ELECTRIC VEHICLE ADVANCE BOOKING SYSTEM FOR CHARGING STATION.

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Abstract

As there are more electric vehicles on the road, the charging issue becomes more evident. For the purpose of recharging and driving convenience, charging stations (CS), similar to gas stations, must be installed. This article examined a novel charging station design that uses renewable energy sources. To deal with the uncertainties, a hierarchical energy management approach focused on the real-time application was suggested. Electric vehicles and renewable energy sources are combined in a renewable energy-powered charging station, which has a lot of promise to be a crucial infrastructure for charging. The issue of charging becomes crucial as the number of electric vehicles increases. Such satisfying charging is expected to result in a demand for charging stations. This is a method for dispatching electric automobiles in an electric vehicle charging station that combines a charging station with solar panels, batteries, and a grid-tied system, and it is based on the unwillingness of the grid. In the game, the charging power is dynamically changed. The most notable advantage of this method is that it enables simultaneous charging of all-electric vehicles, which is especially useful when there is a lack of available charging power. Based on the simulation results, the suggested charging technique can increase the rate at which services are charged and the use of the charging pole within the charging station in comparison to the common constant charging system. *Index Terms: - EV (Electric Vehicle), Android Application, Charging station, energy management strategy.*

INTRODUCTION

Recently, thanks to advancements in battery technology, the public has begun to accept electric cars (EVs) more and more. The expanding number of EVs, however, creates a significant amount of charging demand that will undoubtedly increase grid load during peak hours.

hour. In order to supply the additional electric power, more power plants must be built and operated, which is expensive and causes environmental issues. Meanwhile, recent years have seen significant advancements in the use of renewable energy sources. Therefore, EV adoption will become widespread in the near future, including car to grid, and charging stations integrated with renewable energy sources will play a vital part in this.And up until now, in-depth studies on the administration of electric vehicle charging have been carried out. In order to ensure EV flexibility, charging station infrastructure must be provided. To make it easier for the general public to charge their vehicles, it is required to create an SPKLU (public electric vehicle charging station) with a higher power and supporting applications. The CS system's configuration was created in 2018 to 2019 by the Agency for the Assessment and Application of Technology (BPPT). According to the research master plan where BPPT was a part of a consortium of electric vehicles, BPPT concentrated on creating the charging station on EV CS technology is still held by a number of major vendors/companies. While most of the systems created by each corporation are open, others are not, making them incompatible or ineffective.

LITERATURE SURVEY

This topic describes the fundamentals of Image processing techniques that can be used to design a accurate Cancer detection and prediction system It

helps in understanding various ideas put forward by various technical papers published by various polishers.

A. **Prasetyo Aji, Dionysius Aldion Renata,Adisa Larasati [1]** In recent years, Indonesia has encouraged electric car research and development as cutting-edge technology. To ensure flexibility, infrastructure for electric vehicles (EV) must include charging stations (CS). The communication of multiple brands into the central system makes managing the EV Charging Station difficult. The charging station management system was successfully created by us (CSMS). Application development is utilised to create a tool known as the CSMS application, also known as SONIK, to monitor and regulate CS (electric vehicle charging operation system). The CSMS system architecture and performance have been shown. Three different types of CS in the three urban cities have been linked to the system's design. CS injected power into the system 1663 times in total.

B. **Miss. Jyoti M. Kharade, Mr. Mangesh P. Gaikwad, Mr. Saurabh P. Jadhav Mr. Parag D. Kodag** authored a paper in 2020 where study shows In Electric vehicles, electrical energy is stored in batteries. The required time to charge the EV is more. The charging stations of EV play a major role in this .Currently, people are unaware of how many charging stations are there in the journey. So to find a charging station and slot availability extra time will be wasted and also inconvenience will occur. The paper provides a solution technique to save time and avoid the inconvenience of EV users. This system will indicate the availability of charging slots at each charging station in our journey. Also, it will show from what time the vehicle is plugged to the charging station so that we can plan our journey accordingly.

C. **Taoyong Li, Jing Zhang, Yuanxing Zhang, Linru Jiang, Bin Li** authored a paper in 2018 where study identifies The charging problem becomes prominent with the increasing number of electric vehicles. It is necessary to built charging station (CS), like the gasoline station, to satisfy the recharging and be convenient for the drivers. In this paper, a new type of charging station integrated with renewable energy source was studied. A hierarchical energy management strategy oriented to real-time application was proposed to handle the uncertainties. To determine the optimal size of the CS by considering multi- objective including economic, environment and battery energy storage system degradation, Monte Carlo simulation was adopted to solve the problem with many uncertainties. We treated battery degradation as a specific objective function. And we obtained the optimal Pareto set. The result demonstrated the optimal decision variable for CS sizing can compromise the objectives as well as realize the reasonable resource dispatch.

D. **Hans Havard Kvisle, Bjarne Andre Myklebust [1]** In recent years, Opportunities have been identified through in-depth interviews with large public Opportunities have been identified through in-depth interviews with large public and private fleet owners, car distributors, utility transport providers, operators of charging infrastructure and developers of digital maps. As a result of the survey, the selected main focus has been to find solutions for large public and private fleet owners developing a communicative charging infrastructure, leasing companies to acquire control of mileage for electric cars, a cost efficient system for all stakeholders to develop interoperability and universal access to a commercial charging infrastructure, and integration of in-car charging station data for car importers and distributors. We have identified a number of needs and systematically assessed and proposed solutions with the support of charging station data, both to meet present needs and identify more visionary possibilities, without adding to high overhead costs.

E. **Badrinath Kulkarni, Devaji Pati** , authored a paper in 2018 where study shows the effects of electricity production from a solar power plant on the load curve also known as duck curve and provide an alternative by charging electric vehicles in the IOT integrated multi-level charging stations. An effort is made to improvise the load curve by neutralizing the dip and sudden rise in the duck curve by creating alternative loading on the powergrid. It also supports for the promotion of EV utilization by improvising the charging technologies with the help of IOT interface and providing incentives to customers to utilize EVCS at the workplace. It also talks about an idea of replacing fossil fuelbased revenue system with centralized EV charging taxation that would boost the idea of green mobility.

DISCUSSION

As above literature survey In First paper they are developed electric Charging station because of they have increasing number of electrical vehicles. They uses CSMS Application for Charging Station Management .The Second Paper Which Consist IOT With Android Application and the problem with This System The mobile applications used in this system will provide connectivity user's interactions but it is very expensive as well as its maintenance cost is also high .In Third paper They Develop Only Electronic Vehicle Charging Station By Using IOT .They Don't have a Specific Application To manage or book Charging Station.

In Fourth Literature Survey Paper It is evident how the driving range, the recharge times andthe energy price remain nearly unchanged, since our application do not address those aspects. Instead, both finding a near charging spot, as well as finding an available one, are perceived as less important challenges. In Fifth Paper They Developed EV charging Station App Which is Working Properly but they Don't have Currant location feature and that's why they only shows the list of all charging station so it becomes a time consuming process to find nearby charging station .

PROPOSED SYSTEM

So, by using the above studies that are defined in the literature survey we get in to a conclusion that we are developing a charging station app in which we can smoothly get a information about nearest charging station and we can book that station by paying online. So, in the proposed system we will do the same.

A. GOAL AND OBJECTIVES

Project goals and objectives are what define the purpose of a project. Project objectives are the smaller steps that lead to the project goals, which are broader. Start your project scope statement by explaining them. These goals and objectives should be documented in a project charter too.
 Project Objectives

- Electric vehicles use electricity to charge their batteries instead of using fossil fuels like petrol or diesel
- Electric vehicles are more efficient, and that combined with the electricity cost means that
- charging an electric vehicle is cheaper than filling petrol or diesel for your travel requirements.
- Nfine on - Connecting the real and the digital world.
- Developer Community.
- Highlights: Offering Technical Support,
- Newsletter Available, Webinars Available

B. STATEMENT OF SCOPE

Although it might seem simple enough, this is the most crucial action. In this section, you'll outline the work that must be done to finish the project, or its scope. The project scope can be defined using the following easy procedures. To visualise all of your project's tasks, deliverables, and milestones, use a work breakdown structure.List the components of your project that fall within its parameters and those that do not. Project exclusions are everything that is not included by the project scope. Determine the project constraints, which are all the restrictions like financial or time limits. Make a baseline for the project's scope so you can measure your progress against it.

MATHEMATICAL MODELING

Let S be the Whole system S= {I, P, O}

I-input

P-procedure

O-output

Input(I)

I= {Charging Station Details}

Procedure (P),

P={I, System Search And Book Slot

As Per Their Current Location And Need.}

Output(O)-

O = {System Make Payment and Book Charging

Station}

FUTURE SCOPE

Its primary function is to keep an electric vehicle (EV) moving by recharging the battery. Although the batteries of the majority of eclectic vehicles can only be charged with direct current (DC) electricity, certain electric vehicles (EV) feature a charger that transforms alternating current (AC) electricity into DC and then transmits this power to the vehicle's charging connection.

MOTIVATION OF PROJECTS

Many participants were initially encouraged to take part in the pilot by the potential of saving money on a cutting-edge wall-mounted EV home charger at half-price, however this was later abandoned due to delays in the development of the smart charging ICT platform. Within 30 minutes of the grid company's email newsletter announcing the deal, the pilot had all participants fully signed up.

DATA MODEL AND DESCRIPTION
Data Description

Data objects that will be managed/manipulated by the software are described in this section. The database entities or les or data structures required tobe described. Data objects are Java.

Data objects and Relationships
A relationship creates a two-way connection between two database objects. In general, relationships are named and each direction-specific connection is described using a short word or phrase. For example, in a reference relationship, one object references an object while the other object is referencedby the object.

BLOCK DIAGRAM
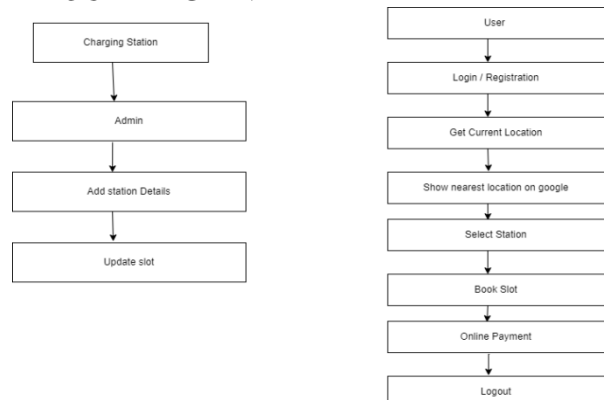
CONCLUSION

In this essay, we looked at a number of ideas that the issue of charging EVs has grown in importance as the number of them on the road increases. A viable alternative for addressing the daily charging requirements of all linked EVs is a charging station outfitted with solar panels, a battery storage system, and additional grid support. PID can be used to control current flow and voltage to deliver the required quantity of power by maintaining the station's DC bus voltage at a consistent level. Making the design and algorithm robust, the design and power management of the proposed station are explored and evaluated in MATLAB/Simulink while taking into account 5 different operating modes and looking at 2 instances of EV requirement. This can be utilized to give EVs a power outlet.

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