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RF Controlled Wind Energy Powered Vehicle

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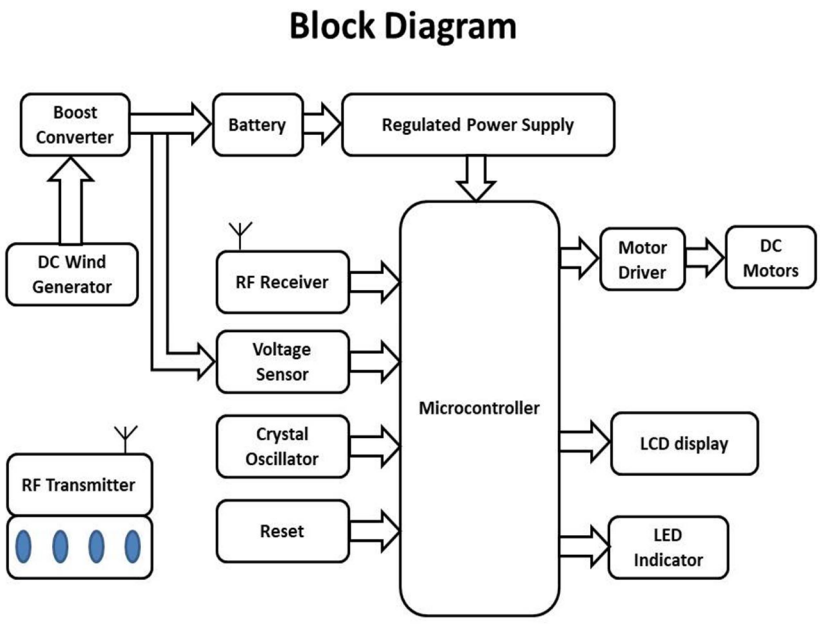
Abstract: ***An electric powered vehicle has a bank of batteries that runs the entire vehicle. This work focuses on charging the batteries of the vehicle on the run. This is done by capturing the wind that acts opposite of a moving car. There is always the flow of wind as long the cars moves with a speed. A wind turbine is mounted on the front of the vehicle to receive wind. The generator produces electricity from the wind and stores them in another battery. The vehicle moves with the pre-charged battery and a voltage sensing circuit is placed on one or more batteries of the vehicle to detect the drop in voltage. In such case the reservoir battery that gets charged through wind switches the position with the low voltage battery and continues to run the vehicle while the other battery gets charged. This process can go on until the vehicle comes to stationary. While one of the limitations of the electric vehicles is their short travel range compared to their excessive charging time. The travel range can be extended by charging the battery on the motion. This paper mainly focuses on the design of the wind powered car and to determine the power required for driving the system.***

I. INTRODUCTION

The main aim of this project is to design a wind Energy Vehicle. The Robotic moving platform will have a wind power generator mounted on it. Wind generator charges a rechargeable battery. This battery power is used to run the vehicle/robot. This robot vehicle is controlled using RF based remote. The supported commands are forward, backward, left and right directions .The system is a wireless robot that is powered by wind energy. The robot has a windmill installed on top of it that rotates with the help of two driving motors. The windmill has a PMDC (Permanent Magnet Direct Current) motor that generates electrical energy when the windmill rotates. A boost converter is used for this purpose, which converts the low voltage output of the PMDC motor into a higher voltage that can be used to charge the battery.The battery used in the system is a 12V battery, which provides power to the microcontroller via a 7805 based voltage regulator. The microcontroller used in the system is a 16F877a, which is a commonly used microcontroller for various applications. The generated voltage is displayed on a 16x2 LCD display.



Block diagram of RF based Fabrication of wind power vehicle

II. RELATED WORK

In the context of the proposed wind power generated battery charging system with a wireless robot, a literature survey would involve researching and reviewing existing literature and research papers related to wind energy, battery charging systems, wireless robots, and related technologies.

Some of the key areas that a literature survey could cover include:

1) *Wind Energy Technology:* This includes the history and evolution of wind energy technology, the different types of wind turbines, and the latest advancements in the field.
2) *Battery Charging Systems:* This includes an overview of battery charging technologies, including different types of batteries and charging methods.
3) *Wireless Robotics:* This includes an overview of the different types of wireless robots, their applications, and the latest research in the field.
4) *Power Electronics:* This includes an overview of power electronics components and their applications in power conversion and control.
5) *Microcontroller Programming:* This includes an overview of microcontroller programming techniques and best practices.
6) *Remote Control Systems:* This includes an overview of different types of remote control systems and their applications.

III.CONCLUSION

The wind power generated battery charging system using a wireless robot offers a sustainable and efficient way to generate power from wind energy. The system consists of a windmill attached to a mobile robot that moves in the direction of the wind. The wind energy is converted to electrical energy using a PMDC motor as a generator and a boost converter to charge a 12V battery. The system is controlled using a 433MHz RF remote and a microcontroller that displays the generated voltage on a 16x2 LCD screen. The L293D based motor driver allows the robot to move in various directions.

Overall, this system has several advantages, including its sustainability, portability, and ease of use. It can be used in various applications, including charging portable devices, powering small electronic devices, and providing backup power in remote locations. However, it also has some limitations, such as its limited power output and dependence on wind conditions.

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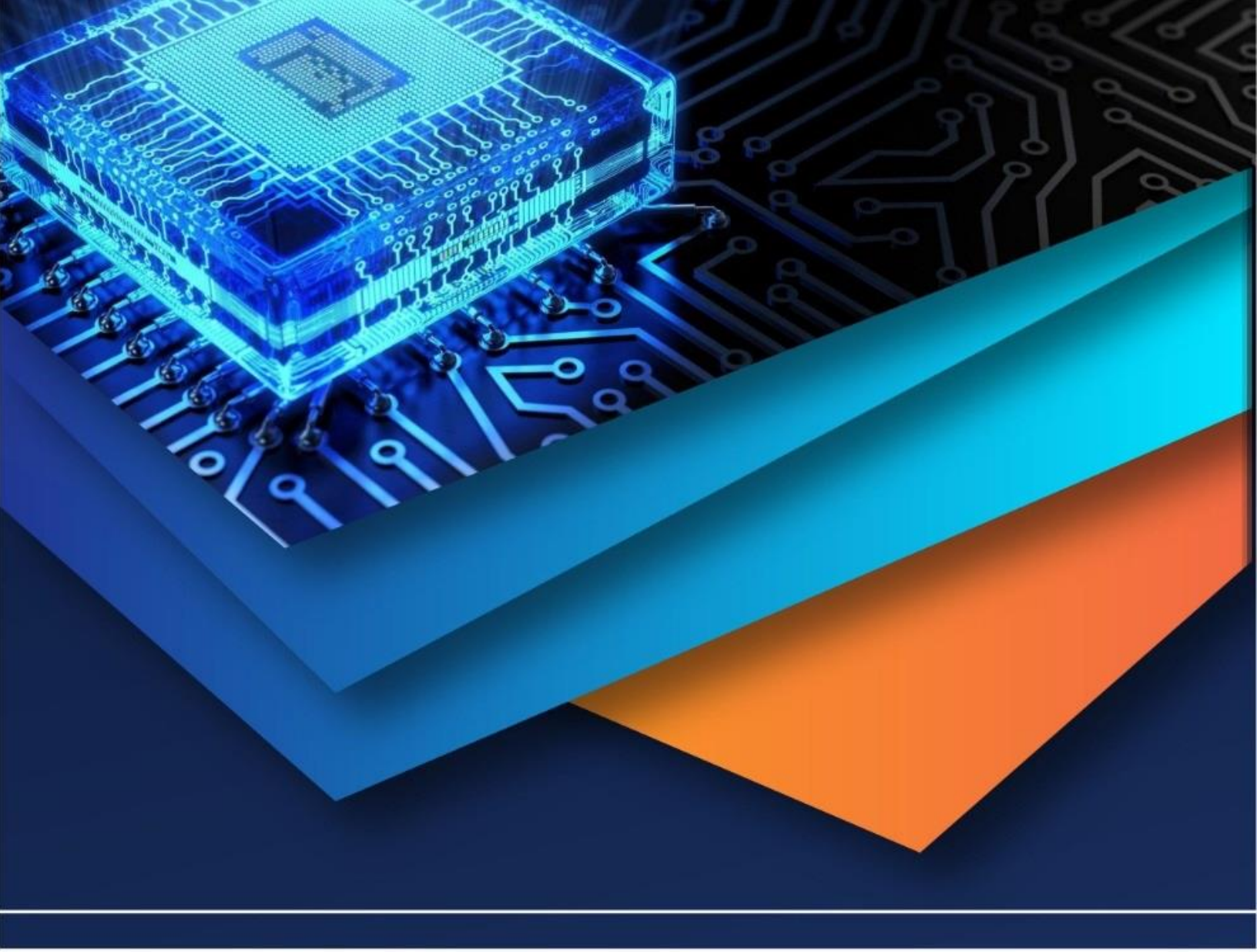

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