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TRAM-In-TAKT

Every year in many European cities numerous delays of public transport vehicles (tram or buses) are caused by wrongly parked vehicles blocking the passage. For the corresponding public transport vehicle and its passengers and above all for schedule adherence of the corresponding transit line this poses substantial difficulties. In Vienna alone there are thousands of such service disruptions every year. In order to eliminate the time consuming towing of the blocking vehicles (a) the detection of potential blockages at the time of parking and (b) a suitable and timely notification of the driver of the blocking vehicle are necessary. The project "TRAM-In-TAKT" evaluates for both tasks suitable technologies as well as the embedding in technical and organisational terms into operating system of the public transport authorities.

Every year in many European cities and in particular in Vienna several thousands of service disruptions of lines of public transport (tram or bus) are caused by wrongly parked vehicles blocking the passage. These disruptions require a substantial effort to be resolved (usage of fire brigade, ...) and hence typically last for 15-40 minutes. Disruptions of this magnitude pose significant problems for the public transport vehicle and its passengers, but above all for schedule adherence of the corresponding line. While for bus lines the subsequent vehicles can be rerouted to avoid the trouble spot, rail bound vehicles do not have this option. Consequently the disruption for the passengers also in the following vehicles until the resolution of the situation is enormous. In order to eliminate the necessity to tow blocking vehicles the detection of potential blockages at the time of parking is required. Since this time is independent of public transport schedule, the detection needs to be done automatically and continuously. If a blocking vehicle is detected the corresponding driver needs to be alerted and advised to remove his vehicle from the conflict region. Solutions for both tasks, detection and notification, have to respect the needs of the local population, must not deteriorate the parking spot situation in the (mostly shopping-) streets and must use technologies insensitive to changing weather and traffic conditions.

In this feasibility study potential technological solutions for these two tasks are investigated:
? Detection of blockages of public transport corridors by parked vehicles
? Notification of violators in order to initiate removal of the blocking vehicle

For the first task various sensor technologies such as magnetometers, light barrier based systems or computer vision algorithms based on visual sensors are evaluated with respect to their suitability. For the second task acoustic (local loud speaker announcements) or optical (warning lights, flashing infosccreens or bright headlights) systems are available. Further combined approaches as well as special ground markers will be investigated. The main goal of TRAM-In-TAKT is to devise a cost efficient and robust alerting system, that notifies the computer assisted operation center of a potential blocking vehicle. The operation center staff then after performing a counter check can decide to initiate the alerting measure or the towing process (administered by the fire brigade). The system which is identified as most suitable will be installed and evaluated at a number of hotspots (agreed upon with the Wiener Linien) such as the "Äußere Währingerstrasse". Other Austrian public transport authorities in cities such as Graz, Salzburg and Linz will also be involved in the project via workshops and other activities in order to collect their specific needs and include them in the project scope. Since this problem occurs internationally in many major cities, the interest in such systems is substantial and hence also the potential for actual implementation and subsequently the economical potential is big.

program line

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Project coordination

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Links

TRAM-In-TAKT - Alarmsystem für falschparkende Autos
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