MobiWallet

Serbian Pilot Overview

December 2015

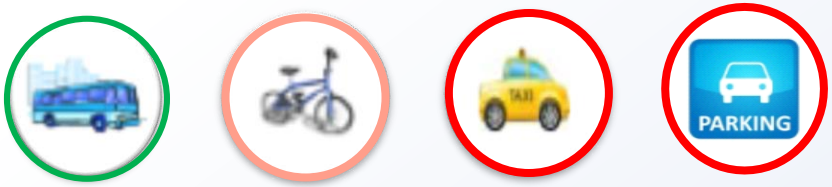
Serbian Pilot Overview

MobiWallet

Where: City of Novi Sad

Partners:

Modes involved:



Key Technologies: QR code based, augmented reality and optical validation; fleet management, ekoNET mobile sensors, mobile payment and ticketing

Specific Objectives & Challenges

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- To demonstrate **mobile payment, ticketing and route planning** in public transport using smart phones and technologies based on the **QR code, optical validation and augmented reality** supported user interface

- To offer **unique, integrated and interoperable** means of payment and validation

- To foster and demonstrate **interoperability** between the payment systems for different transport modes and different operators which would enable **seamless intermodal mobility** and thus multimodal transport (e.g. bus and a rented bike)

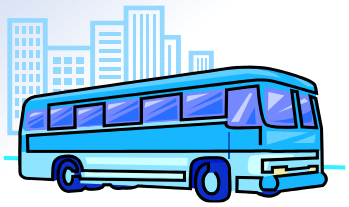
- To offer **added value services**: online ticket purchasing using different payment channels, bus arrival times and their positions in real time, information on tourist landmarks and attractions, information on air pollution in real time, info on bike rental points, etc.

BUT …

- Capable of **co-existing** with current solutions

- Not affecting **current operation**: none/minimum hardware and software modification in operator´s side

Baseline & impact on approach



❑Uses non-electronic based tickets and manual validation

✓ MobiWallet solution based on use of new technologies (QR, AR and optical validation) can co-exist with the current system
✓MW solution requires a new infrastructure, a number of adaptations and small investments in the equipment.

❑Rent-a bike service exists and it is based on use of pre-paid tickets

✓ MobiWallet solution based on Smartphone+QR code based services

❑ No ticket based at the moment; post-service payment only (cash and in some cases credit card)

✓ This might come for implementation at a later stage and MobiWallet plans to propose a solution based on a QR code

❑ SMS based payments

✓ This might come for implementation at a later stage and MobiWallet plans to propose a solution based on a QR code

Interoperability Solutions: Key Elements implemented

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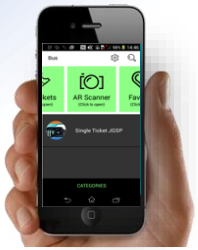
Medium



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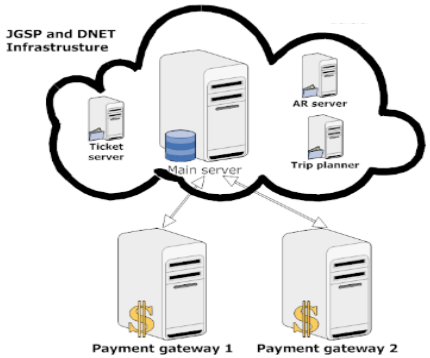
Bus stop located QR code sticker for accessing real time info on busses

Allow users to….

- Register/Log in
- Access info on bus arrival times, tourist info, air pollution info
- Select and purchase travel tickets using cash vouchers or credit card
- Validate QR based ticket and access the transport means

Platform



Information centre: WebServices+DataBase

Core of the Platform: Stores user´s data and transactions. Stores data from devices providing additional services. Provides basic operations to users and operators to access and manage this information

Gateway

Clearing House

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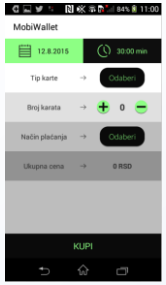

Virtual Point of Sale

Mobile network operators - DCB (Telecom Srbija)
Cash vouchers
Payment Cards
Pay Pal

Payment gateway and clearing system to manage user´s credit (e.g. cash vouchers) and payments as well as all the transfers to the different operators according to the use of their services

Interoperability Solutions:

Pilot Architecture – with security components

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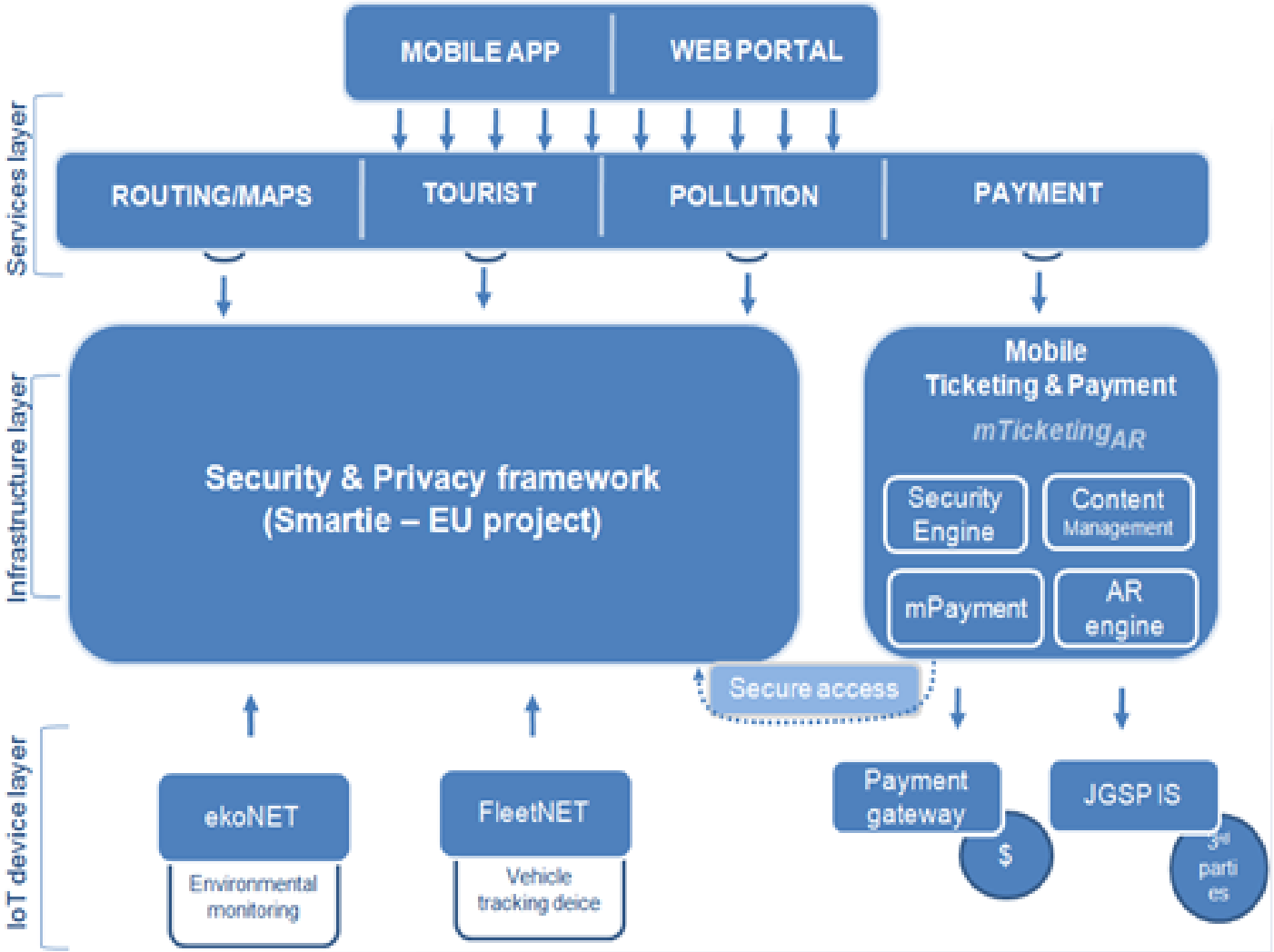

- Three layers within the system and their interaction
- Secure device registration
- Secure data transfer between IoT devices and backend infrastructure
- Access to information on location of public vehicles and air pollution to system users according to access policy and privacy rules
- Secure ticket purchase

Services

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Core Services
(Fare management and validation)

- Top-up
- PkPass ticket
- QR code based validation
- AR based Interfaces
- Interfaces
- mTicketing/ mPayment

Additional Services

- Bus arrival time/position
- Environmental /pollution data
- Tourist information

Integration with existing Services/APP

- FleetNET
- ekoNET
- mTicketing/ mPayment

Core Services

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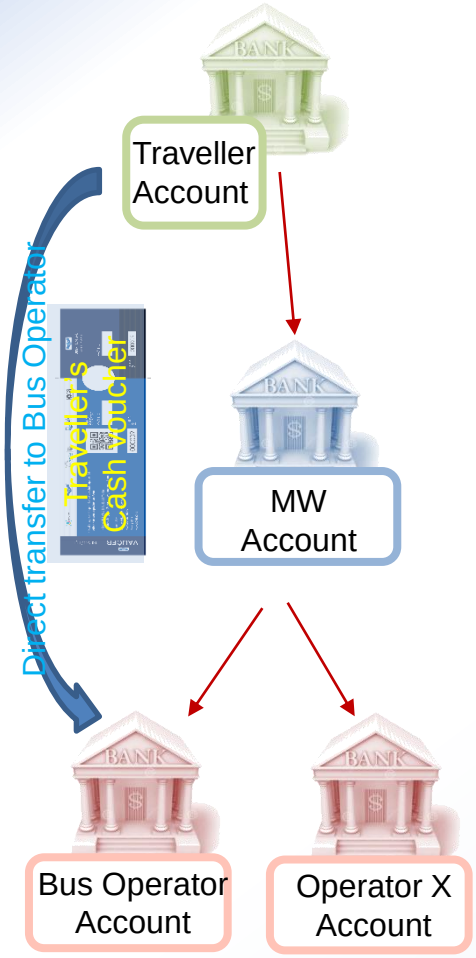
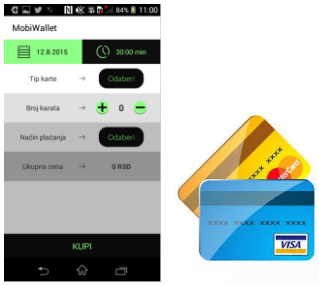
Top-up

PkPass ticket



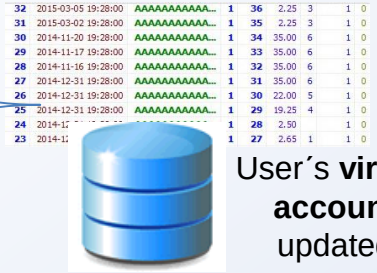
User tops up the virtual wallet with the voucher's cash credit through the **Smartphone**



Virtual Point of Sale implemented – payment by **Cash credit and soon other payment modes**

Use transport mode – validate travel ticket provided in PkPass format

TravelTicket validated optically using QR code validator on a bus



User´s **virtual account** updated

Next phase: When rental bike service becomes active

Core Services

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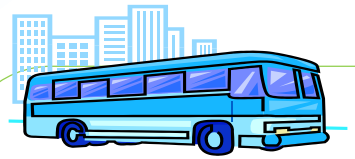
Validation

mTicket validation performed optically by scanning the QR code placed in each bus



Non-validated

Please validate!

Validated

Expired

QR code based travel tickets provided in a PkPass format

QR code printed validator when optically scanned, completes the ticket validation

A QR code based validator is printed and placed inside each bus. Validation of the QR code based m-ticket is optical and requires internet connection.

Core Services

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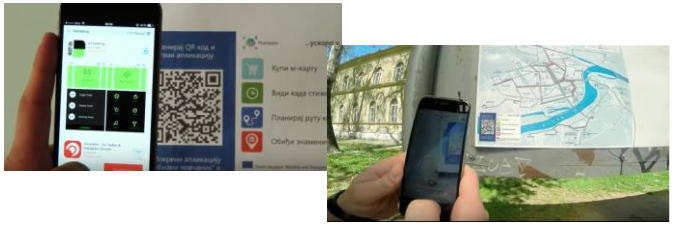
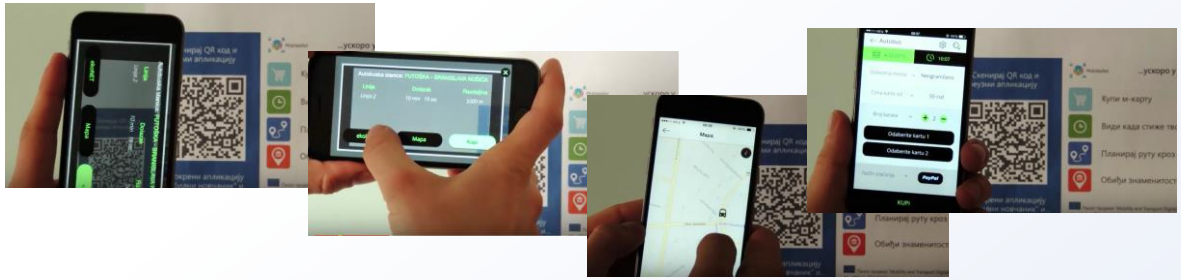
AR-based Interfaces

Augmented Reality (AR) interface for enhanced and immersive UX



QR code initiated - **AR interface** for **mobile app download**



The same-QR code initiated **AR interface** for **access to MobiWallet services:**

- Bus arrival times and position
- Maps with real time bus positions
- Tickets purchase

Core Services

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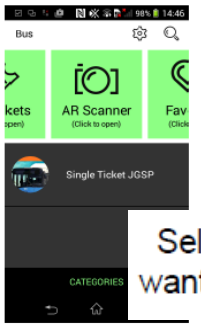
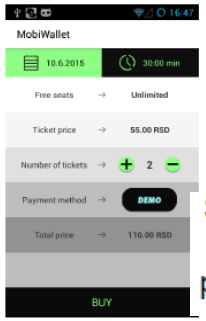
Interfaces

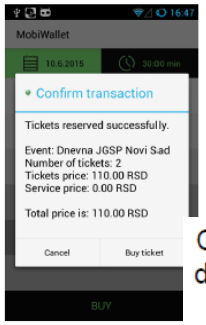
Traveller's Interface: APP



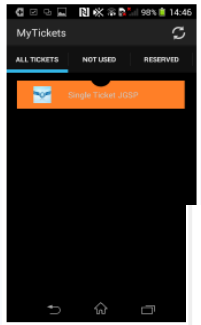
Select a ticket you want to buy from list.



Select number of tickets and a payment method.

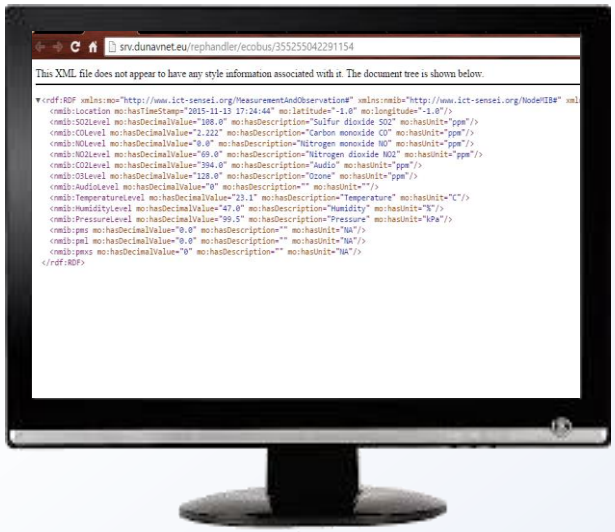


Check the payment details and confirm the transaction.



Pkpass ticket is downloaded and can be accessed in MyTickets section.

Operators Interface: Web Service



Operator's side API

- Connection Test
- User's validation query
- Users query on bus arrival time
- Users query on air pollution data
- Users query on tourist info
- Users query on tickets selection, purchase and payment
- Users query on validation
- ….

Bus arrival time/position

Additional Services

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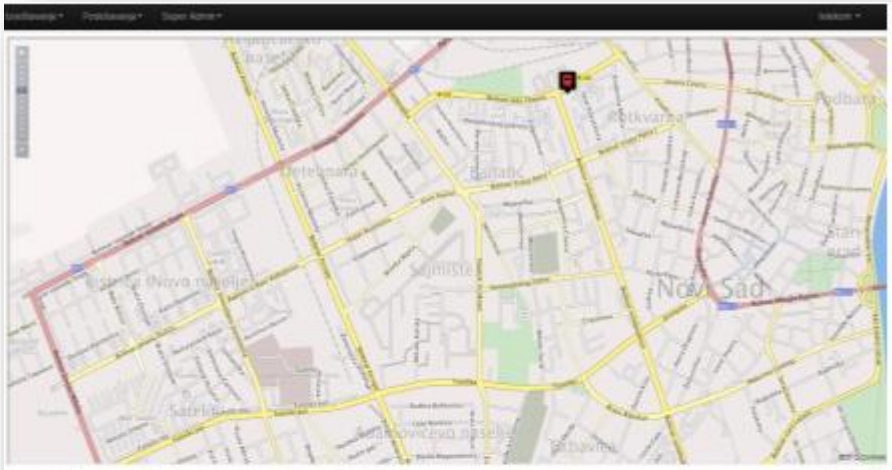

- Available information on bus arrival time to the bus stop through AR interface or by selecting the bus on a map available in the app

Environmental/ pollution data

Additional Services

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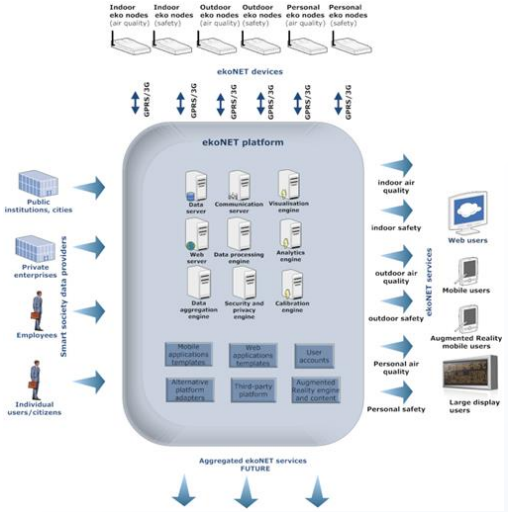
- Information on air pollution and quality in real time



Devices with sensors measuring and sharing the information on air pollution and other atmospheric conditions

Can provide info on pollution along the main roads in the city which could be of interest to citizens and travellers, city administration and ecological agencies

Additional Services

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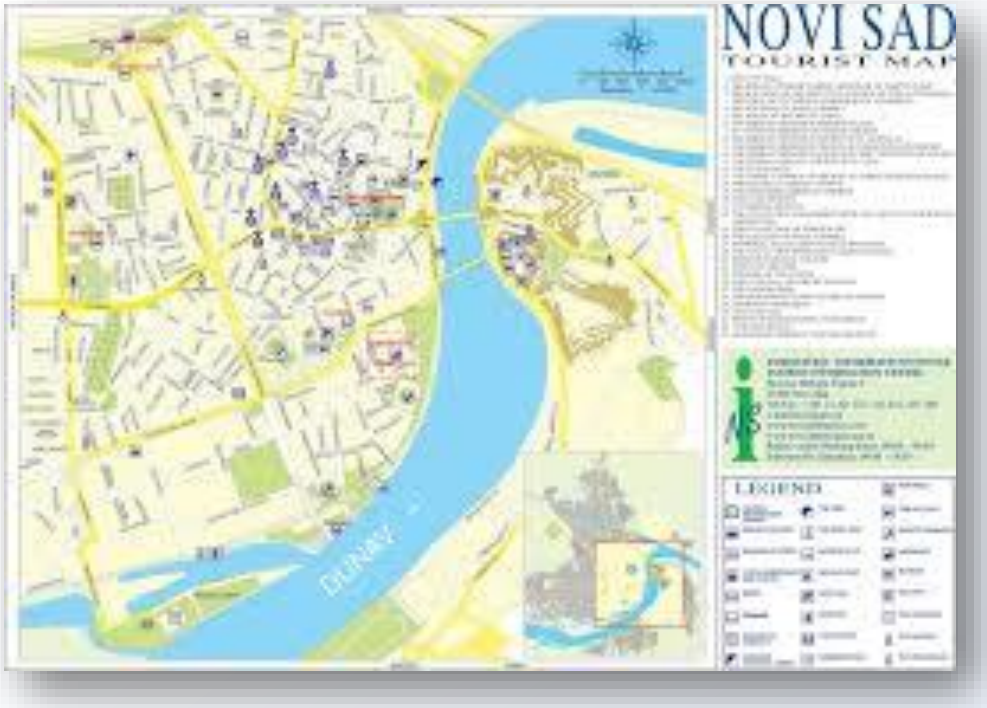
Tourist information

- Scanning the 2D bar code at the traveller's location will also provide information related to tourist landmarks and attractions on a map.



Integration with existing APP/Service

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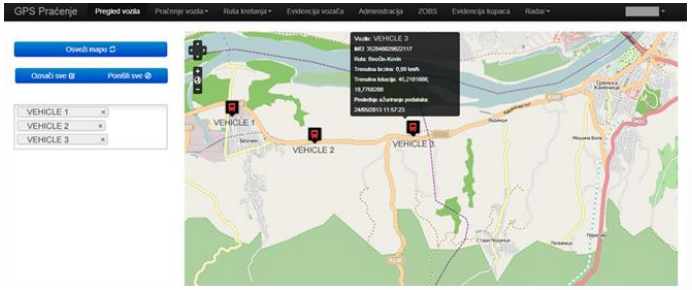
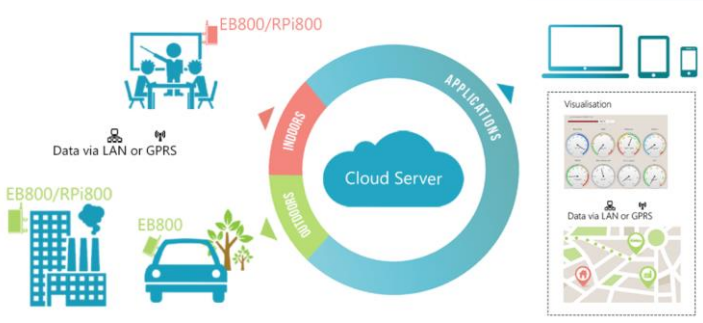
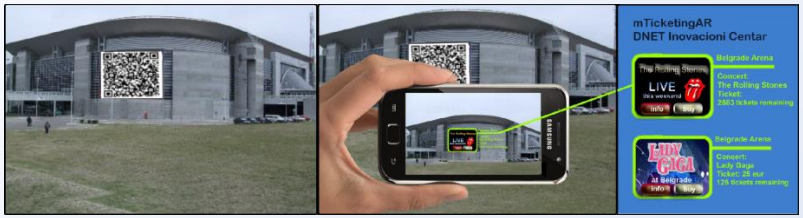
FleetNET



ekoNET



mTicketing/ mPayment



Users recruitment

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Users' recruitments via:

- Promotional videos
- Local papers
- News articles (several)
- TV appearances
- Social Networks (f, Lin, t)

Users' recruitment material:
Information for volunteers' and an application access point

Testing phase

- Initial testing by the Mobiwallet team in isolated conditions has been completed
- Volunteers soon to start testing the system in real conditions
- More than 200 people already applied as volunteers
- Mobile app on Google play

Forthcoming actions

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Involvement of:

- All buses on a bus line 2 in the city of Novi Sad
- Possible use of rental bikes from April 2016

Number of users:

- Applied more than 200 volunteers
- Selected 100 for testing

Stay tuned!

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