



NIKHIL KUMAR JHA

B.Tech. - Electrical Engineering

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BRIEF SUMMARY

I am skilled in a diverse range of technical areas including Python programming, machine learning, data analytics, circuit design, PCB design, Arduino UNO programming, software development, and proficiency in Microsoft Office. With a passion for innovation and problem-solving, I excel in both software and hardware projects, integrating advanced technologies to create practical solutions. My experience spans from designing and programming circuits to developing software applications and fabricating custom PCBs. Additionally, I have qualified the Graduate Aptitude Test in Engineering (GATE), showcasing a strong academic background and readiness for advanced studies or professional roles in the field

KEY EXPERTISE

Mathematics Circuit Design PCB Designing Motor Winding Microsoft office PCB Fabrication

EDUCATION

J.C Bose University of Science & Technology, YMCA, Faridabad

2021 - 2025

B.Tech. - Electrical Engineering | CGPA: 7.74 / 10

Rawal Convent School, Faridabad

2020

12th | CBSE | Percentage: 84.40 / 100

Rawal Convent School, Faridabad

2018

10th | CBSE | Percentage: 70.40 / 100

PROJECTS

Innovative Lawn Mower: App-Driven and Arduino Automation

19 Mar, 2024 - 19 Apr, 2024

Mentor: Mr. Yogender Arya | **Team Size:** 3

Key Skills:

electrical engineering creativity innovation Creative Problem Solving Arduino UNO Electronic Circuit Design

The project involves creating a versatile lawn mower with dual control modes: manual control via a custom mobile app developed using MIT App Inventor, and automated control through Arduino programming based on predefined conditions. This integration allows users to either manually operate the lawn mower remotely from their smartphone or set automated routines for cutting grass based on specific parameters.

Role Description:

In this project, I played a pivotal role in conceptualizing, designing, and implementing a versatile lawn mower with dual control modes.

My responsibilities encompassed:

- 1) Conceptualization and Design: I conceived the idea of integrating manual control via a custom mobile app developed using MIT App Inventor and automated control through Arduino programming.
- 2) Software Development: I developed the mobile application, focusing on creating an intuitive user interface for remote manual control of the lawn mower.
- 3) Hardware Integration: I oversaw the integration of Arduino-based automation into the lawn mower, programming it to execute automated cutting tasks based on predefined conditions.
- 4) Testing and Validation: I conducted thorough testing to ensure both manual and automated modes functioned reliably, troubleshooting technical issues to ensure optimal performance.
- 5) Project Management: I led the project from inception to completion, managing tasks, timelines, and resources to achieve project objectives within the specified constraints.

Next-Gen Vehicle Charging: Road-Embedded Wireless and Solar Power Integration

06 Sep, 2023 - 18 Sep, 2023

Mentor: Mr. Yogender Arya | **Team Size:** 3

Key Skills: Electrical Engineering Renewable Energy Creative Problem Solving Solar Energy

The project "Next-Gen Vehicle Charging: Road-Embedded Wireless and Solar Power Integration" aims to develop an advanced vehicle charging system that leverages both road-embedded wireless technology and solar power integration. This innovative approach seeks to provide efficient and sustainable charging solutions for vehicles in various conditions and environments. By combining these technologies, the project aims to reduce dependency on traditional fossil fuels and enhance the practicality of electric vehicles.

In this project, my role involves conceptualizing, planning, and overseeing the integration of road-embedded wireless charging and solar power systems. I was responsible for designing the system architecture, selecting appropriate technologies, and ensuring compatibility with vehicle charging requirements. My vision drives the project forward, emphasizing innovation and sustainability in transportation infrastructure.

Solar-Powered Remote-Controlled Grass Cutting Machine

16 Mar, 2023 - 25 Mar, 2023

Mentor: Mr. Yogender Arya | Team Size: 3

Key Skills: Electrical Engineering Renewable Energy Electronics Creative Problem Solving

The "Solar-Powered Remote-Controlled Grass Cutting Machine" is a innovative project that combines renewable energy with practical outdoor maintenance. This machine utilizes solar panels to power its operations, making it environmentally friendly and cost-effective. Controlled remotely, it offers convenience and efficiency in grass cutting tasks, demonstrating the potential of renewable energy in everyday applications.

In this project, my role involved the conception, design, and implementation of a solar-powered remote-controlled grass cutting machine. I was responsible for envisioning the integration of solar panels into the machine's power system, designing the remote control mechanism for operation, and overseeing the construction and testing phases. I ensured that the project not only functions effectively but also showcase innovation in sustainable technology for practical outdoor use.

Development and Implementation of Road-Embedded Wireless Charging Infrastructure 30 Dec, 2022 - 10 Jan, 2023

Mentor: Dr. P.R Sharma | Team Size: 3

Key Skills:

Power Electronics Electromagnetic field Circuit Design Modeling Prooject Handling Electrical Engineering Creativity

This project aims to develop a sustainable, efficient, and innovative solution for electric vehicle (EV) charging by integrating solar power with road-embedded wireless charging infrastructure. This approach seeks to overcome the limitations of stationary charging stations by providing continuous, on-the-go charging, thus enhancing the feasibility and adoption of electric vehicles.

Objectives: 1)Continuous Charging 2)Efficiency 3)Scalability
In this project, I spearheaded the development and implementation of a cutting-edge road-embedded wireless charging infrastructure powered by solar panels. My role encompassed conceptualization, planning, prototyping and overseeing the technical aspects to ensure seamless integration with existing road networks while pushing the boundaries of sustainable energy solutions.

PUBLICATIONS / RESEARCH / WHITE PAPERS

Vehicle to Grid(V2G) Systems: A Research Perspective

Review Paper | Mentor: Hari om bansal | No. of Authors: 1

Key Skills: Elelctrical Engineering Renewable energy solar Energy Consumptin Energy Management

The applications of V2G are vast and provides a wide array of possibilities for reliable power generation and storage. V2G also promises a more sustained approach where the environment is also a major concern. However, it still faces a lot of criticism. The major reasons for this criticism are high initial cost, lack of government subsidy, resistance to change, be the people and manufacturers. The view of most people can be considered as narrow and negligent as they are only looking at the initial situation, they are ignoring the future prospects of V2G. The recent projects in the V2G implementation have shown promising results and encouraged further research in the field. As and when more durable batteries and cost efficient grid lines become common, V2G will become a widespread phenomenon. Until then the views of people and manufacturers must be monitored. Lastly, a widespread propagation of the V2G idea, its prospects and opportunities by the governments of developing and developed countries will make the path of V2G implementation much easier. And definitely, smart grid technologies have the latency to meet up the future power demand, which will support V2G.

- 1. Reduced Battery life: The life of the battery of an EV depends on its charging and discharging cycle. As the DOD increases, the life of the battery gets reduced significantly. DOD is denoted as the percentage of the capacity to which battery is discharged.
- 2. Thermal issues: Rapid charge and discharge leads to heating up of the battery. Prolonged exposure to heated environment can cause the components of the vehicle to be damaged. This affects the vehicle owner, as his vehicle needs to be serviced. The heat generated is given by I2 R.t where t is the time, charging/discharging current is I and R is the load i.e. engine.

SEMINARS / TRAININGS / WORKSHOPS

Vehicle to Grid(V2G) Systems Institute Name: J.C Bose University of Science & Technology, YMCA, Faridabad

Key Skills: Elelctrical Engineering Renewable Energy Engineering technology Presentation Skills

- In the seminar I start by defining:
- 1. Vehicle-to-Grid (V2G) systems, which allow electric vehicles (EVs) to interact with the power grid.
 - 2. Explain the significance of V2G in the context of increasing EV adoption and the need for grid flexibility.
 - 3. Briefly outline the research paper's objectives, such as exploring the technical feasibility or economic implications of V2G systems.

PERSONAL DETAILS

Gender: Male Date of Birth: 10 Jan, 2003
Marital Status: Single Known Languages: English, Hindi
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