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CNG-Based & Electric Vehicle Charging Slot Booking & Booth Locator

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ABSTRACT: As in today's generation CNG based vehicles and Electric vehicles are gaining a lot of popularity and demand due the salient features provided by both of these vehicles .Thus there is a need to create such system that will help the CNG vehicles users as well as electric vehicles user to quickly book their slot for fueling up the gas and to charge their electric vehicles as well as the users can easily locate the nearby charging stations.

KEYWORDS: CNG, ElectricVehicles ,Charging station

I. INTRODUCTION

As the world is facing an in-efficiency in fossil fuels , thus the electric vehicles as well as CNG based vehicles has gain the attraction of the Government, industry and of vehicle users . As vehicles based on the fossil fuels are affecting the environment drastically by producing air pollution . Thus increase in pollution and lack of an alternative fuels have made electric vehicles as well as the CNG vehicles the best alternative for the vehicles that are based on fossil fuels . Also these vehicles based on electricity as well as CNG are providing a lot of benefits as compare to the vehicles based on crude oil.

A. Electric Vehicles Electric vehicles are preferred by most of the people because all the electric vehicles required less maintenance as compared to the other normal vehicles that is vehicles based on the fuels like Petrol and Diesel. Also in terms of fossil fuels and energy, electric vehicles use less energy and thus due to this electric vehicles also cost less. Electric vehicles generates low sound OR noise as compare to the vehicles running on the fuels like petrol and diesel. B. CNG Vehicles Similar to electric vehicles , CNG vehicles has also gained popularity as it provides more beneficial salient features as compared to the vehicles that uses petrol OR diesel . CNG is termed as (Compressed Natural Gas) and is also considered as the eco-friendly alternative fuel for fossil fuels like petrol OR diesel .CNG cars are those that actually uses Compressed Natural Gas as a fuel to run the vehicle. Due to increase in the high prices of fossil fuels thus nowadays CNG is mostly used in most of the vehicles .CNG is also considered as the green fuel as it contains sulphur free elements in it, also the emission done by the cng vehicles is not harmful to the surrounding environment as compared to vehicles that uses fuels like petrol and diesel. The elements and their properties that are present in Compressed Natural Gas are also considered as safe fuel. The working cost of Compressed Natural Gas vehicles is also very low and thus many of the people preferred to use cng vehicles due to low pricing as well the low running cost. Due to increase in numbers of users of electric vehicles as well as Compressed natural gas based vehicles, people get to see a lot of crowd at gas stations as well as the charging stations . Thus the main intention of creating this management system is to help the vehicle users to quickly book their slot for charging their electric vehicles and to quickly fuel up the cng vehicles from any location just by using the website application. Also this website application will allow the user to find the nearby charging station or the cng gas station from any corner of the world.

II. RELATED WORK

[1] Next-Generation Smart Electric Vehicles Cyber Physical System for Charging Slots Booking in Charging Stations

- These proposed system helps to avoid the long queues at charging station and to book the charging slot from any location .
- Thus by using this system the user will directly able to reserve their slot at specific time given by the system .
- Also the system helps to pay the charging bills online on the website.

- The system also provides various features that will help the user to avoid waiting time and helps to save the charging cost as well as charging time

[2] IoT Based Charging Slot Locator at Charging Station

- This system also works similar just like Next-Generation Smart Electric Vehicles Cyber Physical System for Charging Slots Booking in Charging Stations
- The proposed system is totally based on IOT and allows the user to locate the nearby charging station .
- Also this system provides many beneficial features like booking the slot from anywhere by using the website application website .

•Even by using this system users will get to know about the charging cost as well as the stock of power available at the charging station .

[3] Design and Power Management of Solar Powered Electric Vehicle Charging Station with Energy Storage System

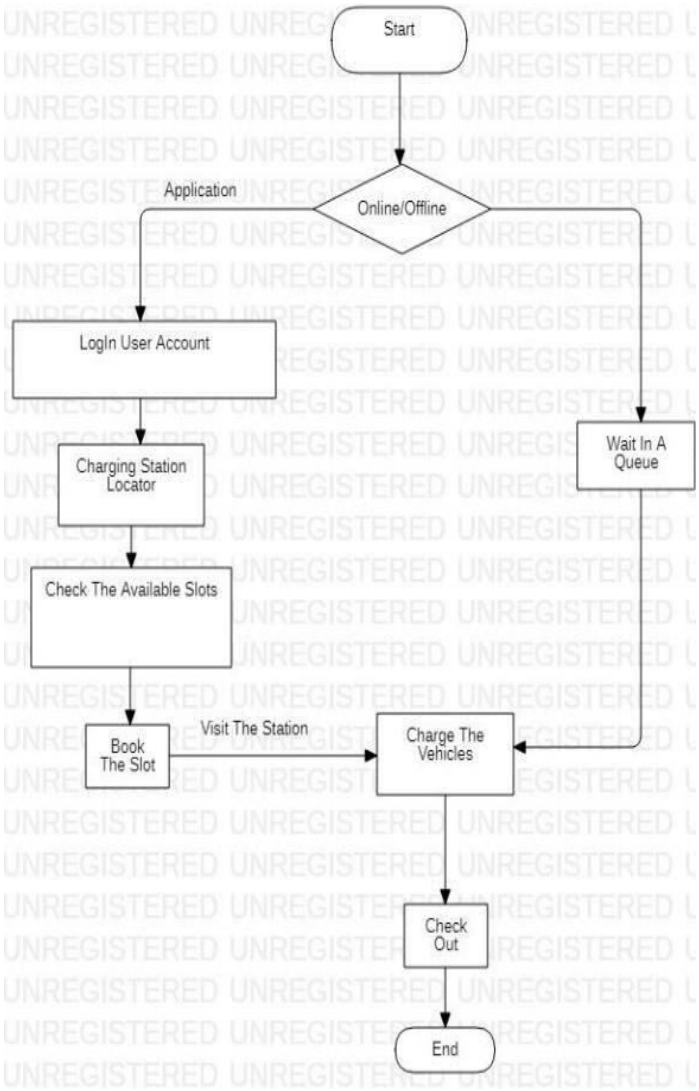
- A renewable energy based charging station finds immense potential and control for electric vehicle charging.
- An electric vehicle charging station integrating solar power and a Battery Energy Storage System (BESS) is designed for the current scenario.
- For uninterrupted power in the charging station an additional grid support is also considered without becoming an extra burden to the grid.
- By taking dynamic charging needs of EVs, the design of charging station is formulated and validated in MATLAB/Simulink.

[4] Hybrid Renewable Energy Based Electric Vehicles Charging Station

- Mass integration of those vehicles into the electrical grid could result in huge stress on the existing grid.
- Understanding these issues, this paper discusses the detailed modeling of a hybrid renewable energy-based EV charging station integrated with a solar power generation unit, wind turbine, fuel cell.
- In this paper, the control method and combination of PV, wind, fuel cell for charging multiple Electric vehicles are provided to balance the power among different ports.
- Additionally, the burden on electrical grid is also reduced by exporting excess energy to the electrical grid.

III. SYSTEM ARCHITECTURE

This proposed system is basically created by using the various framework like React.Js to make the website application more interactive and to create the user interactive website . Basically by using HTML,CSS , Bootstrap ,This system is all a user interactive website , which is easy to handle and is easy to use just like any other Movie Ticket Booking System . Also In this system PHP is used for all the BACKEND work of our management system. Similarly Database Management System (DBMS) server that is MySQL for storing the user related information of the system user. Also the Framework like React.JS which is helping us to make our website more user interactive with the salient features present in it. The customer and the admin both have access to the website. This website first displays a user login page in which the registered username and password is entered. This website provides information on every charging station such as rates, the different plug-ins available and the available time slots. The present coordinates of the EV are acquired using the GPS module. These coordinates are sent to the users mobile phone through SMS with the link or directly through the web application. . A suggested list of nearest charging stations appear on the screen. The user selects the charging station closer to the EV. Once confirmed, the user proceeds to the location and charges the EV.



IV. CONCLUSION AND FUTURE WORK

The main motive of this system is to help the users that have the electric vehicles as well as those users owning cng based vehicles to book the slot for charging their vehicles or to fueling up the cng at gas station .Also this system helps the user to notify them about the slots available at the charging station and helps them to locate the nearest charging as well as cng station. Even the system will also notify the user about the availability of the CNG.

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