i-Ladezone: Intelligent monitoring of loading bays in Vienna

KeyWords:
IT-technologies and solutions; Transport optimisation; Communication between businesses and authorities; Innovative operational solutions; Transport management, fleet management

Case Logo:

Benefits:
• i-Ladezone provides information about loading bays showing if they are “occupied” or “free”, the dimension and length of the bay, and officially permitted loading times.
• i-Ladezone helps to avoid additional traffic through residential areas and provide truck drivers with useful additional traffic information.
• i-Ladezone is easy to use and can be integrated into city logistics services.

Description:
The project i-Ladezone focuses on two major topics. The first is the development of management methods in order to open delivery opportunities through the efficient and effective monitoring of the occupancy of loading bays by loading vehicles and private cars. The second topic focuses on the development of a management system for keeping the loading bays at maximum availability and reducing impacts on traffic caused by the loading activities. Also included is the development of an intelligent routing application for mobile use by the drivers of the goods vehicles.

Starting Point/Objectives/Motivation:
In busy urban areas, efficient goods delivery and collection activities rely on the availability of dedicated loading bays. Unlawful usage of such bays (e.g. for parking purposes) delays delivery of goods, disrupts traffic flow, causes additional traffic and endangers drivers and pedestrians.
As the loading bays in the city of Vienna are not fully digitalised yet, the exact numbers of loading bays are not known. Estimations range from approximately 2500 to 3000 loading bays. The i-Ladezone project could help to achieve more efficient freight operations through the development of an interface to the “official” ITS platform of the City of Vienna.
In the first part of the project, technologies and algorithms for an efficient and effective monitoring of loading bays have been developed and comparatively tested. Smart units installed at the location of the bays for the purpose of monitoring the occupancy by vehicles and to control if they are authorized to do so.
In the second part of the project an intelligent loading bay routing application has been developed for the first time, with routing and bay availability information shown to drivers on the android mobile phone system.
Within i-Ladezone the special routing system takes the geographical position and address of the loading bay as start or destination point. The system dynamically provides additional information about the loading bay (e.g. occupancy, officially permitted loading times).

Success Factors:
• Technical feasibility has been demonstrated in prototype and would need to be confirmed in a larger scale experimentation
• Linking of the information system with existing parking management systems in inner cities
• Cooperation of stakeholders, retailers and carriers, during the trial and implementation of the new loading bay management system

Supported Strategic Targets:
Improved utilisation of infrastructure, Competitive logistics and transport system, Acceptance and influence, Increased amenity value, Greater safety and security, Increased efficiency / productivity of logistics processes, Increased company profitability, Increased quality, Improved image, Increased safety and security, Reduced emissions
In the second part of the solution, the central management system provides the mobile (client) information system with following information:

- Loading bay information (ID, geometry, status etc.)
- Next loading bay or alternative loading bays
- Optional: Alternative Routing
- Optional: Loading zone booking

The mobile information system provides the central management system with following information:

- The actual use status of a loading bay
- Optional: Booking confirmation

In further application tests, the users (drivers) behaviour will be evaluated before and after installation of the system. The monitoring is done on two levels, first a technology-based and secondly a user-based approach.

In a first step the system detects if a loading bay is being used at all. In a second step it checks if the user is permitted to use the loading bay. The free/used check can be done easily (e.g., by video and/or ultrasonic sensors). Such systems are already in use in several cities. The second check of whether the user is permitted to use the bay will be done using other IT technology.

More information:

DI Alexander Chloupek  
ABC Consulting  
Gartengasse 19a / 1 / 4, 1050 Vienna, AUSTRIA  
+43 / 5458430  
abc@abc-consulting.at

DI Jürgen Zajicek  
AIT Austrian Institute of Technology GmbH, www.ait.ac.at  
Giefinggasse 2, 1210 Vienna, AUSTRIA  
+43 (664) 620 78 36  
juergen.zajicek@ait.ac.at

More Best Practice cases and information about BESTFACT can be found at: www.bestfact.net

BESTFACT 2013