Electric Bike Sharing System

Company introduction:

The company was founded in 2005 by natural individuals. In 2012, as a new activity, he started to develop, manufacture and install an electric community bicycle system. Based on 10 years of experience, today it offers the most modern and advanced community cycling system on the market. Our references include Switzerland, Slovakia, Hungary and the Dominican Republic. Our developments are continuous, as in software, as in terms of docks and electric bicycles.

Technical product details

Docking station:

Electric bicycles are locked in the dock. The docks are interconnected to form a collection station. The stations are connected to the central server via an Internet network. The data of bicycles, users, terminals and stations are stored in the server's database. The magnetic locks in the dock ensure safe storage of bicycles. When the user wants to borrow a bicycle, he must identify himself, one option is to touch the purchased RFID card in front of the antenna signal on the dock, waiting for the request to be authorized. Another possibility is that you can collect the bike by scanning a QR code via the mobile application belonging to the system. The approval is acknowledged by the device with a sound signal and an LED indicator light.

When the bicycle is removed from the dock, the station signals and transmits the travel information to the server (date, time, user, bicycle identification number, station, charge level, etc.). When the bike is placed back at any station, the server detects this and considers the current trip completed. It then calculates the duration and cost of the trip.

The user has his own registration account. Through the mobile application, you can get information about all usage and all payments.

masterbike
the e-bike company
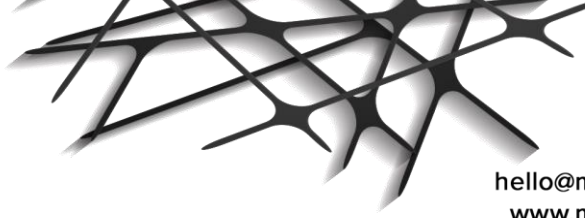
The station

The structure of the electric bicycle rental station consists of the joining of several metal profiles. His paint is dusted. The electricity required to operate the station is 220V-32A. The station consists of docking stations, an information panel, and electric bicycles. It is part of the touch screen terminal. The station is connected to the dispatch center, which operates in a complete remote monitoring system, with 0-24 hour service.

Docks

At the rental stations there is a structure responsible for securing and issuing the electric bicycle. Its components are the card reader, electric lock and LED light source, which indicates the current state of the bicycle, micro chip reader which reads the chip placed in the bicycle. The docking station has an Internet connection with the dispatch center. The RFID card reader built into the dock identifies registered customers. A system suitable for receiving electric bicycles, easily relocated, expandable and integrated as needed. It has an electromagnetic lock that makes the system safe, only registered customers can take the bikes out of the dock.
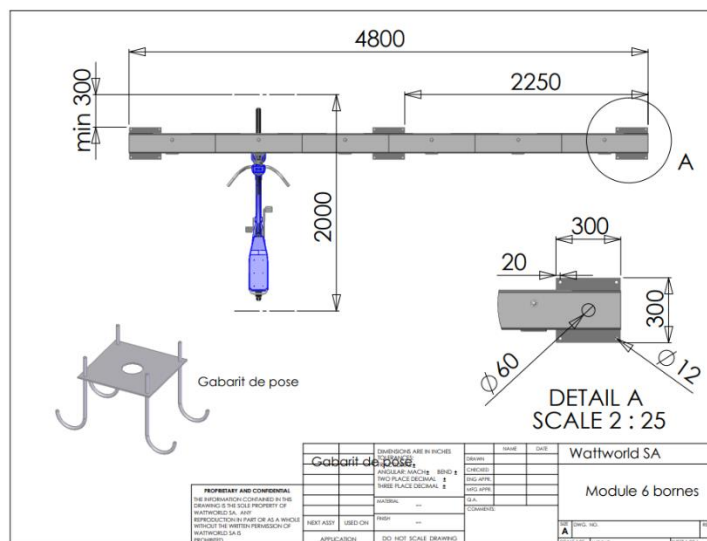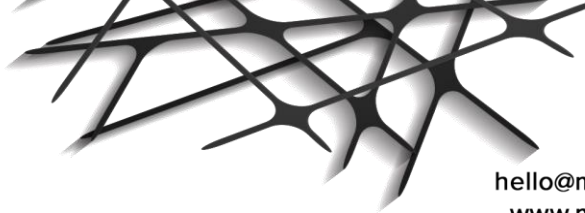
Display (dock)

The display detects and indicates the battery charge status. If the battery is not charged to the appropriate level, the bicycle cannot be removed from the dock. When the user wants to rent a bicycle, the RFID card must be touched in front of the antenna signal. Identification may take up to 5 seconds. If the users have valid access to the system, the system will indicate this with a green light signal and a beep, accompanied by a clicking sound, the lock will release the bicycle. When the user buys access to the system from the touch screen panel or application, he will receive a PIN code with which he can remove the bike from the dock. You have to enter this PIN code on the reader interface and you can start cycling. All docking errors send messages to the dispatch service.

Tousch sreen terminal

On the touch screen control column, users can enter the application, register and pay (with a physical bank card terminal). After registration, each user will have their own account, where all events, usage, and financial operations can be seen. The touch screen allows e-bikes to be picked up from the station with a PIN code. The PIN code required to collect the bicycle is automatically generated by the system after registration and payment. In addition, they can receive information about the saturation of nearby stations and the destination station, the battery level of the electric bicycles, and find out about the municipal and tourist information provided by the city. The touch screen terminal is suitable for the informative display of restaurants, tourist destinations and hotels on a map surface.
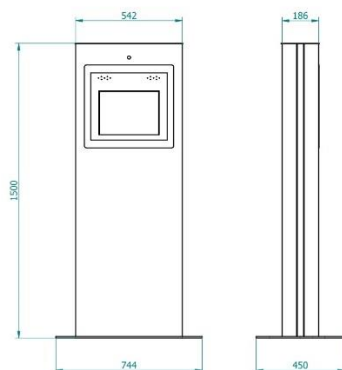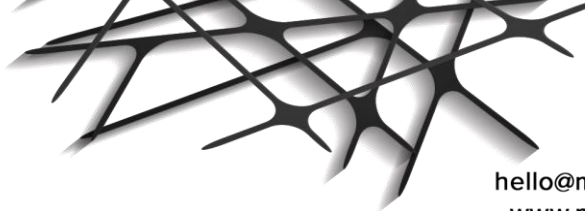
Configuration: Galvanized, stainless machine housing, powder-coated in RAL 7035 color (custom color also available) 17" LCD, aspect ratio: 4:3 1000nits (high) brightness screen resolution: 1280x1024 Non-reflective, impact-resistant, PCAP, 10-point multitouch touch screen, heat-reflective film Built-in heating, condensation protection Controlled internal ventilation Touch protection relay (Fi relay) PC: Rockchip RK3568B2 CPU, 8GB RAM, 128GB M2SSD Linux operating system, Bank card acceptance unit Castles UPT1000

**Simplicity physical parameters of a bicycle stand:**

Width: 60cm, Height: 80cm, Depth: 6cm

Frame material: Steel, galvanized steel

Technical description of the electric bicycle:

The electric bicycle is manufactured according to the EU EN15194 standard and has IP65 protection. Every element of the uniquely designed electric bicycle can be taken apart with a unique, special tool. Its frame and components are made of aluminum alloy. It has front and large rear fenders, a front luggage rack, a tire with a reflective reflective strip and LED lighting. The bike has aluminum widened rims with punctures and 26 x 2.00 puncture-free tires. The wheel size is 26". The first hub motor is 250W BLDC three-phase DC. The shifter is a 3-speed Shimano-Nexus hub shifter. The bike has a Shimano built-in (roller) front-rear brake system. The bike comes with a handlebar-mounted LCD display. In accordance with the European standard, prisms can be found on the spokes and pedals. The bicycle seat is gel, adjustable, comfortable and theft-proof. The batteries built into the frame (36V 13.6Ah 500Wh) are charged automatically via the dock, thus ensuring that electric assistance is continuously available. At a speed of 25 km/h, the electric drive disengaged. The bicycle has a "smart lock - Smart Lock" security lock. The security lock on the electric bicycle ensures
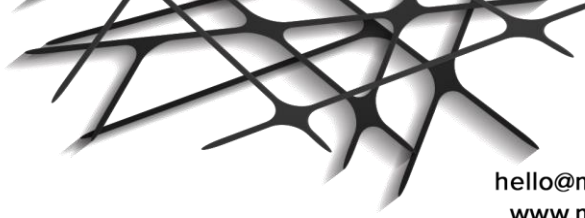
and makes its use theft-free. Smart lock functions: 4G SIM card, GPS tracking, QR code, GEO fancing, the user can declare the bicycle as a deposit in it in case the docking station is saturated, with spare battery, ebike battery and docking monitoring.

For easier identification, each bicycle has a serial number.

How the bike works:

The display on the steering wheel is switched on with the on/off button on the control unit on the left side of the steering wheel.

Additional functions on the display: switch on the display: by simultaneously and continuously pressing the "on/off" button on the control unit, the battery charge level can be read on the display, electric motor speed level: 3 speeds: 1. Minimum - 2. Medium - 3. High can be switched at any time by pressing a button) The front and rear LED lights can also be switched on from the display.

Rotating Nexus rear 3-speed derailleur mounted on the handlebars. It must be operated depending on speed and terrain conditions.

Braking system: front-rear roller brake (When the brake levers are operated, the electric drive is automatically stopped.)
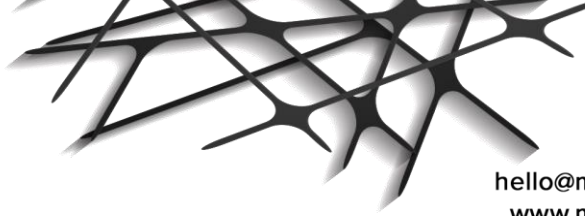
Bicycle frame: UNISEX aluminum (45 cm) (with unique design)

NOTEBOOK ASUS VIVOBOOK:

Intel Core i5 - 2.4 GHz processor, 8GB DDR4 memory, 512GB SSD drive, 15.6" display (Full HD) display), Windows 10, 3-year warranty, Office program packageMifare Classic

4K RFID customer card:

• 1K byte EEPROM or 4K byte EEPROM

• Built-in antenna

• Mifare 13.56 MHz ISO 14443A

• The operating range is approx. From 2.5" to 3.9".

Contactless chip cards are suitable for many applications. It is convenient and fast to use thanks to the contactless chip, as there is no need for a connection between a card and a reader. This smart card is a password-protected data carrier, on which it is possible to use several data areas separately and to protect them with a separate password.

The basis of the identification function is the unique serial number of the card's chip, generated during production, with which each card can be clearly distinguished from the others.

A limited number of shared data storage areas can be used freely for various chip applications. Any data (programs, static data) can be written and read independently of each other in this area. Its total storage capacity is 1Kbyte or 4K bytes. (Depends on card type)

This ensures future expansion options (electronic wallet use, connection to the electronic ticket system, and parking options, etc.)

The Card contains several independent electronic storage spaces, each of which is dedicated, so it can be linked to an institution or an application. Integer values can be written into the storage compartments, which can represent a point value depending on how the application using the given compartment is defined.

When using the card, any kind of data is read or written, so all card functions are used through an encryption process defined by a specific mathematical function.

RFID card reader, NFC card reader with SAM slot:

The ACR1252U USB NFC is a NFC Forum certified reader that communicates on a USB port with 13.56MHz contactless technology. It has a SAM (Secure Access Module) slot, which allows high-security contactless transactions to be created. It also supports firmware update after installation, so no additional hardware modification is required.

ACR1252U can operate in three modes: card reader/writer, card emulation and peer-to-peer communication. It supports ISO 14443 type A and B cards, MIFARE®, FeliCa, and ISO 18092-compliant NFC tags. It also supports other NFC devices. Access speed is up to 424
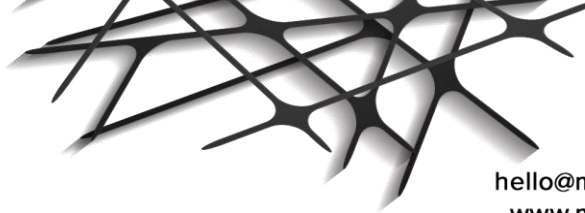
Kbps, and the approach and operating distance is up to 50mm (depending on the type used). Compatible with CCID and PC/SC, plug-and-play USB NFC devices.

Reference work
User Manual

1. „Cross-Bike" service website scan using a QR code reader.

QR code placed on the first basket, which leads to the website of the Cross-Bike service. User-friendly APP (IOS & Android) download for your smart device
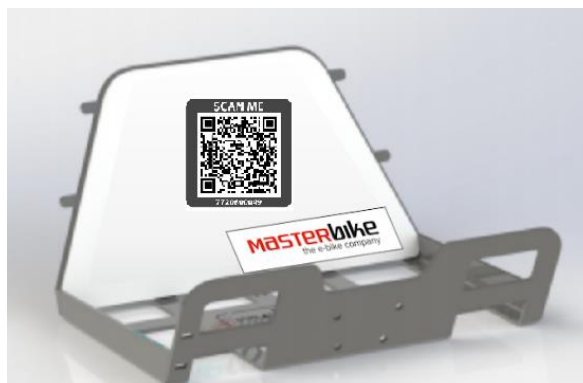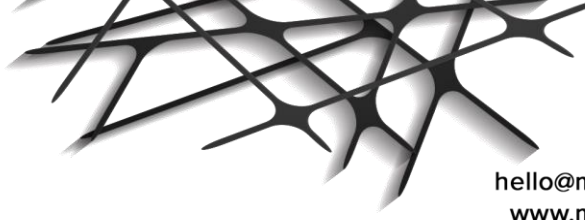
Scan the QR code on the bike!

2. The QR code always points to the website of the Cross-Bike public bicycle provider.

- first scan: registration

- second scan: bicycle collection

How it works?

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the e-bike company

HU | BELÉPÉS

CROSS-BIKE

Hogyan működik?

Kerékpár kölcsönzés	Kerékpározás és parkolás	Kerékpár visszatétel	GYÍK

Regisztráció   Válassz egy kerékpárt!   Gyakran bringázol?   Kerékpár levétel   Élvezd az elektromos kerékpározást!
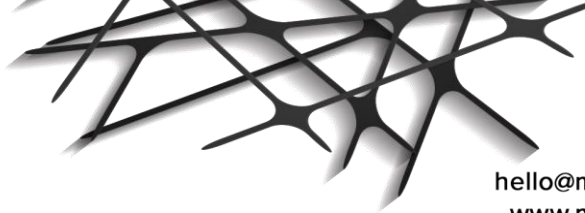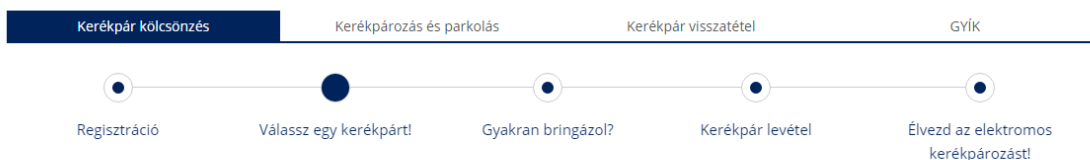
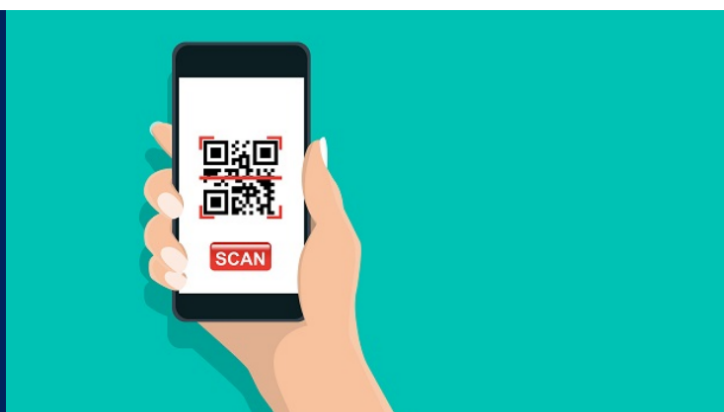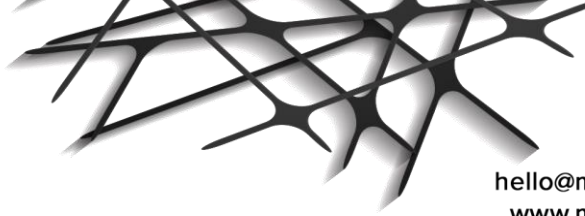### Válassz egy kerékpárt!

Okostelefonoddal olvasd be a QR-kódot azon a kerékpáron, amelyikkel bringázni szeretnél, majd várj míg megjelenik a képernyődön a kiadás visszaigazolás!
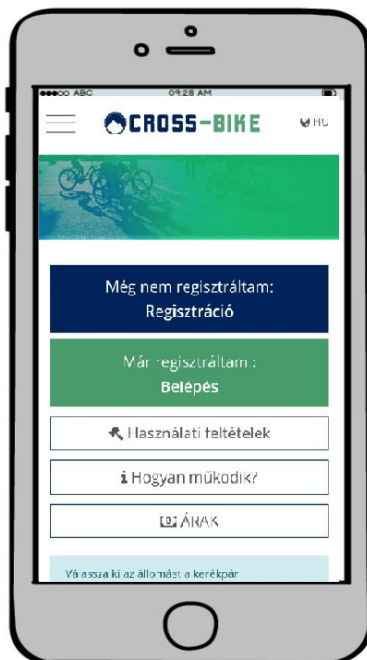
SCAN

Mobile view:

Application download: Masterbike
Select service: Cross-Bike SK-HU

Mobil view/ sign-up / login

REGISTRATION

1. Simply scan the QR code at the collection station!

2. Download the Application! App: masterbike

3. Register! Create your user account using the application in a minute.

4. You can track all rental usage in your account!

5. Convenient, online bank card payment!

If you do not have a smart device with you, you can register and pay with a bank card at the touch screen terminal located at the station. Using the PIN code generated by the application, enter the PIN code on the display next to the bikes and take off the bike.
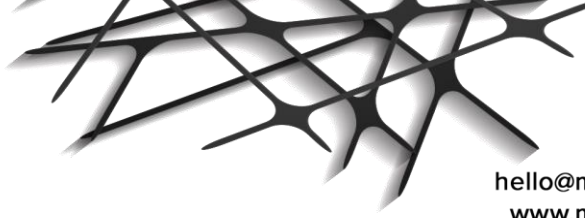
Step 2

CHOOSE A BICYCLE

Use your smartphone to scan the QR code on the bike you want to ride, then wait for the release confirmation to appear on your screen!

GET a MEMBERSHIP CARD!

Request an annual card! Unlocking the bike is easier and faster!

BIKE REMOVAL

When the dock is ready to release the bike, a "beep" sound will be heard!

The upper LED light starts flashing red & green!

You have about 15 seconds to take off the bike.

To unlock the bike, first push the handlebars forward, then pull it out of the dock!

After 15 seconds, the dock closes again!

We wish you a pleasant ride!