

Case Study

Eco-Friendly Urban Mobility: Electric Bike Rental Stations with Charging Systems

KIWI310



Transforming Urban Mobility with Eco-Friendly Electric Bike Rentals

Cities are embracing cleaner, greener transportation solutions, and electric bike rental stations with charging systems are at the forefront of this shift. These innovative stations combine advanced technology with user-friendly design, providing a sustainable and convenient option for urban mobility. With smart card and mobile app integration, they make eco-friendly transportation easy and accessible for everyone, fostering healthier communities and a cleaner planet.

Challenges

Founded by engineers driven to advance mobility, the company took on the challenge of designing a compact motherboard for integration into urban bike recharge towers. The solution required an ultra-small embedded board with a fanless, noise-free design, 5G compatibility, and Android OS support. Focused on promoting micro-mobility, the project aimed to reduce car usage for short trips, encourage the adoption of smart mobility, and ease road congestion. Leveraging their technical expertise, the company developed a solution that aligned seamlessly with the vision of sustainable urban transportation.

Main Requirements:

- **Compact and Space-Efficient Design:** An ultra-small, embedded board to ensure seamless integration into limited spaces within the recharge tower.
- **Silent Operation:** A fanless, noise-free design for reliable performance and enhanced user experience.
- **Next-Generation Connectivity:** Full 5G compatibility to enable high-speed communication and support advanced smart mobility features.
- **Versatile Platform Support:** Compatibility with Android OS to ensure flexibility, scalability, and ease of application development.

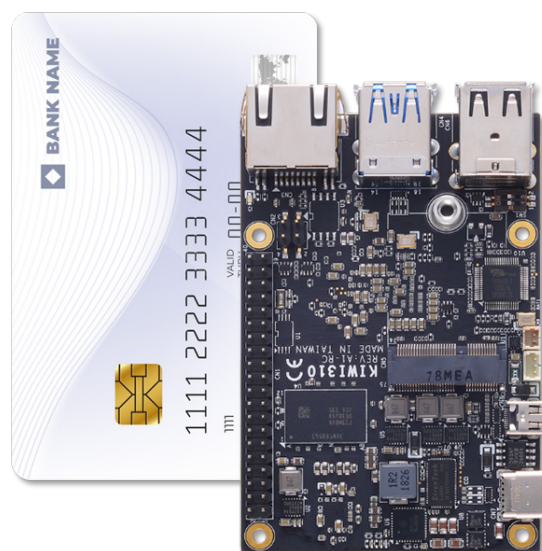
A Compact Solution for Smart Urban Bike Recharge Towers

To address the customer's challenge of integrating a compact motherboard into an urban bike recharge tower, Axiomtek proposed the KIWI310 — a powerful and versatile solution. This credit card-sized embedded board, measuring just 1.8 inches, is powered by the Intel® Celeron® N3350 processor, providing exceptional performance in a fanless, ultra-compact design — ideal for size-restricted applications.

The KIWI310 supports multiple operating systems, including Linux, Android, and Windows, providing flexibility for seamless development and integration.

Its fanless design ensures quiet, reliable operation, while its 5G compatibility enables high-speed communication, essential for smart mobility systems.

By incorporating the KIWI310 into the recharge tower, the project promotes micro-mobility by reducing car use for short trips, encouraging the adoption of sustainable smart mobility, and helping ease road congestion. With its compact size, advanced capabilities, and versatile functionality, the KIWI310 aligns perfectly with the technical and operational needs of the project.



▲ KIWI310

Application

Seamless Integration for Smart Electric Bike Rental Systems



The customer successfully integrated Axiomtek's KIWI310 into its recharge tower to power its advanced electric bike rental system. The KIWI310 serves as the core of the tower, enabling efficient management of charging systems and seamless communication with the central software platform. Its Android OS support facilitates smooth integration with the mobile app, while 5G compatibility ensures real-time connectivity for user authentication, bike availability updates, and payment processing. This setup allows users to effortlessly rent bikes using smart cards or the mobile app, providing easy access to eco-friendly transportation through a reliable, user-friendly system.

KIWI310

System Configurations

Ultra-Compact Embedded Board with Powerful Performance and Connectivity:

- Ultra-compact 1.8" embedded board
- Powered by Intel® Celeron® N3350 processor
- 2GB LPDDR4 memory for efficient performance
- Built-in 32GB eMMC storage
- Integrated Wi-Fi kit for wireless connectivity

Why Axiomtek

Axiomtek's focus on quality, scalability, and cutting-edge technology made the KIWI310 the perfect solution for the customer's needs. With a commitment to robust technical support and industry-leading designs, Axiomtek ensured seamless integration and long-term performance, making it a trusted partner for enabling smart, sustainable solutions.

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Our mission is to design innovative solutions that meet today's mobility demands while anticipating future challenges. By integrating bus and rail transport, parking, and bike-sharing systems, we aim to simplify and enhance mobility services globally, creating a seamless experience for all.

– Project Manager of the customer

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About **Axiomtek Co., Ltd.**

Axiomtek has achieved remarkable growth over the past 35 years thanks to our dedicated people, industry expertise, and commitment to delivering easy-to-integrate solutions. Celebrating 35 years of innovation, we continue to invest in our team of software, hardware, firmware, and application engineers who drive our progress.

As we look to the future, our success will depend on leading with advanced AIoT technologies and offering comprehensive hardware and software solutions. By providing exceptional engineering, value-added services, and innovative solutions, we help system integrators, OEMs, and ODMs overcome challenges and succeed in their markets.

In our 35th year, we are focused on building stronger partnerships and expanding our network of technology leaders. These alliances create synergy and enhance our ability to deliver the solutions and expertise our customers need.

Axiomtek is also a proud member of the Intel IoT® Solutions Alliance — a global network of over 800 industry leaders. This membership grants us exclusive access to Intel technology, expertise, and support, enabling us to deliver top-tier solutions to our customers.

With 35 years of experience behind us, we are excited to continue driving innovation and delivering value to our partners and customers.