E-Charger

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Abstract- ABSTRACT The Solar Tree is an innovative and sustainable solution that addresses the growing demand for electric vehicle (EV) charging infrastructure while promoting renewable energy adoption. This coin/UPI-based smart charger offers an efficient and user-friendly way to power both electric vehicles and mobile devices.

***Key Words*: Solar Tree, innovative, sustainable, electric vehicle (EV) charging infrastructure, renewable energy adoption, coin-based, UPI-based, smart charger, efficient, user-friendly, electric vehicles, mobile devices.a**

1.INTRODUCTION

The Solar Tree CoinBased Smart Charger for Electric Vehicles and Mobile Devices.This innovative solution combines solar technology with a unique coinbased system to provide efficient and ecofriendly charging options for EVs and mobile devices.

Provide Clean And Reanewable Energy:

Solar panels on the tree harness energy from the sun, providing a clean and renewable source of power. This reduces the reliance on fossil fuels, helping to combat climate change and reduce carbon emission. navigation, interaction, combat, and creative expression within these virtual domains. Through a careful examination of both existing applications and future possibilities, this exploration seeks to unravel the exciting potential of smart gestures in reshaping the landscape of VR with entertainment and storytelling.

UPI Based Payment system: Incorporating UPI-based payment systems makes the charging process seamless and user-friendly. Users can easily pay for the energy they consume through their smartphones, simplifying the payment process

. Mobility And Portability: Solar trees are mobile and can be relocated as needed, making them suitable for events, construction sites, temporary locations, and emergency charging situations

2. **Working**: The working of "The Solar Tree Coin/UPI-based Smart Charger for Electric Vehicles and Mobile Devices" involves a combination of renewable energy harvesting, payment processing, and smart technology to provide efficient and sustainable charging for electricvehicles and mobile devices. Here's a step-by-step overview of how it operates:

1. Solar Energy Harvesting:

- The Solar Tree is equipped with an array of advanced solar panels integrated into its canopy.
- These solar panels capture sunlight and convert it into electricity using photovoltaic cells.
- The generated solar energy is stored in batteries or immediately used to power the charger's components.

2. User Initiation:

- To initiate a charging session, users approach "The Solar Tree" and select an available charging outlet for their electric vehicle or mobile device.

• Users can pay for the charging service using either traditional coins or the UPI (Unified Payments Interface) method through their smartphones.

3. Coin/UPI-Based Payment:

• For coin-based payments, users insert the required amount of coins into a coin slot provided on the charger.

• For UPI-based payments, users can scan a QR code on the charger or use a mobile app to make a digital payment.

4.Charging Process:

• Once the payment is confirmed, the charger activates the selected outlet.

• Electric vehicles can connect to the fast-charging port, while mobile devices can use the USB ports provided on the charger.

• Charging begins immediately for both electric vehicles and mobile devices.

5. Environmental Sustainability:

• Solar energy generated by "The Solar Tree" reduces the carbon footprint associated with charging electric vehicles and mobile devices, as it is a clean and renewable energy source.

• By promoting the use of electric vehicles, it contributes to a reduction in greenhouse gas emissions compared to traditional gasoline-powered vehicles.

Smart EV charging project utilizes a 12V 7.5Amp battery with a DC to DC converter to power the Arduino and other circuit components. The system employs both a keypad module (4x3) and a coin sensor for user interaction. Users input desired charging durations via the keypad, with each number corresponding to a specific charging duration. For instance, inputting '10' signifies a 10-minute charging session. Similarly, the coin sensor detects when coins are inserted, and each coin type triggers a predetermined charging duration. When activated, the Arduino controls a relay circuit, connecting the battery to a DC to AC inverter for EV charging. The charging process commences upon relay activation, with the inverter charging the EV for the specified duration. Throughout the process, the system provides feedback to users, indicating charging initiation, completion, and any potential errors. Incorporating safety features such as overcurrent and overvoltage protection ensures the system's safe and reliable operation, safeguarding both users and EVs alike.

3.Hardware used:

• Solar Pannels
• Battery Storage
• Charging Outlets
• Payment Processing Hardware
• Smart Electronicks
• Display And User Interface
• Security Hardware

4.Solar Tree Development: Requirements of Solar Tree:

• Solar Panels
• Battery Storage
• Charging Outlets
• Payment Processing
• User Interface
• Structural Components Design the Solar Tree Proto type Solar Tree Test the Solar Tree

5.Advantages:

Utilizes clean and renewable solar energy to power electric vehicle charging and mobile device charging, reducing the carbon footprint associated with these activities.

Supports environmental sustainability by reducing greenhouse gas emissions, promoting clean energy generation, and decreasing reliance on fossil fuels for transportation and device charging.

Provides a convenient charging solution in urban and public areas, making it accessible to a wide range of users who may not have home charging options.

6.CONCLUSIONS

Conclusion: In this report , we discussed all aspects regarding Solar Tree, This will give all information about it, as Solar Tree development , working and advantages and etc.

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