SYNOPSIS

1. TITLE OF PROJECT

Smart management of EV charging stations system.

2. ABSTRACT

In Recent year's car companies like TATA, TESLA introduced and launches new electric cars in the market. For charging these cars some of the stations are also set up. But considering the current situation, these cars take at least 15 minutes to half an hour to charge. If station is full and all the slots are filled previously then other customers have to wait for a long time. Our idea is to develop a system which will solve these kinds of issues. We are developing a system in which we going to connect all the electric car charging stations together. By using our system user can find the station according to their choice and it will be useful for those who want to travel for long distance with their EV cars and it will be time saving. It will be very easy to use. If the given time slot is available then your place for the given slot will be booked. Otherwise system will ask to enter the new time schedule. In this system user has to pay some percent of amount online to confirm their booking. Our system will also provide shortest map route to reach at given station. Our system will also provide interface for charging stations to view all available slots as well as booked slot lists and manage slot timing. To develop this system, we are going to use time-slot allocation techniques as well as Google maps API for direction sensing. Our chatbot system will Control software. By using the system peoples will save their so much time and they can view and book appropriate station easily.

3. PROBLEM STATEMENT

To design and develop a web-based application to book the charging slot to charge the electric vehicle. The system also proposes the slot booking according to charging socket type.

4. OBJECTIVES

- To available a charging slots booking system for EV car owners.
- To design simple and adaptive interface which easily understandable to everyone.
- To connect multiple charging stations together via single system.
- To available a nearest stations details and route to reach at station via maps.
- To implement a system this will make easy to book and charge electric cars.

5. SCOPE OF SYSTEM

To available an easy and fastest way of charging station booking for customers to save their time.

6. PROPOSED WORK

In recent years, global warming and the depletion of fossil fuels due to mass consumption of energy resource has become an increasingly recognized world problem. To control these problems, the installation of renewable energy systems, which do not depend on fossil fuels, is an effective countermeasure. In Japan, since the government has introduced Feed-in tariffs (Fit), the introduction of photovoltaic systems has been expanded rapidly. However, the output power from increased number of photovoltaic systems is extremely large and tends to have a bad effect on the system frequency and distribution voltage. To address this problem, the Japanese government has begun reconsidering the Fit system. Adding to this problem, the cost of PV installation is decreasing year by year. Therefore, in the future, the price of PV power is expected to decrease greatly. In this study, EV charging stations that near-exclusively purchases power from PV systems on smart houses and sells power to electric vehicles (EV) and smart houses is proposed as an aggregator. The EV charging station has the need to utilize a fixed battery for electricity trading.

- As we know EV Automobiles going to be future of the world but these machines need charging stations for charging.
- In this project work, system will provide the platform to book charging slots to available charging station according to need of customer.

- In this system user will get facilities like AI chatbot to book station via vocal commands, Maps features for direction sensing, Digital payment option, Notifications, Mails and SMS of each activity.

Electric vehicles (EV) can be charged in a variety of ways, depending on location and requirement. Accordingly, charging infrastructure for EVs is of different types and designed for different applications. Specifications and standards for EV chargers, This chapter explains the technical concepts of electric vehicle charging infrastructure, and highlights the need for a contextual approach to local planning and implementation of EV charging networks.

We propose a Smart EV Charging station System where we used slot booking system to book EV vehicle charging station to charge vehicles. We further categories this slots according to charging socket type. We have also used AI voice assistant to communicate user with system via vocal commands. We also used GMAPS API to show shortest route to reach at destination. The system uses NLP for AI voice assistance as well as MySQL databases for storing a system logs as well as slot management.
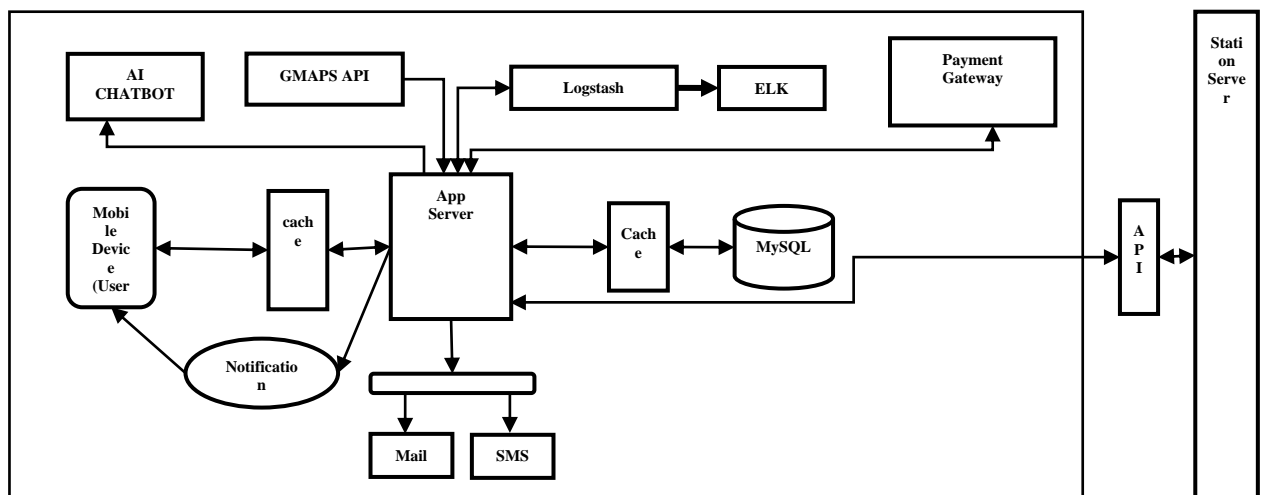

Fig 4.1 Booking System Architecture

7. RESOURCES

Hardware Requirements:

1. Processor   - Intel i3/i5/i7
2. Speed   - 1.1 GHz
3. RAM   - 2 GB (min)
4. Hard Disk   - 40 GB
5. Key Board   - Standard Windows Keyboard
6. Mouse   - Two or Three Button Mouse
7. Monitor   - SVGA

Software Requirements:

1. Operating System   - Windows 7/8/10
2. Application Server   - Apache Tomcat 7/8/9
3. Front End   - HTML, JDK 1.8, JSP
4. Scripts   - JavaScript.
5. Server-side Script   - Java Server Pages.
6. Database   - My SQL 8.0
7.   IDE   - Eclipse

8. WHAT CONTRIBUTION WOULD THE PROJECT MAKE?

The main purpose of carrying out of this project is to develop a hybrid web-based application for the EV car owners to avail the charging station slot booking system to book slot of charging station prior of going to charge the vehicle. In addition, we propose an chatbot in the system. As well as system also provides shortest route to reach to destination through GMAPS API.

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