

PRAGATI ENGINEERING COLLEGE

(AUTONOMOUS)

1-378, ADB Road, Surampalem, E.G. District, A.P.-533 437

(Approved by AICTE & Permanently Affiliated to JNTUK Kakinada & Accredited by NBA & NAAC with 'A' Grade)
(Recognized by UGC under sections 2(f) & 12(b) of the UGC Act, 1956)

Ph: (08852) 252233, 252234, 252235, Fax: (08852) 252232, Website: www.pragati.ac.in

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D.No: 2-46-21, Near D-Mart, Kakatiya Nagar, Kakinada. Ph: 0884-2355900, Fax: 2363900

Academic year: 2023-24

Date: 09.03.2024

CIRCULAR

We are happy to inform you that the Lecture on “**Solar-based Wireless Electric Vehicle Charging Station**” is scheduled to be conducted by Electric Vehicles Club. The Lecture will be delivered by D.Harshitha (22A31A0256) & A.Karthik (23A35A0223) of II-EEE-B.

Interested Students can participate in the event as per the Schedule time below at Mechanical block MS-10.

Date & Time of Event : 11.03.2024 @ 2:00 - 4:00 PM

Venue : Mechanical Block -MS-10

HOD-EE

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ELECTRICAL VEHICLES CLUB REPORT

Solar-based Wireless Electric Vehicle Charging Station

Introduction:

In an era of rapid technological advancement and growing environmental concerns, the development of sustainable energy solutions has become paramount. The integration of solar power with wireless charging technology presents a promising solution to address energy needs while reducing carbon footprints. This project focuses on the design and implementation of a Solar Wireless Charging Station, heralding a new era in renewable energy utilization.

In the contemporary landscape of technological advancements and environmental consciousness, the integration of renewable energy sources with innovative solutions has become imperative. The Solar Wireless Charging Station project endeavors to amalgamate the burgeoning potential of solar power with the convenience and versatility of wireless charging technology. This report elucidates the comprehensive design, implementation strategies, advantages, potential resolutions, and revolutionary impacts of such a pioneering initiative.

Overview:

The Solar Wireless Charging Station aims to provide convenient and eco-friendly charging solutions for various devices, such as smartphones, electric vehicles, and other portable gadgets. By harnessing solar energy and employing wireless charging technology, the project seeks to offer an efficient, cost-effective, and environmentally friendly alternative to traditional charging methods.

The Solar Wireless Charging Station aims to cater to the burgeoning demand for sustainable energy solutions while addressing the ever-growing need for portable device charging infrastructure. By harnessing solar energy and eliminating the constraints of conventional wired charging methods, this project aspires to pave the way for a greener, more efficient, and accessible energy ecosystem.

Components and Implementation:

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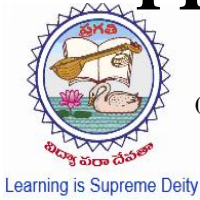
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Solar Panels: High-efficiency photovoltaic panels are installed to capture sunlight and convert it into electrical energy.

Charge Controller: A charge controller regulates the voltage and current from the solar panels to ensure optimal charging of connected devices and prevent overcharging.

Battery Bank: Energy storage in the form of batteries allows for continuous power supply during periods of low sunlight or at night.

Wireless Charging Transmitter: Utilizes electromagnetic induction to transfer power wirelessly to compatible devices placed within its range.

Control Unit: Manages the operation of the charging station, monitors battery levels, and provides user interface functionalities.

Solar Panels: Cutting-edge photovoltaic panels are employed to capture solar radiation and convert it into electrical energy.

Charge Controller: An intelligent charge controller regulates the voltage and current flow from the solar panels to ensure optimal charging efficiency and prevent battery damage.

Battery Bank: A robust energy storage system comprising high-capacity batteries ensures uninterrupted power supply, even during periods of low sunlight or adverse weather conditions.

Wireless Charging Transmitter: Utilizing electromagnetic induction, the wireless charging transmitter delivers power wirelessly to compatible devices placed within its operational range.

Control Unit: An integrated control unit orchestrates the seamless operation of the charging station, monitoring energy generation, battery status, and user interactions

Implementation Resolutions:

Efficiency Optimization: Continuously refine the system to maximize energy conversion efficiency and charging speed.

Durability Enhancement: Employ robust materials and design elements to ensure resilience against harsh weather conditions and vandalism.

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User Experience Improvement: Incorporate user-friendly interfaces and intuitive controls to enhance accessibility and usability.

Integration with Smart Grids: Explore opportunities for integration with existing energy infrastructure to enable grid balancing and optimize energy distribution.

Efficiency Enhancement: Continuous research and development efforts are directed towards optimizing energy conversion efficiency, charging speed, and overall system performance.

Durability Augmentation: Employing robust materials, weatherproof enclosures, and anti-vandalism measures ensure the longevity and resilience of charging stations in diverse environmental conditions.

User Experience Refinement: Incorporating intuitive interfaces, real-time monitoring capabilities, and user feedback mechanisms enhances the accessibility, usability, and overall experience for end-users.

Integration with Smart Grids: Exploring synergies with existing energy infrastructure, such as smart grids and microgrid networks, enables seamless integration, grid-balancing, and demand-response functionalities.

Conclusion:

The Solar Wireless Charging Station represents a significant step towards sustainable energy utilization and technological innovation. By harnessing the power of the sun and leveraging wireless charging technology, this project exemplifies the potential for a cleaner, more accessible, and efficient energy future.

The Solar Wireless Charging Station project epitomizes the convergence of renewable energy innovation and technological ingenuity. By leveraging solar power and wireless charging capabilities, this initiative not only addresses pressing energy challenges but also lays the groundwork for a sustainable, resilient, and equitable energy future.

Total - 40 students participated in this Event



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Photos:



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EV-CLUB CORDINATOR

HOD-EE

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Certificates



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POSTER:

Solar Based Wireless EV Charging Stations

Multi Wireless Car Charging Station

