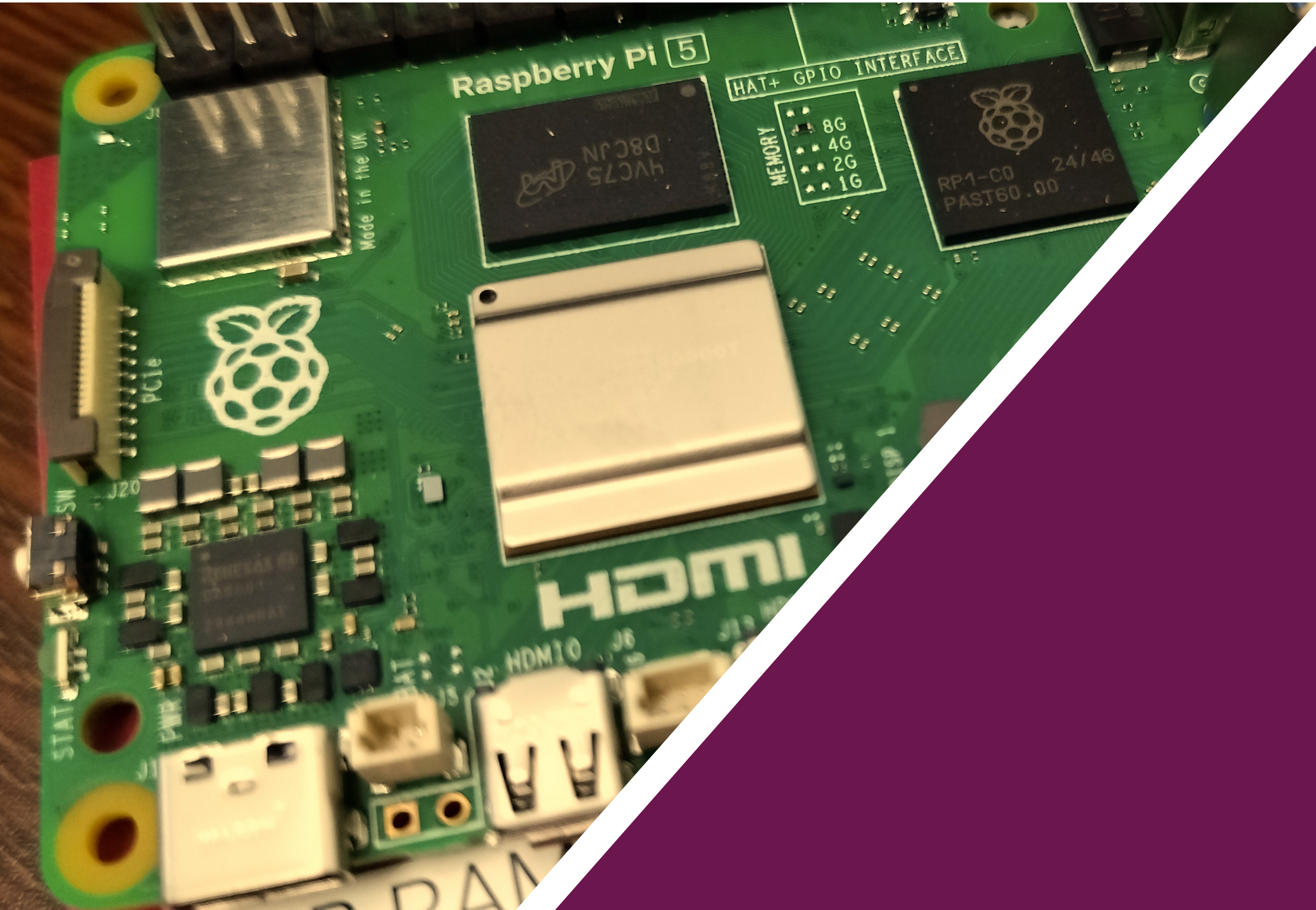




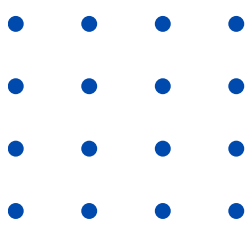
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EESEE 2025

10TH ELECTRICAL ELECTRONICS SYSTEMS
ENGINEERING EXHIBITION 2025
VOLUME 1



FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITI TEKNOLOGI MARA
JOHOR BRANCH
PASIR GUDANG CAMPUS



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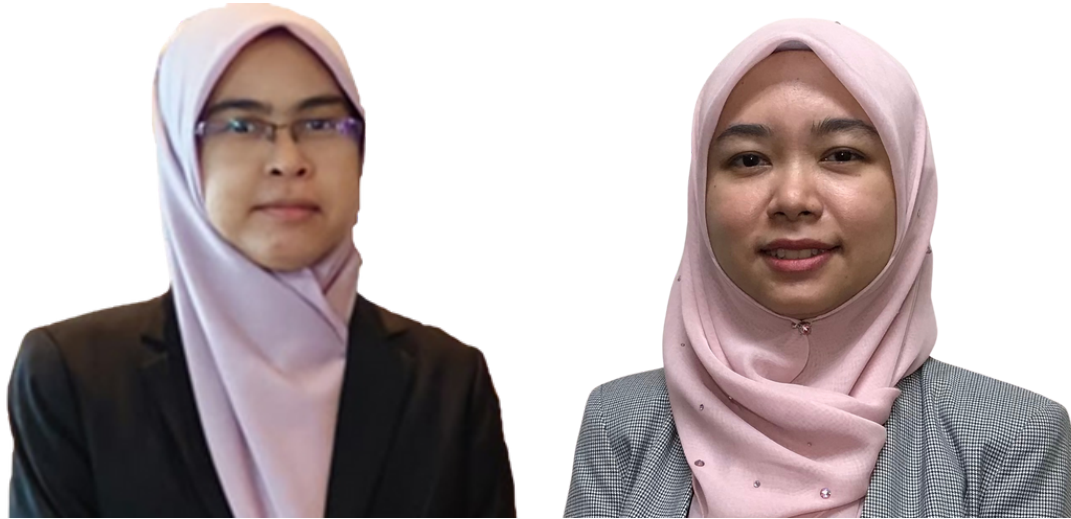
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FOREWORD BY THE PROGRAM CHAIR



Greetings from the Electrical, Electronics, and Systems Engineering Exhibition 2025 (EESEE 2025).

As the Program Chairs, it is our great pleasure to present this compilation of extended abstracts, showcasing the remarkable projects developed by our final-semester students from the Diploma in Electrical Engineering (Power) and Diploma in Electrical Engineering (Electronics) programs at Universiti Teknologi MARA, Cawangan Johor, Pasir Gudang Campus.

This exhibition marks a significant milestone in our students' academic journey, representing the culmination of years of dedication, perseverance, and learning. It also serves as an essential step toward the successful completion of their diploma studies. The projects featured this year are centered on the theme *Engineering Excellence: Bridging Technology and Life*, reflecting current trends and innovations in the engineering field.

This extended abstract book highlights not only the students' technical expertise but also their creativity, problem-solving skills, and ability to engage meaningfully with peers and industry professionals. Within these pages, you will find a diverse range of projects that embody a unique blend of knowledge, innovation, and practical application.

We warmly invite you to explore this collection, which celebrates the achievements of our aspiring engineers. Welcome once again to the Electrical, Electronics, and Systems Engineering Exhibition 2025. May the insights shared here inspire and pave the way for the next generation of innovative engineers.

Warm regards,

Dr. Fatimah Khairiah binti Abd Hamid

Dr. Atiqah Hamizah binti Mohd Nordin

Program Chairs

Electrical, Electronics, and Systems Engineering Exhibition 2025 (EESEE 2025)



Automatically Portable Solar Powered Fan With Monitoring System

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ABSTRACT

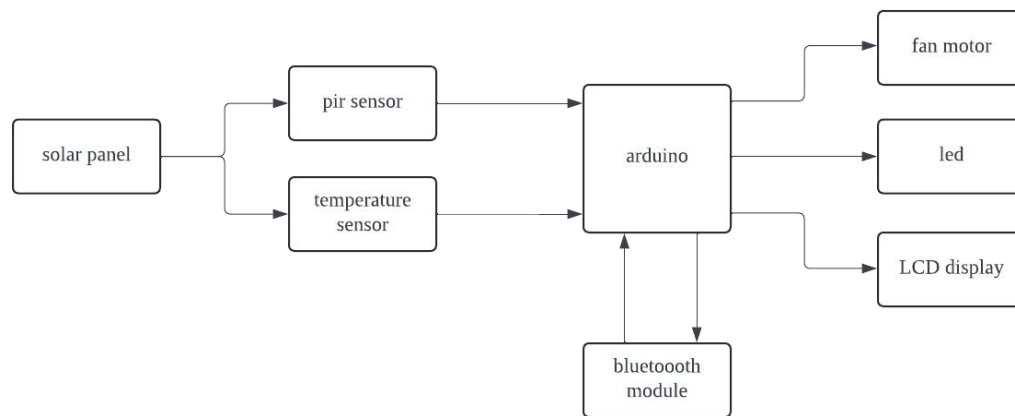
In response to increasing concerns over heat-related illnesses and the environmental impact of traditional portable fans, this project introduces an innovative solution: the "Automatically Portable Solar Powered Fan with Monitoring System." Designed specifically for the Malaysian climate, where heat management is critical, this system integrates solar power utilization and real-time temperature monitoring to provide efficient and sustainable cooling. The fan operates autonomously based on temperature inputs from a sensor, controlled by an Arduino Uno microcontroller and powered by solar panels. This approach not only enhances convenience but also reduces reliance on non-renewable energy sources, aligning with global sustainability goals. A monitoring system equipped with a Wi-Fi module enables real-time tracking of performance metrics such as fan speed and energy consumption, empowering users to optimize efficiency. By combining renewable energy technology with modern monitoring capabilities, this project offers a practical solution that promotes energy efficiency and environmental stewardship in every day cooling applications. It addresses current limitations in portable fan technology, providing a model for integrating sustainability into consumer electronics effectively

KEYWORDS: renewable energy, optimize efficiency, sustainability

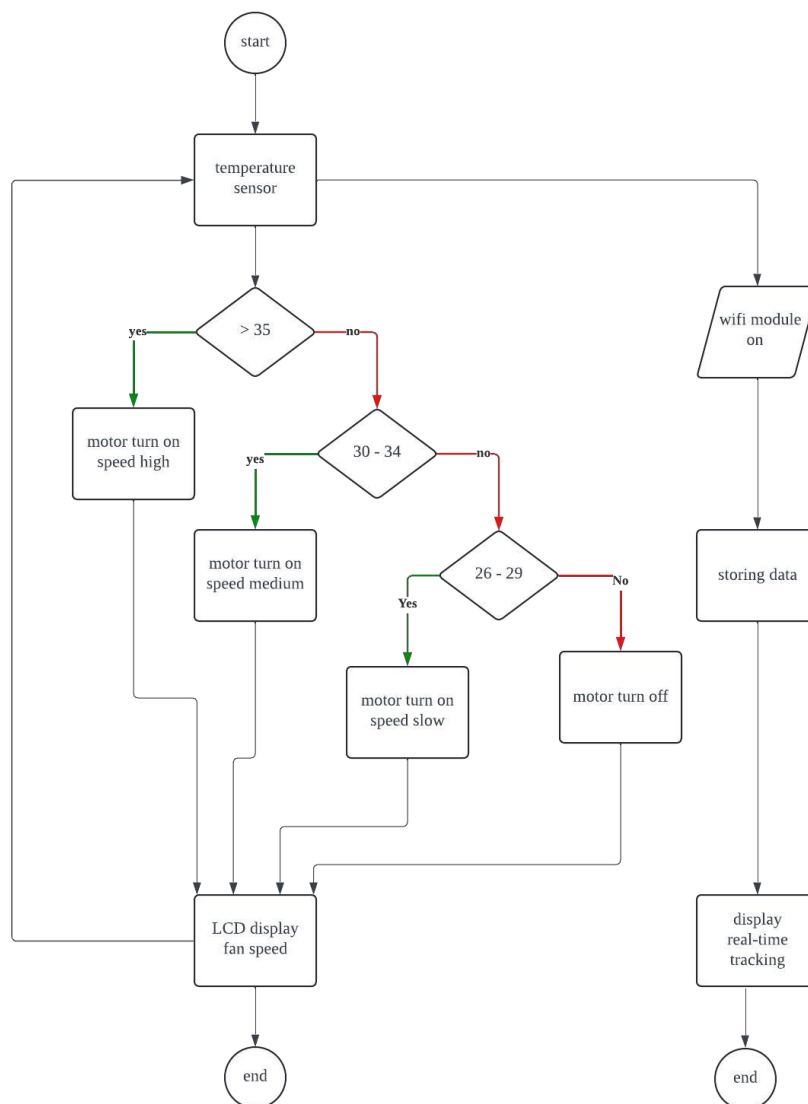
PRODUCT DESCRIPTION

In recent years, concerns about climate change have increased due to the rising cases of heat stroke in people. This has made portable fans more popular in Malaysia as a way to stay cool. To address this need, we are developing an automatic portable solar-powered fan with a monitoring system. The project aims to design a fan that turns on and off automatically using a temperature sensor and is powered by solar energy. This solution is both cost-effective and environmentally friendly because it uses renewable energy from the sun. Additionally, the fan includes a monitoring system to track its performance in real-time, helping to use resources efficiently. This project not only provides a practical way to stay cool but also supports energy efficiency and sustainability. By using solar power and modern monitoring technology, this project offers a simple and effective solution that promotes the use of sustainable energy in daily life.

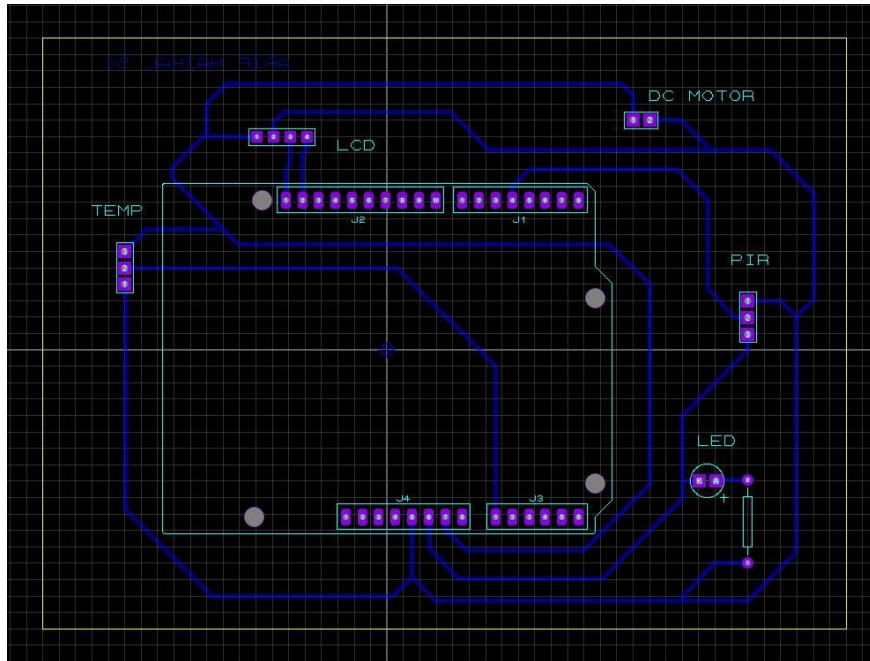
PICTURES/ SCHEMATIC DIAGRAMS/ FLOW CHARTS/SCREENSHOTS/ GRAPHS AND OTHER RELATED VISUALS



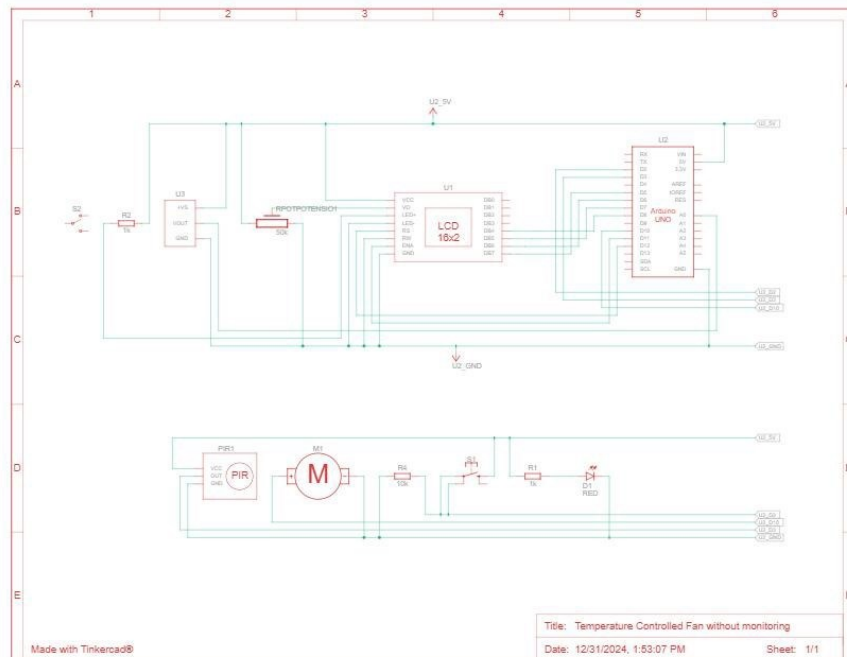
Block diagram



Flowchart



PCB Layout



Schematic Diagram

NOVELTY AND UNIQUENESS

This project is unique because it combines solar power with a real-time monitoring system, making it different from regular portable fans. The solar panels provide an eco- friendly power source, and the monitoring system allows users to track things like battery health, solar efficiency, and fan performance. Its portability makes it useful for areas without electricity or during power outages. Plus, it's versatile and can be adapted for different purposes like outdoor use, emergency relief, or even agricultural needs, making it an innovative and practical solution.

BENEFIT TO MANKIND

The portable solar-powered fan benefits people by providing a reliable cooling system, especially in areas with no electricity. It is environmentally friendly, as it uses renewable solar energy and reduces pollution. This project is especially helpful for people in rural or off-grid areas, as it improves their quality of life. It can also be used in emergency situations, offering relief in disaster-hit areas. Overall, it helps promote the use of clean energy, supports sustainable living, and inspires others to think of similar eco-friendly solutions.

COMMERCIALIZATION POTENTIAL

This project has a lot of potential for commercialization because it can be useful to many people, including those living in rural areas, outdoor enthusiasts, or disaster relief teams. It's affordable because solar technology is becoming cheaper, and it doesn't require much maintenance, making it a good long-term solution. Governments or NGOs could also support its use in rural electrification programs. Since the design can be customized for specific needs, it can attract different markets, and there's even a chance to sell it internationally in places where electricity is limited.

CONCLUSION

The project "Automatically Portable Solar Powered Fan with Monitoring System" represents a significant advancement in sustainable cooling technology. By harnessing solar energy for power and integrating real-time temperature monitoring, the system ensures efficient operation tailored to environmental conditions. The Arduino microcontroller serves as a versatile hub, coordinating inputs from sensors and driving adaptive fan control mechanisms.

Through the implementation of tiered fan speed adjustments based on ambient temperature, the system optimizes energy usage while maintaining comfort levels. The inclusion of an LCD display provides users with intuitive feedback, enhancing usability, while a Bluetooth module enables remote monitoring and control, expanding the system's flexibility and accessibility.

Data logging capabilities enable the accumulation of temperature and operational data, facilitating informed decision-making and performance optimization over time. This integrated approach not only promotes sustainability through renewable energy utilization but also exemplifies smart technology's potential in creating user-centric, environmentally friendly solutions. In conclusion, the "Automatically Portable Solar Powered Fan with Monitoring System" demonstrates a robust framework for future developments in eco-conscious cooling technologies, promising enhanced efficiency, user convenience, and environmental stewardship.

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