PROJECT PROPOSAL SEMINAR

DESIGN AND CONSTRUCTION OF A SOLAR-ENABLED RECHARGEABLE FAN WITH INTEGRATED PERIPHERAL FUNCTIONS

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HND/23/EEE/FT/0097

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NOVEMBER, 2024

PRESENTATION OUTLINE

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- PROBLEM STATEMENT
- AIM OF THE PROJECT
- OBJECTIVES OF THE PROJECT
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INTRODUCTION

The increasing emphasis on renewable energy sources, solar power has emerged as a sustainable solution for powering various devices in :

Homes, Schools, Hospitals, Business Center etc.

This is feasible because our regions has considerable solar insolation, the use of solar energy for everyday applications is not only environmentally friendly but also economically beneficial.

Figure 1: Samples of Renewable Energy.

INTRODUCTION (Cont’d)

- The world's shift towards renewable energy and sustainable living makes renewable a timely innovation
- As the world’s focus intensifies on reducing carbon footprints and promoting eco-friendly practices, this project is perfectly positioned to meet this need.
- Utilization of the power of solar energy, can help reduce the reliance on fossil fuels and create a more sustainable future

Figure 2: Solar Powered Standing Fan

PROBLEM STATEMENT

Millions of people worldwide, especially in developing communities, face significant challenges in accessing:

- Reliable and Sustainable Cooling System.
- Affordable, Eco-Friendly, and Energy-Efficient Cooling System

In response to these challenges, the Solar-Enabled Rechargeable Fan (SERF) project will be developed to provide a sustainable, accessible, and innovative solution to address these pressing needs.

AIM OF THE PROJECT

This project aim to design and construct a solar-enabled rechargeable fan with integrated peripheral functions such as USB charging ports, LED lighting, and a battery status indicator.

OBJECTIVES OF THE PROJECT

The specific objectives of the project work are to:

- design a solar powered rechargeable fan system
- integrated peripheral functions such as USB charging ports, LED lighting, and a battery status indicator into the fan system
- construct the solar powered fan with attention to durability, functionality, and ease of use
- test the fan's performance under various environmental conditions and evaluate the efficiency of its solar charging system

METHODOLOGY

- **Objective 1: Design a Solar Powered Rechargeable Fan**

1. Literature Review: Research existing solar-powered fan systems, identifying strengths and weaknesses
2. Component Selection: - Solar panel, Rechargeable battery (Li-ion), Fan motor, Charging controller
3. System Design: - We will use the proposed block diagram of Figure 3 and Consider power management, battery management, and fan control using Livewire pro-version to test the circuit functionalities before soldering

METHODOLOGY (Cont'd)

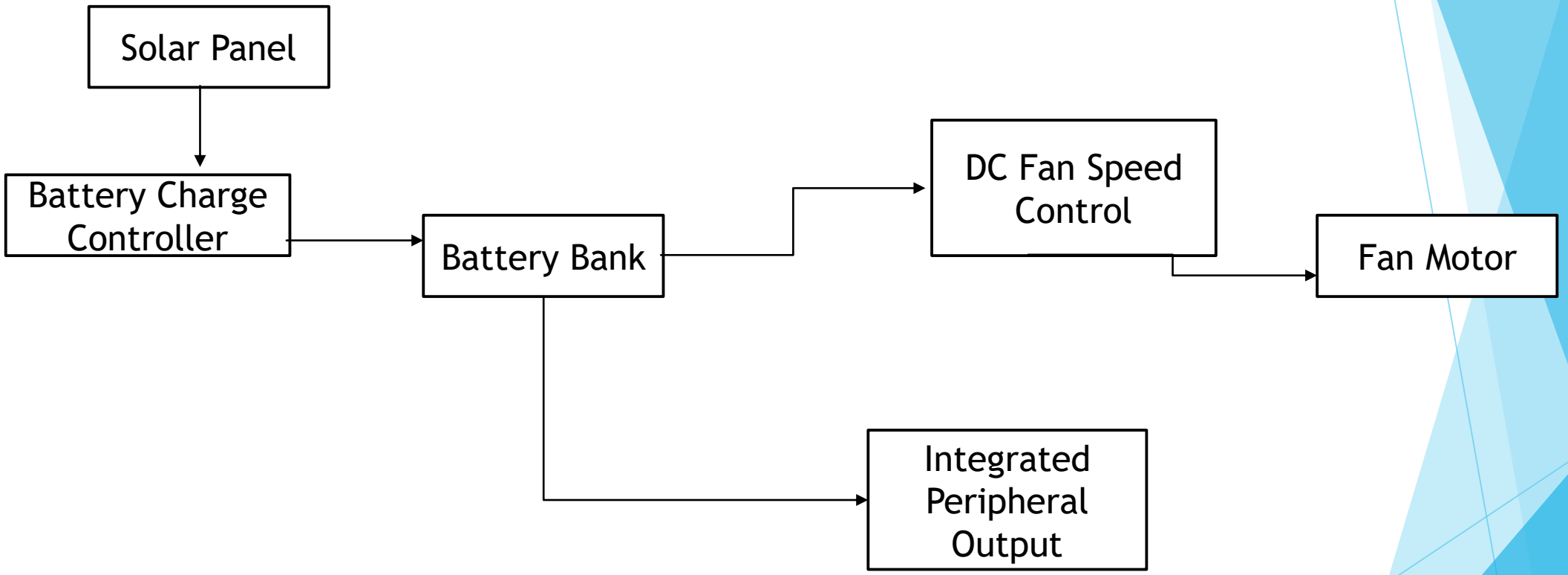

Figure 3: The Block Diagram of a Proposed 10 Watts Solar Powered DC Standing Fan

METHODOLOGY (Cont’d)

Objective 2: Integrated Peripheral Functions Methodology

1. USB Charging Ports:
2. LED Lighting:
3. Battery Status Indicator

These integrated peripheral functions will be done into the main system design to ensure seamless interaction between components.

METHODOLOGY (Cont'd)

Objective 3: Construct the Solar Powered Fan Methodology

1. Electrical Circuit Design
2. Material Purchase
3. Fabrication of Casing
4. We will ensure accurate assembly and soldering of components

METHODOLOGY (Cont’d)

Objective 4: Test and Evaluate Performance Methodology

1. Environmental Testing:- We will test the fan performance under various temperature.
2. Performance Metrics:- We will measure fan airflow, speed, and power consumption.
3. Evaluation of solar charging efficiency and battery lifespan:- Record system reliability and durability.
4. Data Analysis:- We will analyze the test data to identify trends and areas for improvement by comparing results to design specifications and industry standards.

Thank You For Listening

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