e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:02/February-2024 Impact Factor- 7.868 www.irjmets.com

ELECTRONIC VEHICAL CHARGING STATIONS MANAGEMENT SYSTEM USING AI CHATBOT

Harshal Badgujar [*1], Rajshree Rokade[*2], Hruturaj Deshmukh[*3],Sahil Deshmukh [*4] ,Prof. Pankaj Phadtare[*5]

*1,2,3,4 Information Technology Department, TCOER, Pune, Maharashtra, India.

*5Assistant Professor, Department Of Information Technology, TCOER, Pune, Maharashtra, India.

ABSTRACT

Automakers such as tesla have introduced new electric vehicles to the market and are building charging stations. Nevertheless, the charging time now ranges from 15 to 30 minutes, which could lead to delays when all of the stations are in use. To address these issues, our proposal involves creating a single network that connects all electric vehicle charging stations. When driving an electric car long distances, it is very helpful to locate and select the station fast, which eventually saves time. The system lets customers book slots when there are open ones; if not, it asks them to select a different time. Online reservations require a percentage of the total to be confirmed. In addition, our system provides charging stations with a management interface to regulate reserved and open slots, as well as the fastest route to the selected station. Our Android-based solution uses the Google Maps API for direction finding and time-slot allocation techniques. The programme can be operated by voice commands via our chatbot system, and transactions are accelerated by an online payment gateway. Through the use of our technology, customers may rapidly and significantly reduce the amount of time it takes to discover and book appropriate charging stations.

Keywords --Management, slot, EV Cars.

I. INTRODUCTION

Both the consumption of fossil fuels and the rate of global warming have grown lately. the two major issues of global warming and the depletion of fossil fuels brought on by reckless energy use. Installing renewable energy systems free of fossil fuels is necessary to solve these issues. Japan's uptake of solar electricity has surged thanks to the government's Feed-in Tariffs (Fit) plan. System frequency and voltage distribution have suffered as a result of these systems' increasing output. Consequently, the Japanese government is now reviewing the Fit system. Furthermore, the annual cost of installing solar systems is declining, indicating significantly lower PV electricity costs in the future. According to this study, EV charging stations should be utilised as energy aggregators, mainly to transfer power from PV systems in smart homes to EVs and smart homes itself. For these charging stations to exchange electricity, stationary batteries are required.We want to provide our consumers with a platform where they may schedule charging sessions at any available charging station, according to their own schedules. Among the features offered by the system are an AI chatbot, digital payment options, direction-sensing mapping capabilities, and alerts for each activity.Electric vehicles can be recharged using a variety of charging infrastructure types, each tailored to certain locations and requirements. This chapter highlights the significance of taking local design and execution for EV charging networks into account by focusing on technical aspects and EV charger standards.

e-ISSN: 2582-5208
International Research Journal of Modernization in Engineering Technology and Science
(Peer-Reviewed, Open Access, Fully Refereed International Journal)
Volume:06/Issue:02/February-2024 Impact Factor- 7.868 www.irjmets.com

II. LITERATURE SURVEY

This paper Cloud based Smart EV Charging Station Recommender Sarika P.R,Shivraj P 2022,Random Forest Algorithm (RFA) is applied for finding stations that are near the vehicle location; Linear Search Algorithm (LSA) for filtering stations that satisfy the user requirements. Electric vehicle charging station planning with dynamic prediction of elastic charging X. Bai, Z. Wang, L. Zou, H. Liu, Q. Sun, and F. E. Alsaadi 2021 In this study in this study, a novel approach based on the dynamic forecast of charging demand has been developed to address the problem of planning EV charging stations. Optimize strategy of wireless charger node deployment based on improved cuckoo search algorithm Y. Wang, F. Wang, Y. Zhu, Y. Liu, and C. Zhao 2021 In this paper, we have proposed model and algorithm's accuracy and efficacy are also confirmed. Cuckoo search algorithm for multiobjective optimization of transient starting characteristics of a selfstarting HVPMSM. L. Wang, H. Guo, C.D. Shaver, and N. Bianchi 2021 This survey aims a multiobjective optimization strategy based on QRSM and the Cuckoo search algorithm is proposed in this study.Stochastic planning of electric vehicle charging station integrated with photovoltaic and battery systems D. Yan and C. Ma 2020 In this paper,the modelled charging demand of the charging station was made more realistic by taking into account a variety of EV charging behavior, charger configurations, and charging assignment models.In this paper,the modelled charging demand of the charging station was made more realistic by taking into account a variety of EV charging behavior, charger configurations, and charging assignment models.Optimal planning of charging station based on discrete distribution of charging demand. Daniel Nahmias, Aviad Cohen, Nir Nissim, Yuval Elovicia 2020 In this work,the use of SAR data for rice identification at various sites in northern Vietnam is demonstrated. Agentbased aggregated behavior modeling for electric vehicle charging load K. Chaudhari, N. K. Kandasamy, A. Krishnan, A. Ukil, and H. B. Gooi 2019we study suggested a simulation model to forecast EV charging demand based on a number of key parameters.Influence of electric vehicle access mode on the static voltage stability margin and accommodated capacity of the distribution network Nir nissim, aviad cohen1, jianwu, andrealanzi, liorrokach, Yuval elovici and lee giles 2019. In this study, We research, the behavior of buses, t-taxis, and private vehicles were taken into account when developing the prediction model for the demand for charging power for electric vehicles.Current weakening control of coreless afpm motor drives for solar race cars with a three-port bi-directional dc/dc converter V. Rallabandi, D. Lawhorn, J. He and D. M. Ionel. This paper proposes the use of a coreless axial flux permanent magnet machine, which has the attributes of low stator mass, negligible core loss and virtually zero cogging torque, as the propulsion motor. A three-phase inverter with its dc bus fed from a three-port DC/DC converter, which accepts inputs from a solar panel and battery powers the propulsion motor.Smart topology of evs in a pv-grid system based charging station by A. Hassoune, M. Khafallah, A. Mesbahi and T. Bouragba.This work focuses on a smart algorithm to optimize energy of electric vehicle charging station while considering numerous constraints as the instability of renewable energy sources and the potential limited power given by the grid.

III. OPEN ISSUE

This field has produced a great deal of work because of its wide range of applications. A few strategies that have been used to accomplish the same goal are mentioned in this section. The methods for intelligent control of EV charging station systems are primarily what set these works apart

IV. CONCLUSION

With great success, we developed the "Smart Management of EV Charging Stations" solution using a cutting-edge approach to web application development. One of the main benefits of the system is its capacity to reserve charging places based on the specific type of charging plug that the vehicle requires. An AI chatbot built into the system can respond to inquiries and provide help to enhance user communication and support. This chatbot ensures a flawless user experience by automating the process of obtaining access to charging stations. The GMAPS API is also utilised by the system to provide accurate direction sensing. This feature makes it easier for customers to locate and visit the nearest charging station, which increases convenience and efficacy. In summary, a web application methodology is employed by the "Smart Management of EV Charging Stations" system. Through the GMAPS API, it offers efficient direction detection, an AI chatbot for answering questions, and the ability to reserve charging slots based on charging socket types. The goal of this comprehensive solution is to improve user experience overall and expedite the management of EV charging stations

V. REFERENCES

1. Sarika P.R ,Shivraj P "Cloud based Smart EV Charging Station Recommender" 2022 IEEE 6th International Conference on Renewable Energy Research and Applications (ICRERA)pp.26-27 Aug 2022.
2. X. Bai, Z. Wang, L. Zou, H. Liu, Q. Sun, and F. E. Alsaadi "Electric vehicle charging station planning with dynamic prediction of elastic charging" Springer link. on pp.10 Nov2021.
3. . Y. Wang, F. Wang, Y. Zhu, Y. Liu, and C. Zhao "A review on topologies for fast charging stations for electric vehicles" Springer link. on pp. 2021.
4. . L. Wang, H. Guo, C.D. Shaver, and N. Bianchi "Cuckoo search algorithm for multi objective optimization of transient starting characteristics of a self starting HVPMSM" IEEE Transactions on energy conversion. pp. December 2020
5. D. Yan and C. Ma "Stochastic planning of electric vehicle charging station integrated with photovoltaic and battery systems.2020.
6. Daniel Nahmias, Aviad Cohen, Nir Nissim, YuvalElovicia"Optimal planning of charging station based on discrete distribution of charging demand". pp 2020
7. .K. Chaudhari, N. K. Kandasamy, A. Krishnan, A. Ukil, and H. B. Gooi"Agent based aggregated behavior modeling for electric vehicle charging load" on pp.2019.
8. Nir nissim, aviad cohen1, jianwu, andrealanzi, liorrokach, Yuval elovici and lee giles"Influence of electric vehicle access mode on the static voltage stability margin and accommodated capacity of the distribution network" on pp.2019.
9. V. Rallabandi D. Lawhorn J. He and D. M. Ionel "Current weakening control of coreless afpm motor drives for solar race cars with a three-port bi-directional dc/dc converter" 2017 IEEE 6th International Conference on Renewable Energy Research and Applications (ICRERA) pp. 739-744 Nov.2017.

10. .A. Hassoune M. Khafallah A. Mesbahi and T. Bouragba "Smart topology of evs in a pv-grid system based charging station" 2017 International Conference on Electrical and Information Technologies(ICEIT)pp. 1-6 Nov 2017.