2017
“Design and Development of Dual-Axis Solar Tracking System using Arduino for Maximum Power Generation”	K.S.Prabhar	2020
“Solar Tracking System for Maximum Efficiency using Arduino”	S.Palanivel	2018

Objectives

- Optimize energy collection by aligning panels with the sun's position.
- Increase power generation through accurate sun tracking.
- Maintain optimal alignment across varying seasons and times.
- Lower expenses by generating more energy with fewer panels.
- Utilize sensors and Arduino to adjust panel orientation as the sun moves.
- Foster learning about renewable energy, electronics, and automation.

Principle of operation

- The principle of operation for solar tracker using Arduino is based on monitoring the sun's position through light sensors.
- And then adjusting the orientation of the solar panel to maximize sunlight exposure.
- The Arduino continuously receives sensor data, calculate the optimal position, and controls the motors to move the panel accordingly,
- Ensuring it stays aligned with the sun's trajectory, thereby increasing energy output and efficiency.