



HKD Charging Station Integration Management System

www.hkdgreentech.de

Table Of Content

HKD Connected Services	01
Achieving Success in a Dynamic Environment	02
Empowering Your Network with HKD Connectivity	03
HKD Connected Services Portfolio	05
APIs	06
Web-Based Management Tools	07
HKD Application	08
Features in Homepage	09
Features in Map Section	10
Features in User Profile	11

HKD Connected Services

Utilizing internet connectivity within charger systems is pivotal for providing essential services to effectively oversee an electric vehicle charger network. Opting for HKD as the provider for your charging infrastructure opens the door to top-tier connected services, ensuring successful operations in the ever-evolving landscape of EV charging, both today and in the years to come.



Achieving Success in a Dynamic Environment

Discover the key to thriving in a constantly changing landscape within the EV charging industry. With an ever-growing community of EV drivers and a continuous influx of new vehicle models, charging network operators face the challenge of adapting to an environment that is in a perpetual state of evolution. This dynamic landscape introduces fresh charging protocols, industry standards, and shifts in customer behavior.

As new vehicles continually make their debut in the market, equipment that lags behind the latest standards may encounter compatibility challenges. At HKD, we remain vigilant regarding emerging protocols and standards, integrating them into software updates distributed via the HKD Connected Services Platform. This proactive approach effectively minimizes unforeseen operational costs and empowers customers to swiftly adapt or create new operational models, seizing fresh business opportunities.

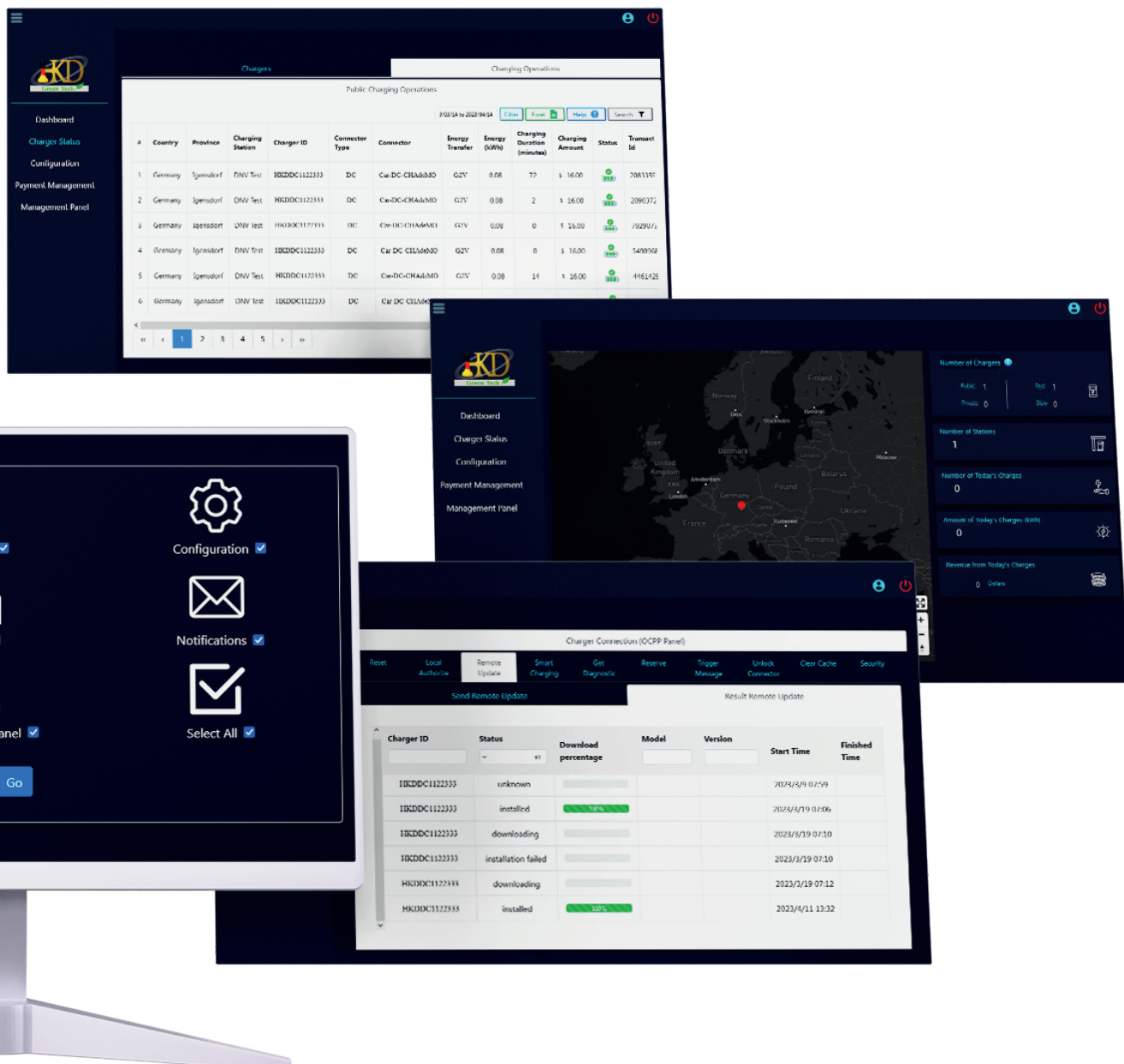


Empowering Your Network with HKD Connectivity

At HKD, we understand the importance of effective management in this ever-evolving scenario. Our cutting-edge solutions empower you and your customers to Remotely Configure and Monitor Charging Points, Adapt Business and Pricing Strategies, Provide Efficient Driver Support, and Simplify Equipment Servicing.

Our cloud-based platform, designed and refined through years of experience, seamlessly connects chargers to the Internet. Our comprehensive Connected Services platform offers four distinct advantages:

- ◆ Reliable Availability and Security
- ◆ Adaptable Flexibility
- ◆ Cost-Effective Solutions
- ◆ Cutting-Edge Innovation





Reliable Availability and Security

Within the HKD Connected Services Platform, it is possible to 24/7 monitoring. Our expert team maintains a watchful eye on the network's overall status, ensuring a swift response to any anomalies. This guarantees a professional and rapid resolution of network or platform issues, thereby enhancing charger availability.

Our platform is built upon cutting-edge cloud technology. The HKD Connected Services Platform adheres to the most stringent security standards, safeguarding the privacy of data. Advanced encryption technology provides an impenetrable shield for the data on both the charger and the platform.



Adaptive Flexibility

HKD's connected services are accessible through the Internet and adhere to open standards. By not only complying with but actively contributing to the development of industry standards, HKD ensures that its services seamlessly integrate with any charging network, payment and billing platform, or the back-office systems of other service providers. This adaptability offers you the freedom to choose the services that best suit your specific needs while maintaining compatibility across diverse service ecosystems.



Cost-Effective Solutions

Throughout the operational life cycle of a charger, HKD ensures that the charger's software stays updated with the latest standards and protocols. This approach not only reduces the costs associated with charger maintenance but also extends the economic viability of the charging network. It mitigates the need for substantial investments in infrastructure upgrades and ensures that the customer value of HKD Connected Services surpasses proprietary solutions.

HKD's vast operational reach connects thousands of chargers and provides services on a global scale, allowing for competitive pricing.



Cutting-Edge Innovation

HKD continually develops and swiftly delivers innovative services to customers. These services cater to the evolving needs of operating and expanding a charging network, spanning advanced interfaces to back-office systems, web tools, and payment solutions.

Our offering includes preventive maintenance, advanced diagnostic tools, and alerting systems that surpass industry standards, with ongoing enhancements, such as predictive failure alerting models. Expanding a network of charging points necessitates an in-depth understanding of the impact of a charging site on the grid and how smart power management optimizes existing power infrastructure at minimal cost, ensuring maximum uptime. HKD actively explores API solutions for advanced power management and smart grid integration. HKD possesses the knowledge and expertise to deliver professional solutions in this realm.

HKD is equipped to provide the features customers require to prepare their charging network for the future, offering a seamless path to tomorrow's charging solutions.

HKD Connected Services Portfolio

The HKD Connected Services offering is designed around a 24/7 monitored platform, assuring the highest availability with minimal operational effort. Network operators can select from a modular offering that seamlessly integrates with back-office processes through APIs, providing access to value-added web tools for configuration, advanced monitoring, and notifications.

A Versatile Portfolio

The Connected Services provided by HKD are featured in this picture and can be categorized into three core sections:

- ◆ The HKD Connected Services Platform
- ◆ APIs for Back-Office Integration
- ◆ Web Tools Accessible via Web Browsers

The basis of our offering Included with every API and Web tool

Connected Services Platform



Reliable connectivity



24/7 network monitoring by NOC



Software updates

OCPP
open charge point protocol

Compliance with OCPP standard

Elective APIs and Web tools Tailored to the needs of your charging network

APIs for back office integration



Service API
Add-on to OCPP API



OCPP API
Configuration
Authentication
Monitoring



Demand - response API
Add-on to OCPP API

Web tools access via Internet browser

Driver Care



Access management



Access management



Case management



Online statistics



Notifications



24/7 status and location



Payment terminal configuration



HKD Connected Services Platform

HKD chargers are interconnected to the HKD Connected Services Platform, which forms the foundation for all APIs and web tools.

Thanks to this platform-centric approach, HKD EV chargers offer real-time accessibility, enabling remote software updates when new communication standards are introduced, ensuring your network remains future-ready. Two interaction models are available for charger interaction: via APIs or through web tools. Both approaches can be combined modularly to suit the specific needs of our customers.



APIs for Seamless Back-Office Integration

HKD provides standardized APIs that facilitate smooth integration with back-office systems, energy management solutions, and payment services. The available APIs include:

- Open Charge Point Protocol (OCPP) API: This API enables integration with back-office systems.
- Service API: Provides technical status data from the charger for simplified remote diagnostics and enhancing charger availability.
- Basic Demand/Response API: Allows dynamic management of the charger's input power.

HKD APIs are based on OCPP, the universally accepted communication protocol, ensuring seamless integration with customers' back-office systems.



Web-Based Management and Monitoring Tools

HKD provides an array of cutting-edge web tools for the efficient operation and monitoring of chargers. These web tools empower users to access real-time charger status, configure authentication settings, and manage notifications. They also offer valuable insights into usage statistics. All this data is conveniently accessible via a standard internet browser and can be effortlessly exported for additional analysis.

When you merge the previously mentioned Connected Services with a Service Level Agreement (SLA), HKD assists you in achieving the highest levels of availability and seamless operation for your charging network.





APIs

Connect chargers to your back office

HKD offers a range of standards-based APIs, enabling diverse integrations with service providers' back-office systems, energy management solutions, payment services, and other vital systems. All HKD APIs are transparently documented and openly available. The following APIs are at your disposal:

Open Charge Point Protocol (OCPP) API

The OCPP API encompasses a comprehensive set of messages, providing extensive functionality for potential back-office integrations. Its transaction-based structure simplifies the connection to back-end systems for processing charging sessions and defining pricing models.

Basic Demand/Response API

The demand for controlling the input power of chargers has grown in recent years. To address this demand, HKD has introduced the Demand/Response API as an extension to the OCPP API. This API empowers network operators to limit the total power that a charger or charger site can deliver to EVs. Such control helps prevent capacity issues within the power supply infrastructure and the grid in general.

Future API Developments

HKD is committed to staying at the forefront of interfaces with back-offices, roaming platforms, and payment solutions used in the EV charging industry. Additionally, HKD actively explores API solutions for power management, smart grid integration, and advanced demand/response.

APIs for back office integration



Service API

Add-on to OCPP API



OCPP API

Configuration
Authentication
Monitoring



Demand - response API

Add-on to OCPP API



Web-Based Management Tools

HKD provides browser-based web tools for efficient online charger management, offering charging infrastructure operators access to real-time status information and usage statistics essential for monitoring and overseeing their equipment.

HKD offers the following features in its web tool:

Status

The Status function provides a real-time view of the charger network's status through a comprehensive map view. It enables to check the actual status of individual chargers.

Statistics

The Statistics feature delivers data on the number of sessions and energy supplied. Statistics can be viewed per charger over the desired time periods and provide a quick overview of network utilization. For more detailed insights into charging sessions across various timeframes, the export function allows data to be processed further, such as exporting to an MS Excel file.

Configuration

The Configuration module allows remote configuration of charger settings, remote restart if required, and the ability to disable or enable chargers as needed.

Access Management

Access control is simplified by enabling infrastructure operators to utilize and manage RFID cards and PIN codes. All transactions related to an RFID card or PIN code can be exported for further processing.

Cases

The Cases support issue resolution. This functionality streamlines finding quick answers, raising a case to initiate service organization support, and tracking a case to gain insight into problem resolution.

Notifications

The Notifications module provides the ability to receive alerts when a charger reports specific events, such as when the emergency button is pressed.

Payment Management

The Payment Management module allows the operator to configure diverse payment options, including pricing per outlet or station. Operators gain full visibility into all payment transactions, per charger, per day.

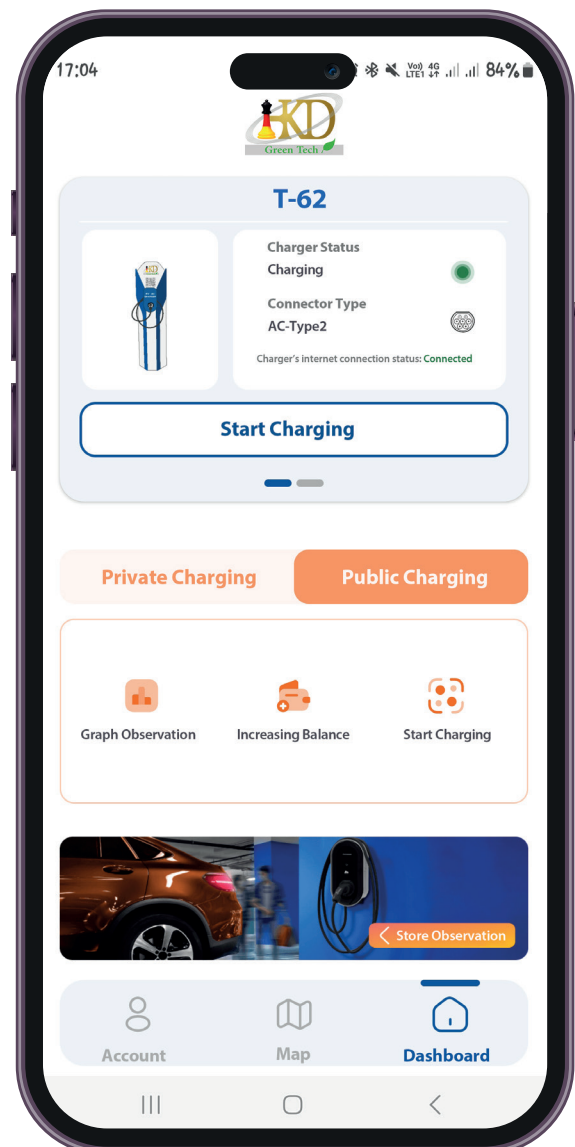
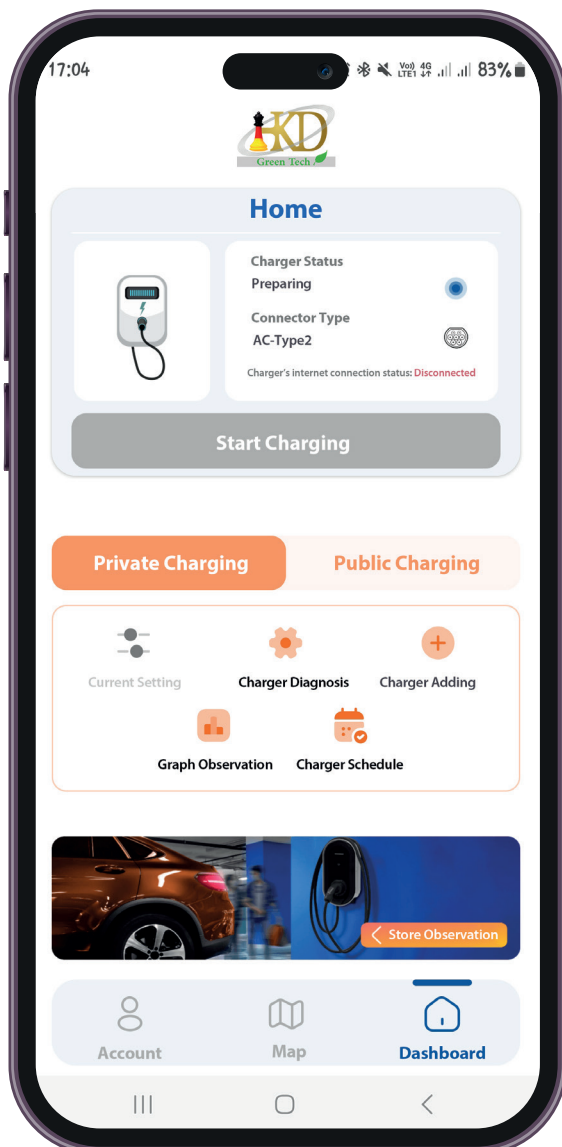
The background is a solid blue color with a complex, abstract pattern of thin, white, wavy lines that resemble topographic contour lines or a digital signal. Scattered throughout the pattern are numerous small, bright blue dots, some of which are slightly larger and more prominent than others, creating a sense of depth and movement.

HKD Application

The application consists of 3 main sections: Homepage, Map, and User profile.

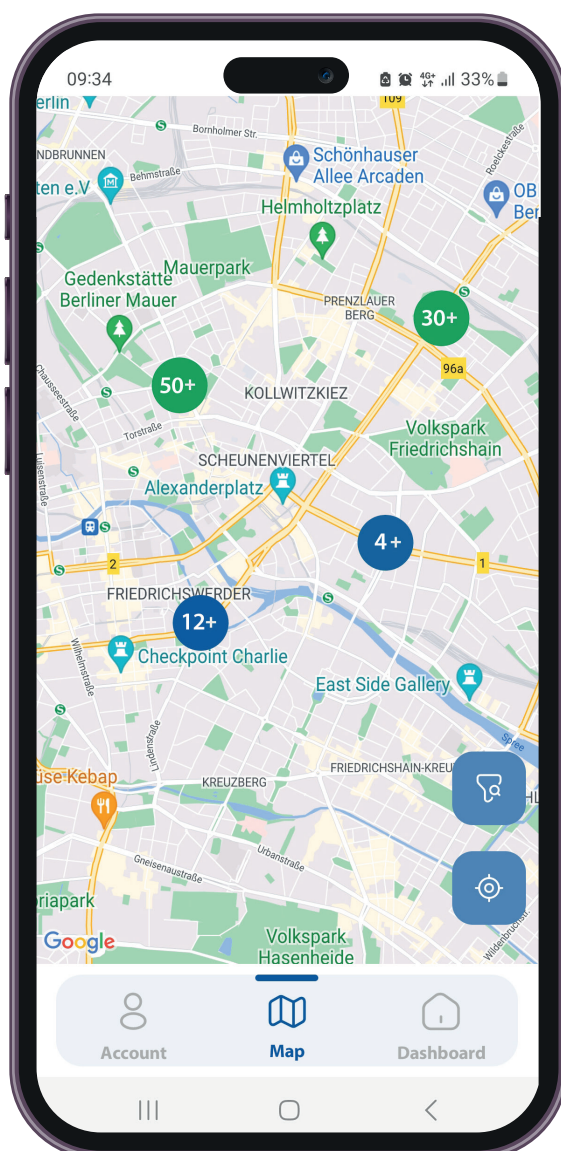
Features in Homepage

- ◆ Viewing the information on private chargers and public chargers: it is possible to view the status of the charger, the type of connectors, and the status of the charger's connection to the Internet.
- ◆ Starting charging of public chargers: It is possible to start charging with public chargers in two ways: scanning the QR code and entering the charger ID manually.
- ◆ Adding private chargers: Adding private chargers is provided by two methods of scanning the QR code and entering the charger ID manually.
- ◆ The possibility of scheduling for private chargers: this possibility is for start and end the charging of private chargers in a planned way.
- ◆ Ability to view graphs of energy supplied for charging and the charging cost of private and public chargers.
- ◆ The possibility of increasing the balance of the user's wallet.
- ◆ The link to access the store to view and buy the chargers.



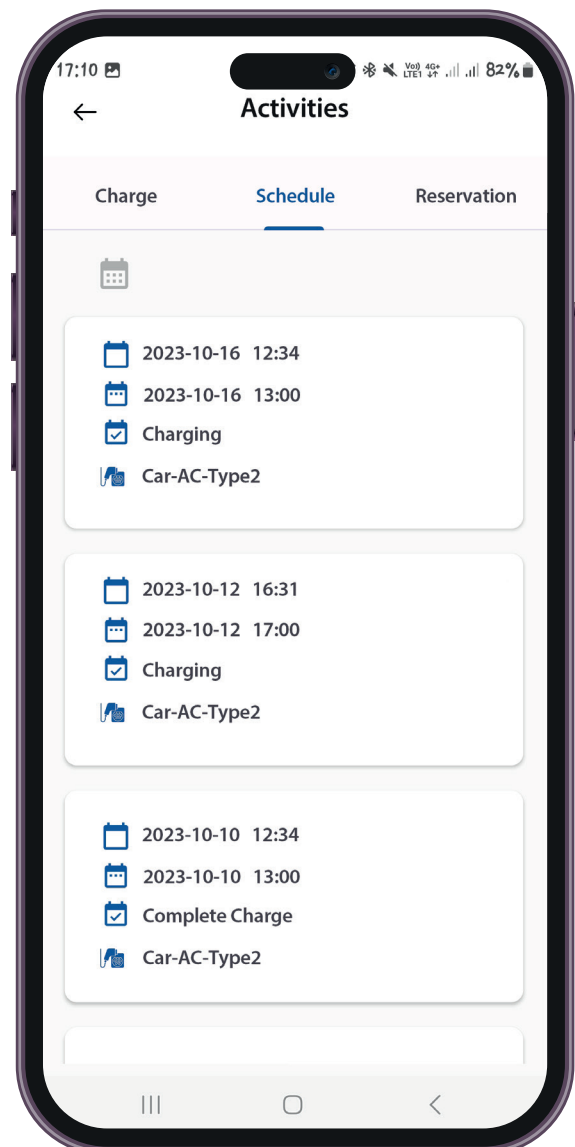
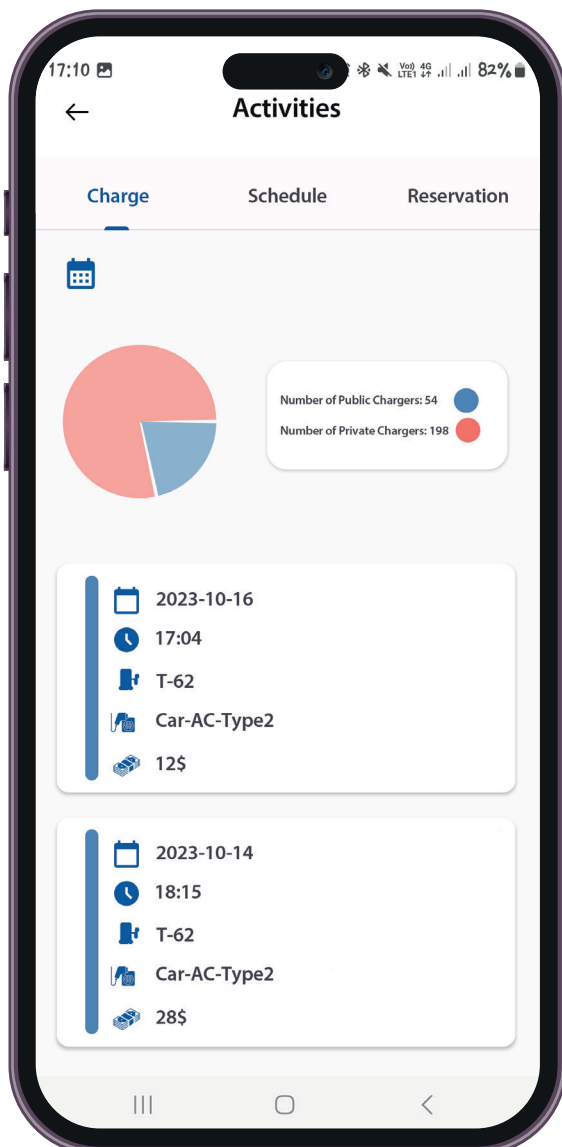
Features in Map Section

- ◆ The possibility of viewing the location and information about chargers: information such as name, address, facilities, working days and hours, available connectors, and cost per kilowatt can be viewed.
- ◆ Possibility of routing to the charger: this feature is possible from the current location of the user to the location of any charger.
- ◆ The possibility of reserving chargers at the moment: in this type of reservation, the charger will be reserved based on the user's choice between 30 and 90 minutes before the user goes to the charging station.
- ◆ Ability to reserve chargers by schedule: In this type of reservation, the user can reserve the desired charger for 30 to 90 minutes up to 10 (working) days in the future (if the charger is empty).
- ◆ It is possible to filter based on days of the week, type of connector, type of reservation (at the moment or scheduled), whether the charger is free or not, the possibility of fast charging, and the closest charging stations to the user's current location.



Features in User Profile


- ◆ Ability to view user's information and edit them.
- ◆ Ability to view registered private chargers and the ability to delete them, as well as the ability to manage their usage.
- ◆ Ability to configure and change the settings of private chargers by the owner of them.
- ◆ The possibility of requesting a charge RFID card for public chargers.
- ◆ Ability to view user activities including:
 - ◇ Reservations of public chargers
 - ◇ Schedules of private chargers with the ability to delete and edit them
 - ◇ Completed charges of private and public chargers
- ◆ Possibility of sending feedback to back-office





the Future is Green Energy

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