



# Android based system to find E-charging Stations

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**Abstract** —Electric based vehicles (EVs) will be readily incorporated into the transportation. The main energy source for electric vehicles is a charging station, and a city's accessibility to electric vehicles depends on the location of these stations. In order for an electric vehicle to access a charging station within driving distance and then travel anywhere in the city after being recharged, they should be carefully positioned. In this post, we describe the Electric Vehicle Charging Slot Booking, in which we reduce the Electric Vehicle Charging Station Queue. The proposed system of Electric Vehicle Charging mobile app to provide Electric Vehicle car owner the convenience of locating charging stations on Google map, vacancy of charging slots, receiving status updates with respect to charging. Help's to easy way of charging of Electric Vehicle station and ensures smooth journey to long distance. Android based system to find E-Charge Stations is generally used by three kinds of users are Admin, Charging Station, and users.

**Keywords** — Electric vehicles, Android, Charging station

## 1. INTRODUCTION

The market for electric vehicles has rapidly changed over the past ten years as a result of continued automotive industry advancements. The demand for electric vehicles and apps for electric vehicle charging stations has surged due to the sensitivity of various governments across the world to a cleaner environment. Because the government encourages the use of electric vehicles to reduce emissions, the market for these vehicles is expanding rapidly. In the last few decades, all forms of transportation including ships, trains, aeroplanes, and electric cars have steadily shifted from using petroleum to using electricity. As the market is helped by the advantages, political incentives, and declining prices, including those brought on by largescale production, this change is anticipated to develop quickly, especially with regard to electric vehicles. Due to more use of electric vehicles in transportation we need a user-friendly app which helps the electric vehicle owners to search the

charging station within their range.

This system inspects different issues connected with electric vehicle owners. The proposed arrangement of Electric Vehicle Charging versatile application to give Electric Vehicle proprietor the accommodation of finding charging stations on google map, opportunity of charging spaces, getting refreshes on charging, suggestions on schedule of-day use. Seek E-Charge Station App has three modules admin, charging station and users. Admin has rights to view and accept the registered charging stations. Admin is also responsible for view and delete the registered users. Admin also have the rights to view and delete the slot bookings from the users. Users is second module of this application. Users need to register with valid details to get auto generated username and password. User login to the application and can search the charging station based on the locality. The users also can view the location and route map of charging station in Google Map. Users can see the availability of slots in the selected charging stations and he can also book the station slot for charging.

## 2. RELATED WORK

In present moment, the electric vehicles owner must visit re-charging station to collect the data about the charging station. Furthermore, they are not even aware of the slots that are open for charging vehicles. Electric vehicle owners need to wait a long time to recharge their vehicle if all slots are full. The existing system is the manual system. Need to be transformed into automatic system. In existing system persons should push the vehicles or get help to reach near electric re-charge station to check and book availability of charging slot. In the above system, time and manual work is done by owners of the vehicle. For some medically ill people or aged people it will be even hard to get into electric station to fill generators, persons need to reach an electric re-charge bunk station. Rajvee Patel et al. [1] They spoke about the job's feedback management system. Regarding institutional and educational practises, as well as student worries about the breadth of the knowledge they are acquiring, the "Feedback management System" technique focuses on taking all of these factors into consideration. They have created a faculty feedback mechanism so that input may be sent to the college HOD or administration in a straightforward and uniform manner. They use the term "faculty feedback system" to describe the online platform that acts as a service provider and provides faculty input via a student staff interface.

Phani Rama Prasad et al. [2] suggested the Online Student Feedback Mechanism, an automated system for generating input that gives instructors the appropriate feedback. With this technique, students may provide comments online without having to waste time sending letters.

Nikhil H.M. et al. [3], developed Student Input System to make it simple and quick for the college administrator to receive input. Using this method, one may swiftly compile timely student feedback on the professors.

Sivasankari S. et al. [4], technique for analysing student feedback submitted online (OSFAS). By employing comments and categories like good, intriguing, late, interactive, etc., the Online Student Feedback Analysis System (OSFAS), an automated input generating system, delivers the appropriate feedback on the teachers. The major goal

of their approach is to swiftly save time while minimising human effort..

### 3. METHODOLOGY

The fundamental goal of the suggested system is to create a paperless system, which involves reducing the usage of paper. The suggested approach is put into practise using android technology. Since the data from the feedback system would be maintained centrally and conveniently accessible as needed, it will be feasible to generate accurate reports in addition to synchronizing the data in the right way.

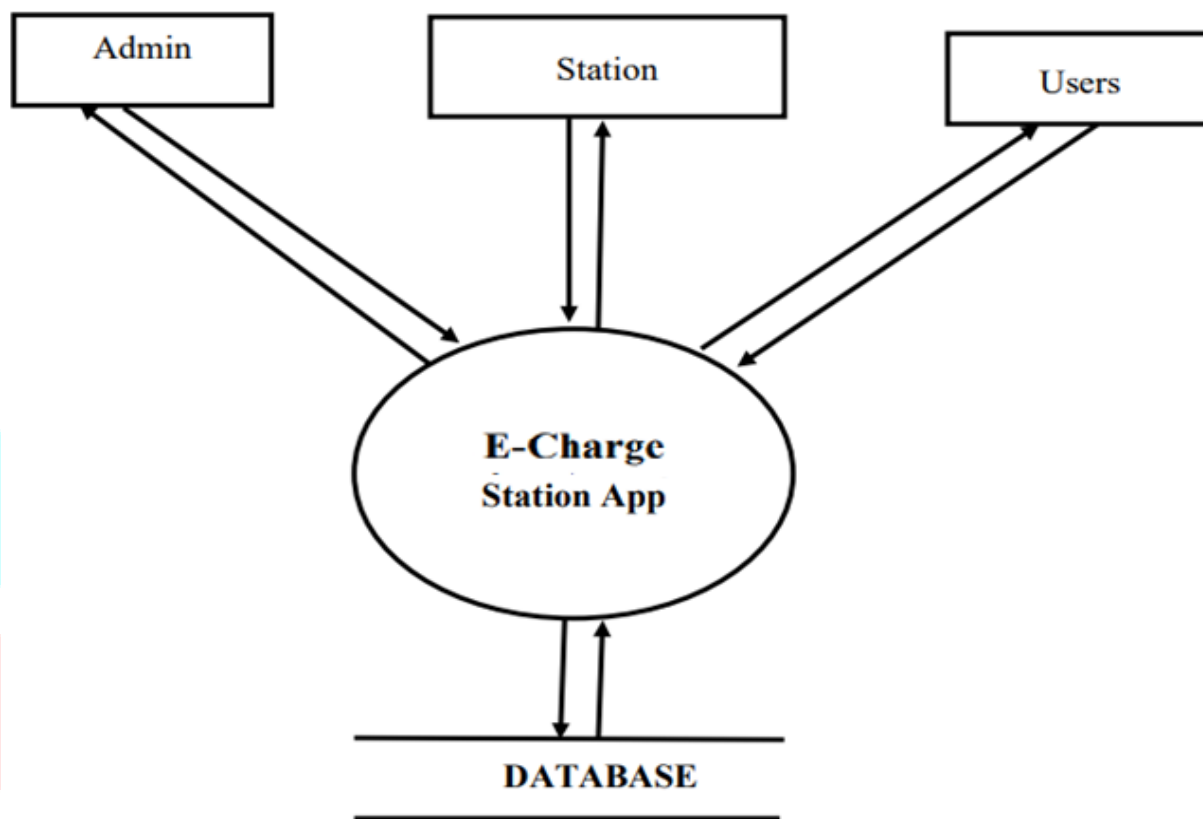


Figure 1. Top Level Block Diagram of System

#### A. System Description

The way the system operates is as follows.

- **Users Login**

Users register in the android app with valid details. They have an option to view stations list in distance order. Users can book the charging point of the particular station. Users can view their bookings and their status. They can update their profile.

- **Admin Module**

The administrator is the super user of this application and could have the web interface for monitor the whole application. Admin has authority to add and delete district, view, approve, and delete registered stations. Admin can view and delete registered users, Admin can view and delete user bookings towards stations.

## Station

Station register in the android app with valid details. They can update their location by fetching address with GPS. Station can add and delete charging points of their station. They can also view and process their user bookings. Station can update their profile.

## 4. RESULTS AND DISCUSSION

### A. Admin side



Figure 2. Admin Login

Through this window (figure 2) The system administrator may log in. Admin can add, delete district, can view, approve and delete registered stations. He can view, delete registered users, can view and delete user bookings towards stations.

Bookings	Users	Stations	District	Logout
<i>Bookings List</i>				
Bookings List				
Booked Date	StationName	Info		
07/05/2022	Swarna Station	<a href="#">Info</a>		
07/05/2022	Swarna Station	<a href="#">Info</a>		
07/05/2022	John Station	<a href="#">Info</a>		
07/05/2022	Likith Station	<a href="#">Info</a>		
07/06/2022	John Station	<a href="#">Info</a>		
07/06/2022	John Station	<a href="#">Info</a>		
07/06/2022	Likith Station	<a href="#">Info</a>		
07/06/2022	Swarna Station	<a href="#">Info</a>		
07/06/2022	Noah Station	<a href="#">Info</a>		

Figure 3. Added Bookings List

The administrator can view (figure 3) already existing bookings.

Bookings	Users	Stations	District	Logout
<i>Users List</i>				
Users List				
User Name	City	Mobile	Info	
Divya N	Davanagere	7353039328	<a href="#">Info</a>	
Shreedhar R V	Chitradurga	9743143922	<a href="#">Info</a>	
Aishu	Bagalkot	9108526715	<a href="#">Info</a>	
Deepti	Udupi	8296480183	<a href="#">Info</a>	
Kamal	Raichur	7975490851	<a href="#">Info</a>	
Manish	Bengaluru	7483123192	<a href="#">Info</a>	
Jansi S	Davanagere	7892969094	<a href="#">Info</a>	
Chaithanya	Mandya	8951318698	<a href="#">Info</a>	

Figure 4. Added users details

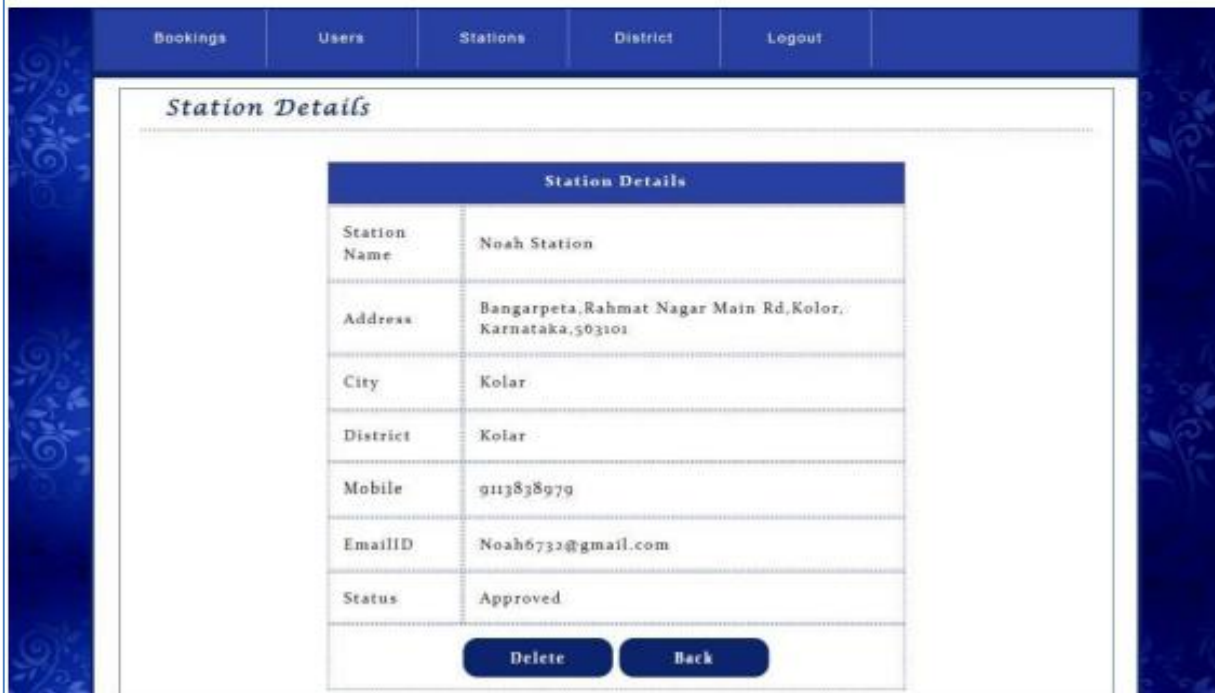


Figure 5. Approved stations details

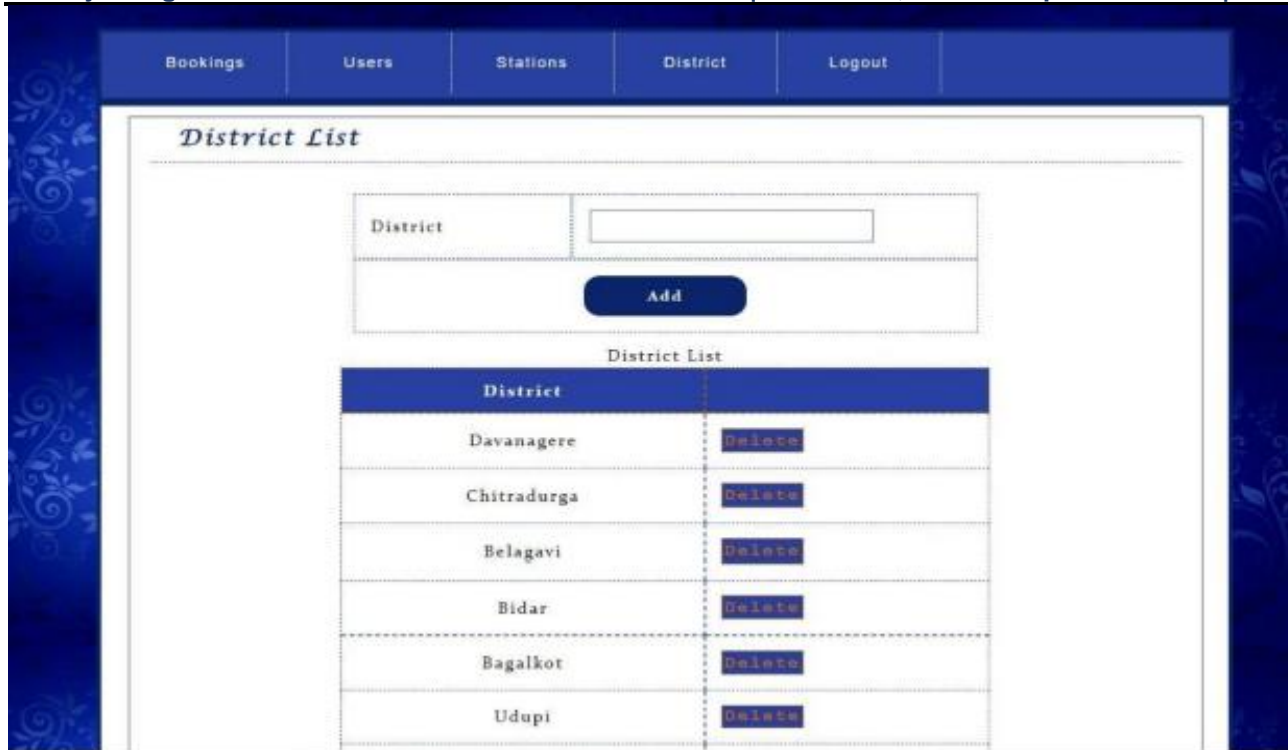


Figure 6. Added District List

**B. Station:**

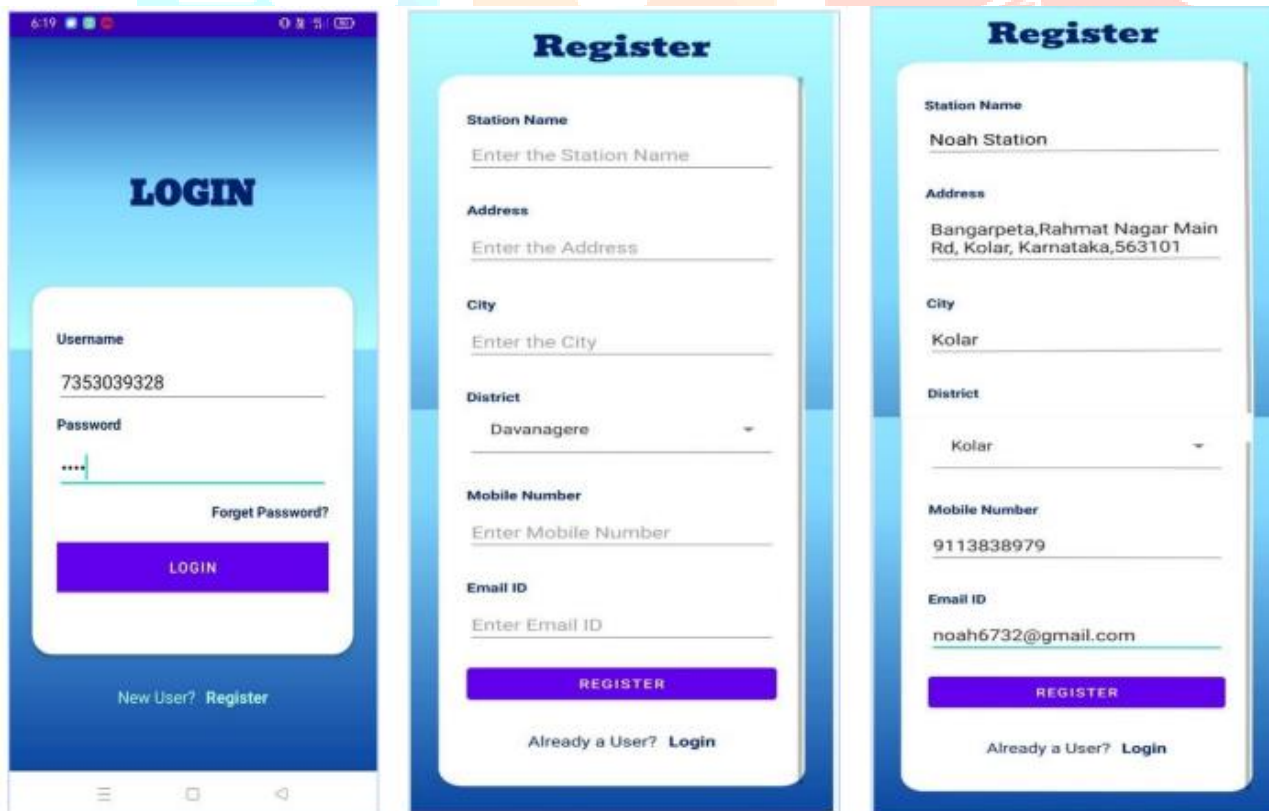


Figure 7. Existing Station login and New station register

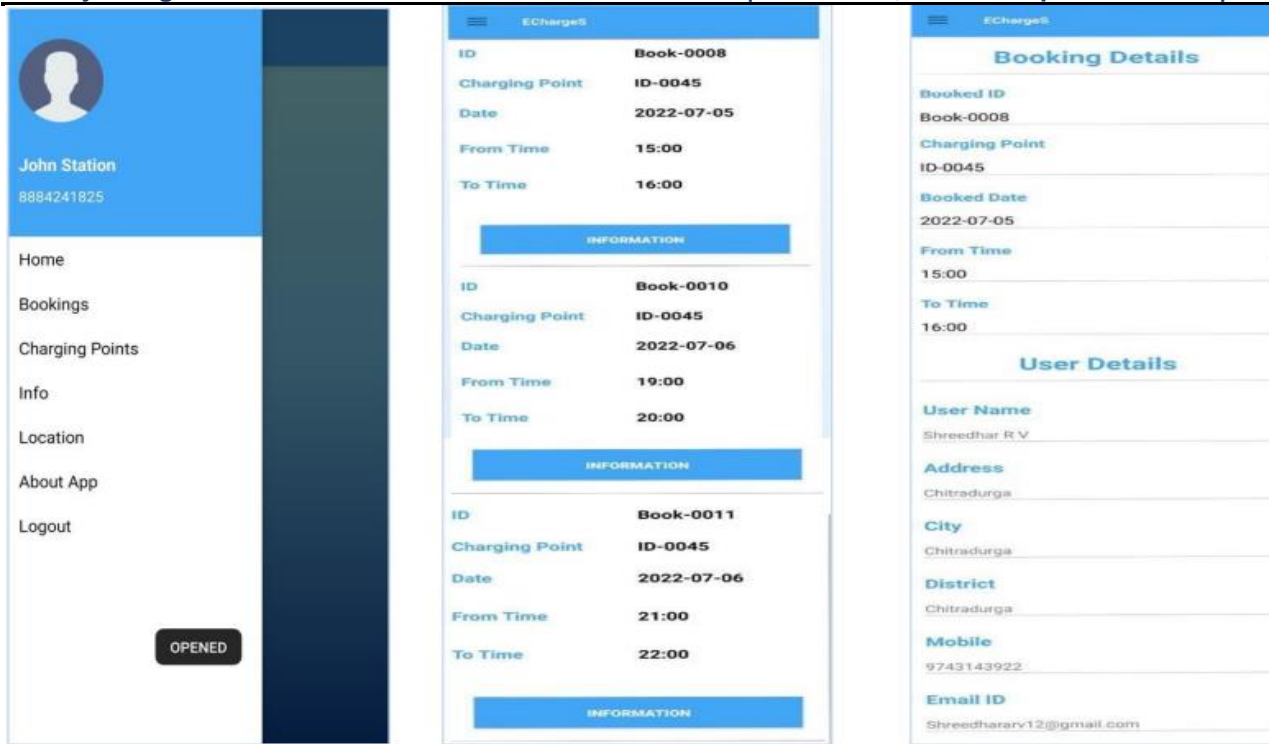


Figure 8. Slots, booked slot details and user details in a station

After station login, displays booked slots, booking details and user details who booked the station (figure 8).

### C. Users:

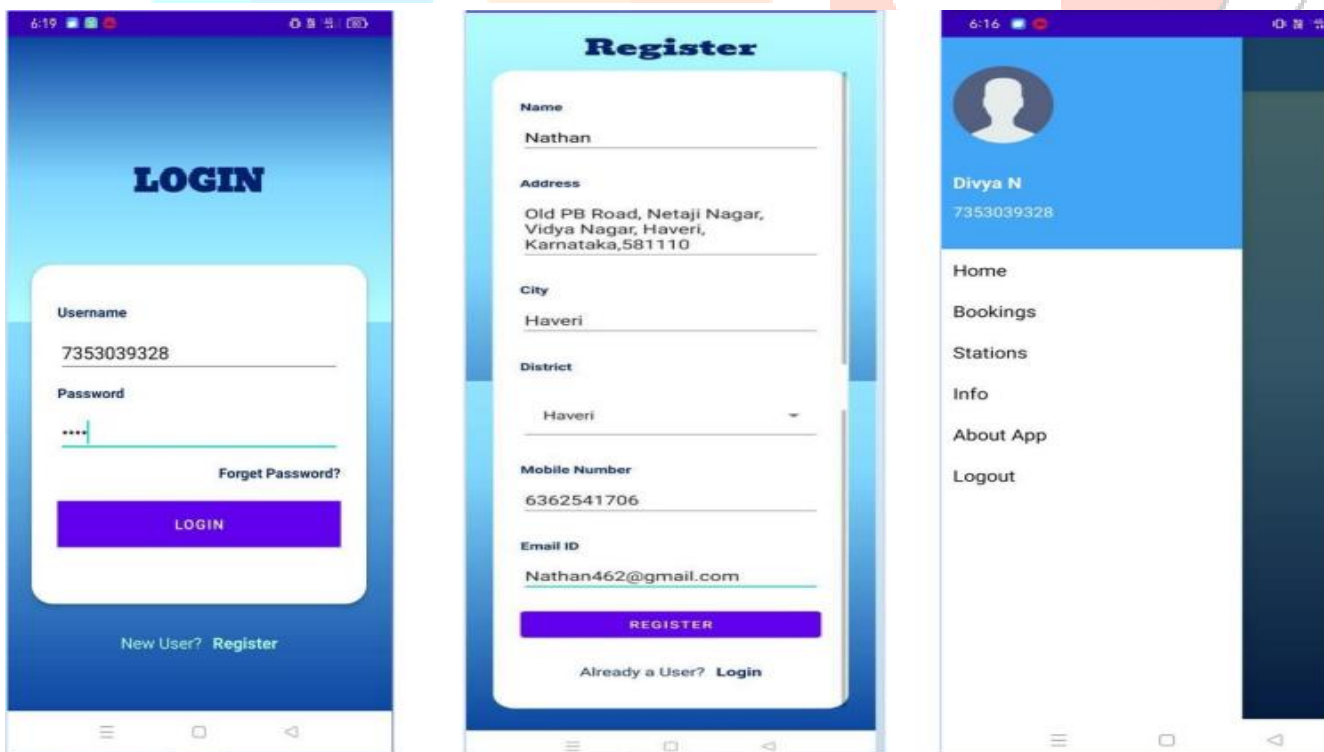


Figure 9. User login and New user registration



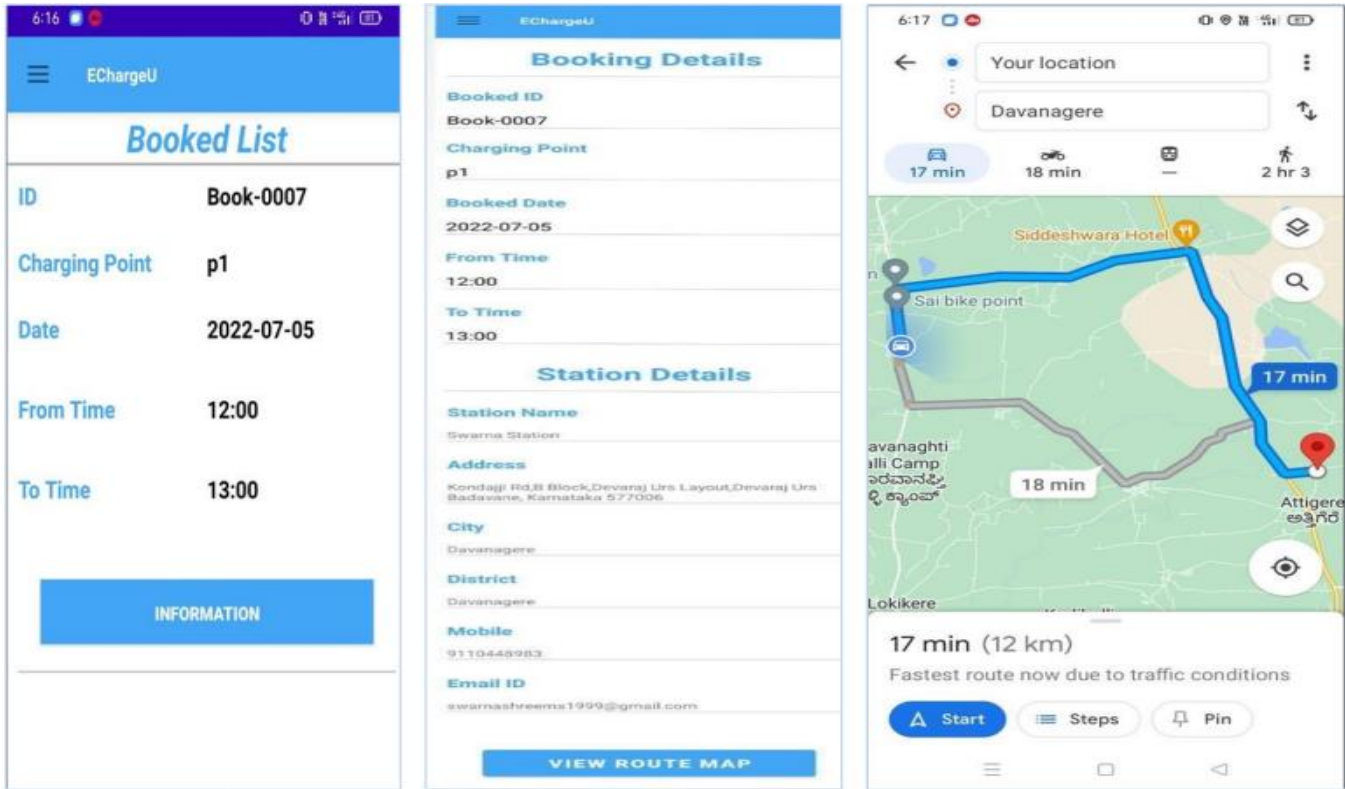


Figure 10. Booked list, slot details and distance in maps

After users login, can view booked list, each booking details, station details and distance between E-charging station to current location (figure 10).

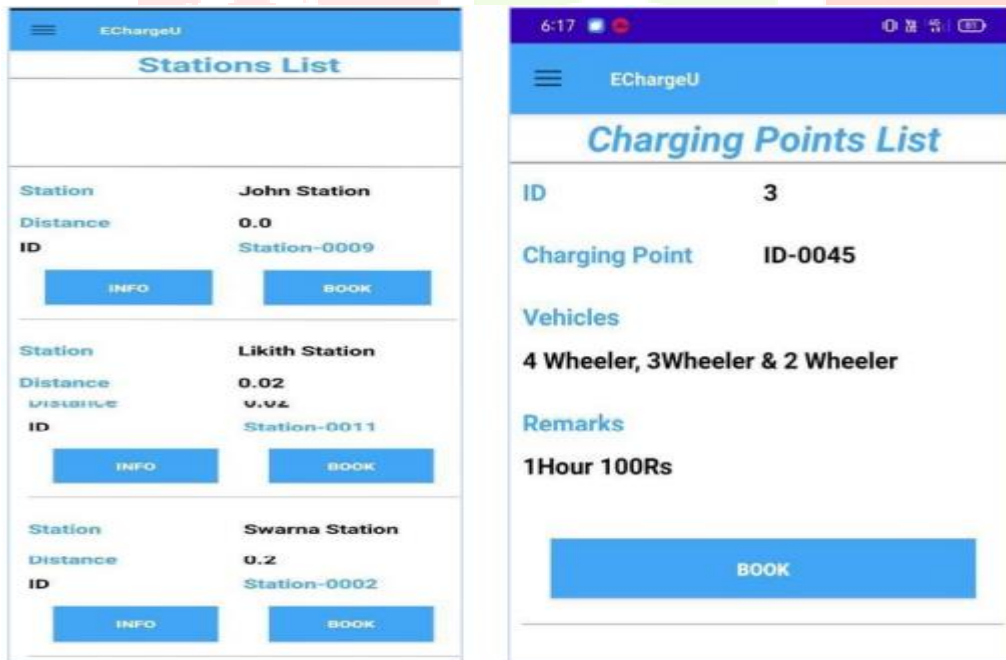


Figure 11. Available Stations and charging points

The image displays two side-by-side screenshots of the EChargeU mobile application's 'Book Charging Point' screen. Both screens show the same form fields: 'Charging Point ID' (3), 'Charging Point ID-0045', 'Station Mobile' (8884241825), 'Booked Date' (07/09/2022), 'From Time' (12:00), and 'To Time' (02:00). The left screenshot has a blue 'BOOK' button at the bottom. The right screenshot has a black button with white text that says 'Between this time is booked' at the bottom.

Figure 12. Slot Booking

User has to enter the details and book the respective slot from available station.

## 5. CONCLUSION

Traditional methods of reserving a charging station slots are no longer used. The age of technology has dominated human life. Exceptions are minimized and sometimes eliminated by the use of software and technical gadgets. People desire simple, safe and efficient methods in all aspects of their lives. The goals of this project are to fulfil a charging station reservation. With this charging station reservation, the project's charging stations may provide their clients with comfortable amenities. In order to complete the slot booking procedure, the interaction between the charging station manager and users provides for effective communication. Developed this platform in the hopes of minimizing time waste, preventing misunderstandings, facilitating seamless data flow, enhancing customer satisfaction, and requiring less effort from users. The ASP.Net and Android Studio front ends, along with a SQL Server database for the back end, are used in the creation of the Seek E-Charge Station application.

## 6. REFERENCES

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