Bike locking
with Tecomat Foxtrot
SBS – Smart Bike Station

IQRF Summit 2017, Praha

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Teco a.s.

About: Teco – Tecomat - Foxtrot

Teco:

- name of the company since 1993, with history of predecessors since 1919

V. Pschal 1919-1929

1929-1945

TESLA 1945-1993

teco 1993-2013

TECO Advanced Automation
New logo: 2013-2016

Tecomat:

- family name of controllers with 41 years of experience since 1976

Foxtrot:

- first name of youngest member of Tecomat family
- Well matured - since 2007
- Smallest,
- Most powerful

Tecomat – from Czechia worldwide

Hotel
Van Der Valk
Veenedaal,
Netherland

HVAC
Smith Medicals,
Czechia

Apartmán Tri veže,
Bratislava, Slovakia

Family house,
Hungary

AHU by VBW,
Gdańsk, Poland

Vila Corfu
Greece

Liberty
Technology
Park, Cluj ,
Romania

Family house
Düsseldorf,
Germany

Boiler house for
Biomass
Kohila. Estonia

Damily houses
Ecomodula,
France

Boiler room
Lvov
Ukraine

Hotel
My Story,
Lisaboa,
Portugal

Parking
Tichin,
Ekatěrinburg
Russia

Czech pavilion
EXPO 2015
Milano,
Italy

Air Conditioning
Astana,
Kazachstan

Showroom,
Sao Paulo,
Brazil

Samsung,
LED manufacturing
Korea

Smart metering
Gas meters
Istanbul,
Turkey

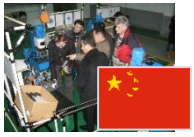
Museum
Cypriotian
Theater,
Limasol,
Cyprus

Hospital, Jeddah
Saudi Arabia

Black Sea Terminal,
Poti, Georgia.

110 km water pipeline,
Larestan, Iran

Al Dar sweets,
AbuDhabi, UAE



Automotiive, China

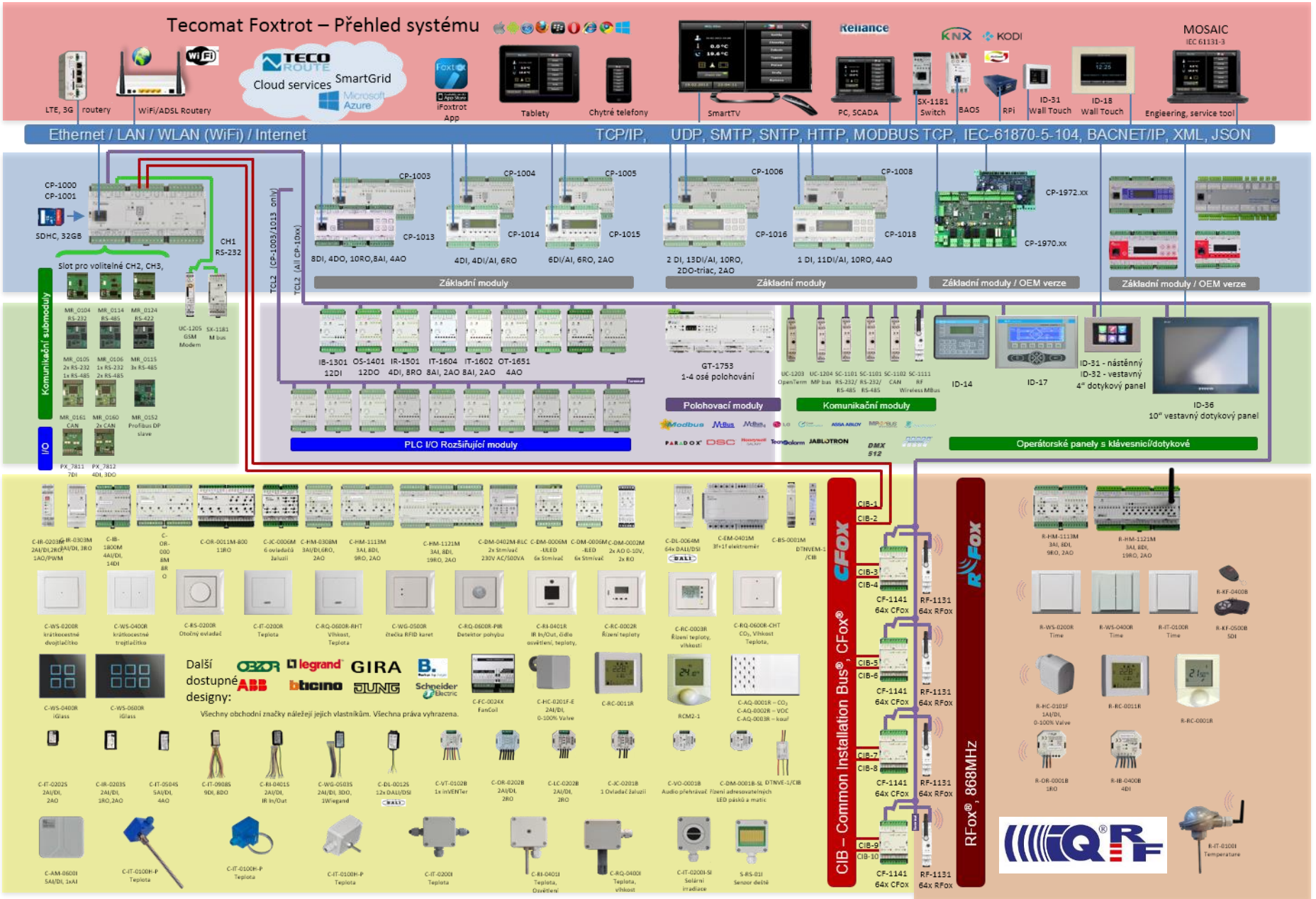
Water turbine
Fujishida,
Japan

Certification
in procces

Hotel Air Conditioning,
Ibiza, Spain

Certification
in procces

Foxtrot is PLC, Overview of ecosystem



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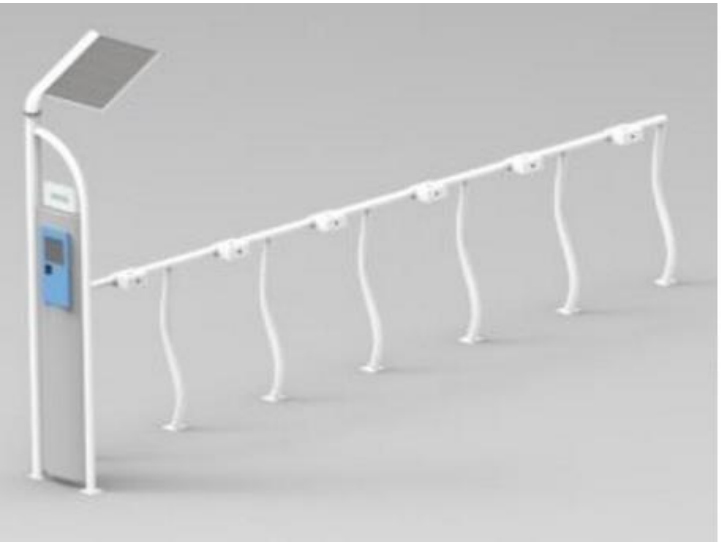
KEYLOG more than connection

SBS SMART BIKE STATION



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KEYLOG more than connection

SBS SMART BIKE STATION

- Electronic safety stand, enabling the bicycle to be secured by means of digital identification of the person.
- Bike stand with electric lock
- Locking and unlocking by wireless card or RFID tag or NFC tag
- Communication with PLC Foxtrot base and from there to the cloud
- Application on smart phone

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KEYLOG more than connection

SBS SMART BIKE STATION

ElectroCity
vladejsvujdum.cz
omat.cz
jsvujdum.cz

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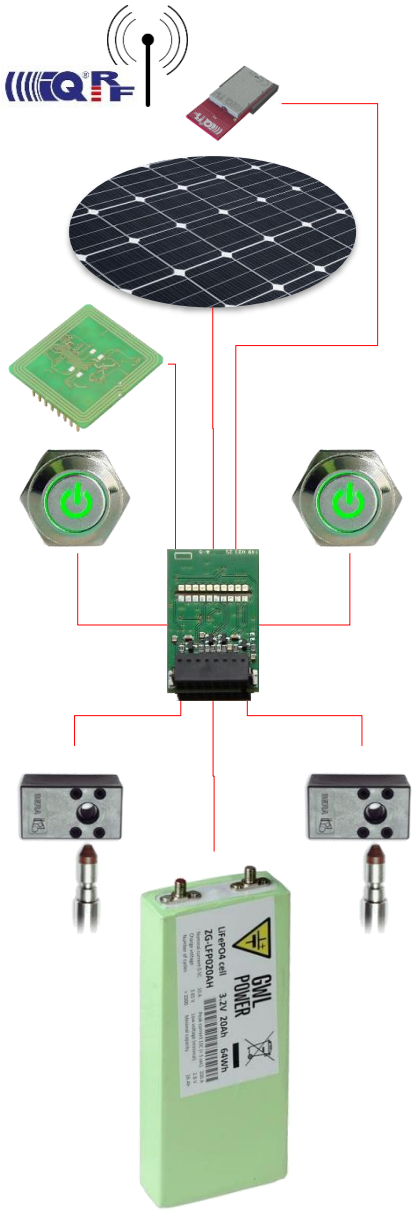
Amper 2017

KEYLOG more than connection

- Autonomous smart stands with its own solar charging, internet access and reader of all standard contactless cards
- Connectivity of solutions and tariffs with the current offer of time tickets in the city
- Easy connectivity of multiple cities and locations
- Aaccess to proprietary city applications on their own cards, if necessary.
- Debit card tokenisation can be implemented

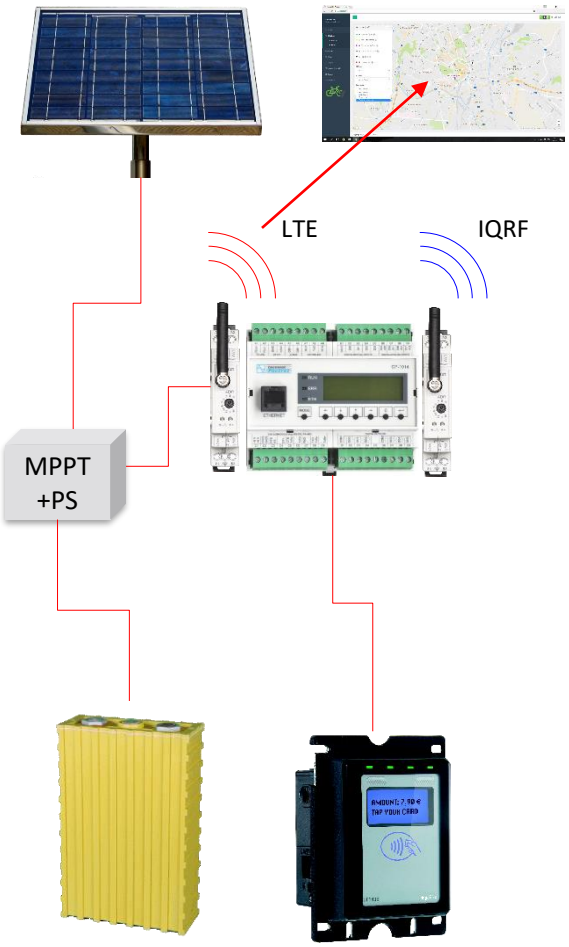
- Delivery with a base - possibility to deploy the stand for a limited time to a specific location without the need to anchor into the ground.
- Quality technical components from Czech companies.
- All activities, including the energy state of racks, available online.
- Access to data via web services.

Internal structure of teh bike station

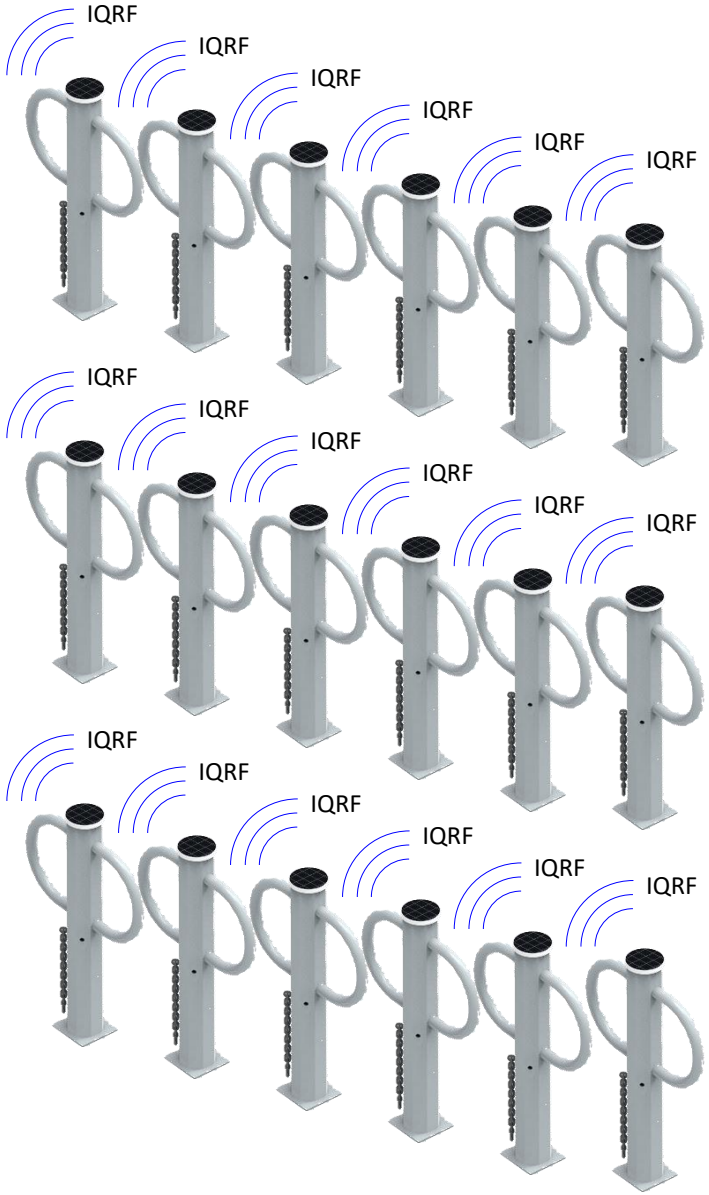


- Application specific electronic module integrates:
- Local functions
- IQRF communication module
- PV panel
- LiFePo battery to survive most cloudy period.
- RFID/NFC tag reader
- 2 buttons to wake up module and define side of th ebike holder
- 2 locks of 2 chains

Local Base Station – IQRF -> LTE -> Cloud



For
Bike sharing,
Bike rental



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Bike sharing, Bike rental

KEYLOG more than connection

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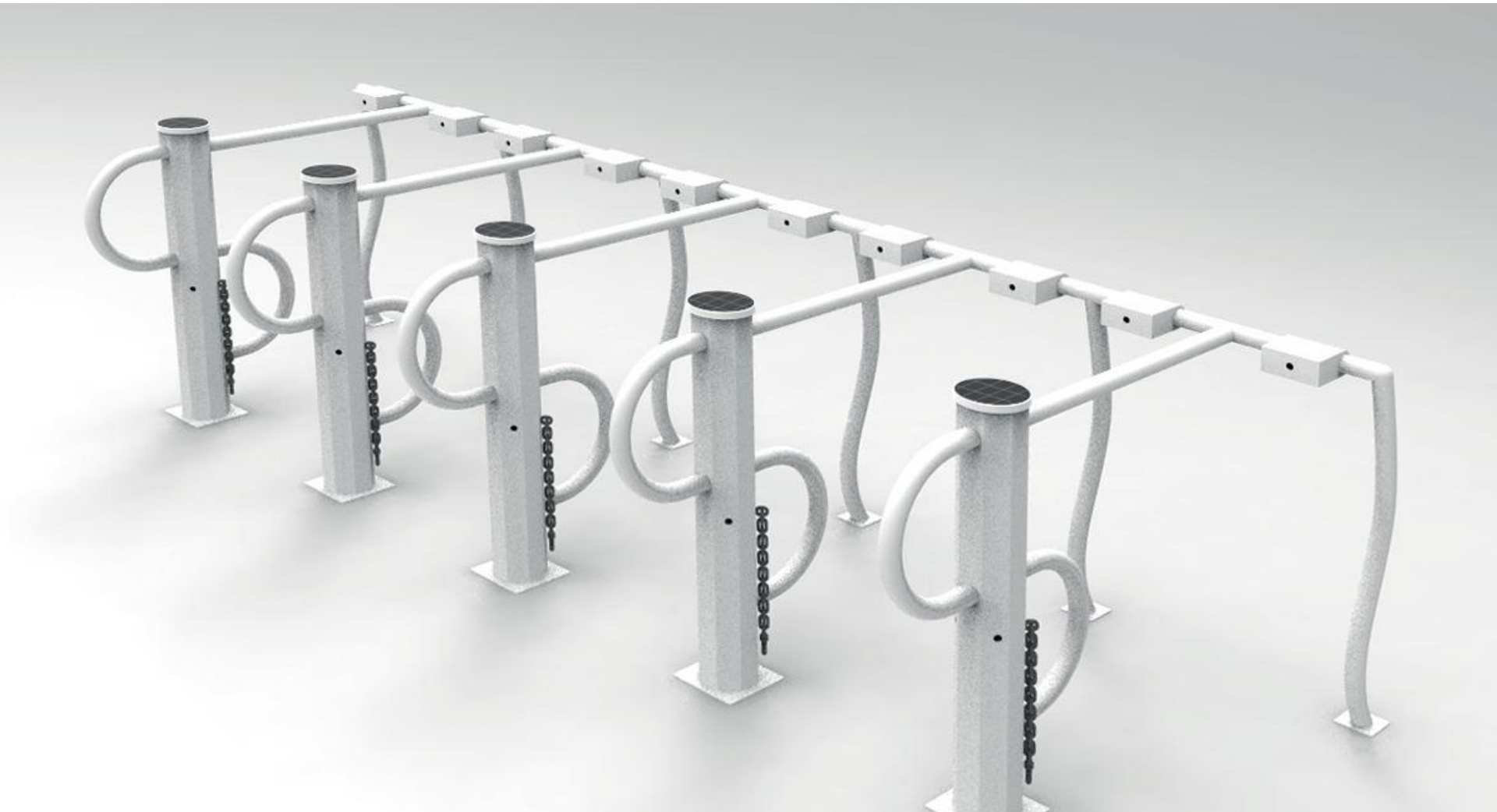


BIKE SHARING

- 2 versions: for classic bikes and electric bikes.
- Kiosk fitted with a payment terminal.
- Bike rental is provided via a credit card, without the need for online registration.
- When the loan is booked the maximum price of the loan + deposit,
- The bill takes place after 24 hours
- Possibility to accept prepaid tariffs on city and payment cards

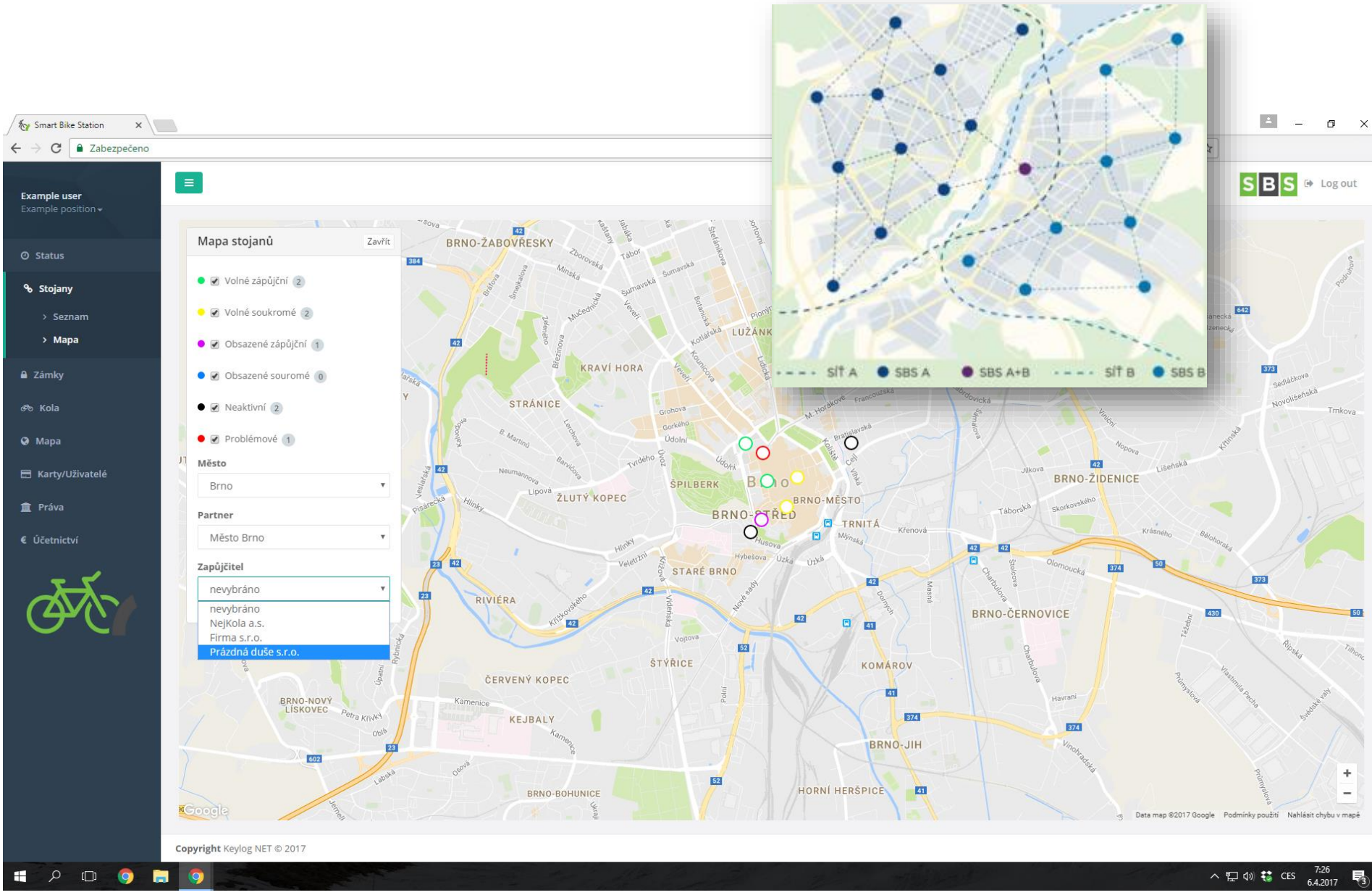
BIKE SHARING

- Automatic bike recognition on return
- Online reporting of occupancy, use of stands and not returned leases
- Online tracking of bike motion and position
- Web services for integration into third-party applications

BIKE SHARING

- Battery mounted directly in the frame tube
- Lithium-ion battery
- Engine power 250W
- Maximum speed 25km / h
- Driving on a single charge 40-60km
- 21 combinations of Shimano gears
- suspension fork
- Disc brakes TEKTRO
- LCD display
- Charging 4-5 hours
- Battery life of 600 charging cycles
- Load capacity 120kg

WEB based control and overview



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KEYLOG more than connection

SBS SMART BIKE STATION

- Possible compatibility of SBS between cities.
- The possibility of connecting public and private SBS (restaurants, sports clubs, employers)
- A strong pro-action element within sustainable mobility in cities.
- Problem solving:
  - 72% of stolen bicycles are out of public space.
  - Only 0.5% of the value of stolen bicycles is returned to the owner.

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KEYLOG more than connection

SBS SMART BIKE STATION

Thank you for attention!