

Increasing vehicle safety in the transport of passengers and freight on critical infrastructure points

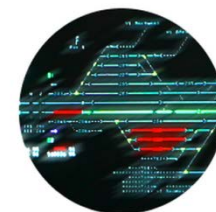
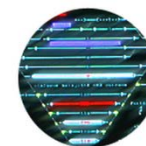
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HEADQUARTERS

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Commissioned by the:

Ministry of Interior Czech Republic

Project number: VG 20122014095



Project leader KPM CONSULT



Project Participant
Czech Technical University in Prague



Project Participant
Transport Research Centre

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Outline



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Applications



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Project Description



Deals problems, which aims is increasing passive and active safety level at railway crossings with the road infrastructure.



Significant safety risk in the transport system are the crossings, which are secured only by the warning traffic signs (crosses) and light signaling devices without gates.



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Areas of Solutions in the project



Just in time spreading the information to the road vehicle, that it is approaching to railroad crossing.



Analysis of existing internal and European legislation and the proposed changes.



Psychology of road users' behavior and risk behavior of drivers depending on critical situations.



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Areas of Solutions in the project



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System is designed as a warning system that should be an additional warning information to the drivers of the vehicles.



Is aimed to the "professional" road users, who are legally and labor-law controllable.

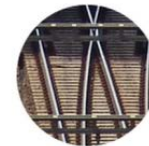
- In particular it means the drivers of vehicles carrying dangerous materials or more persons (coaches).

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Areas of Solutions in the project



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Main function is to provide warning status information when to the railway crossing approach both - vehicle and train in the same moment.



Main parts of the system:

- o Mobile part (Located on a rail vehicle; Located on a road vehicle)
- o Stationary part (Server; Intelligent sign with transmitter and receiver)

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The system is designed in two variants:

-  Warning at crossings, which are secured at least (level crossing safety lighting equipment)
-  Warning at crossings, which are secured only by the warning signs (crosses)





The stationary part consists of the following components



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Server with the internet connection via a fixed IP address.



"The Intelligent Traffic Sign System" – transmitter, (ITSgn) providing broadcast information about the status of the Crossing safety system (CEL)



- Information is provided by free CEL contacts.
- Warning Board
- Devices crossing



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The mobile part consists of the following components:



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The mobile part in the Vehicle:



Road vehicle will be equipped with a receiver system, which distributes the information about The Intelligent Traffic Sign.

Train position locator placed on board of each rail Vehicle:



It ensures the provision of information about the position of the rail vehicle of the railway infrastructure.



The information is transmitted to the server via the Transmission and logic unit.



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The mobile part consists of the following components:

Train part *



Vehicle part



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**supplier MSVe Studénka*



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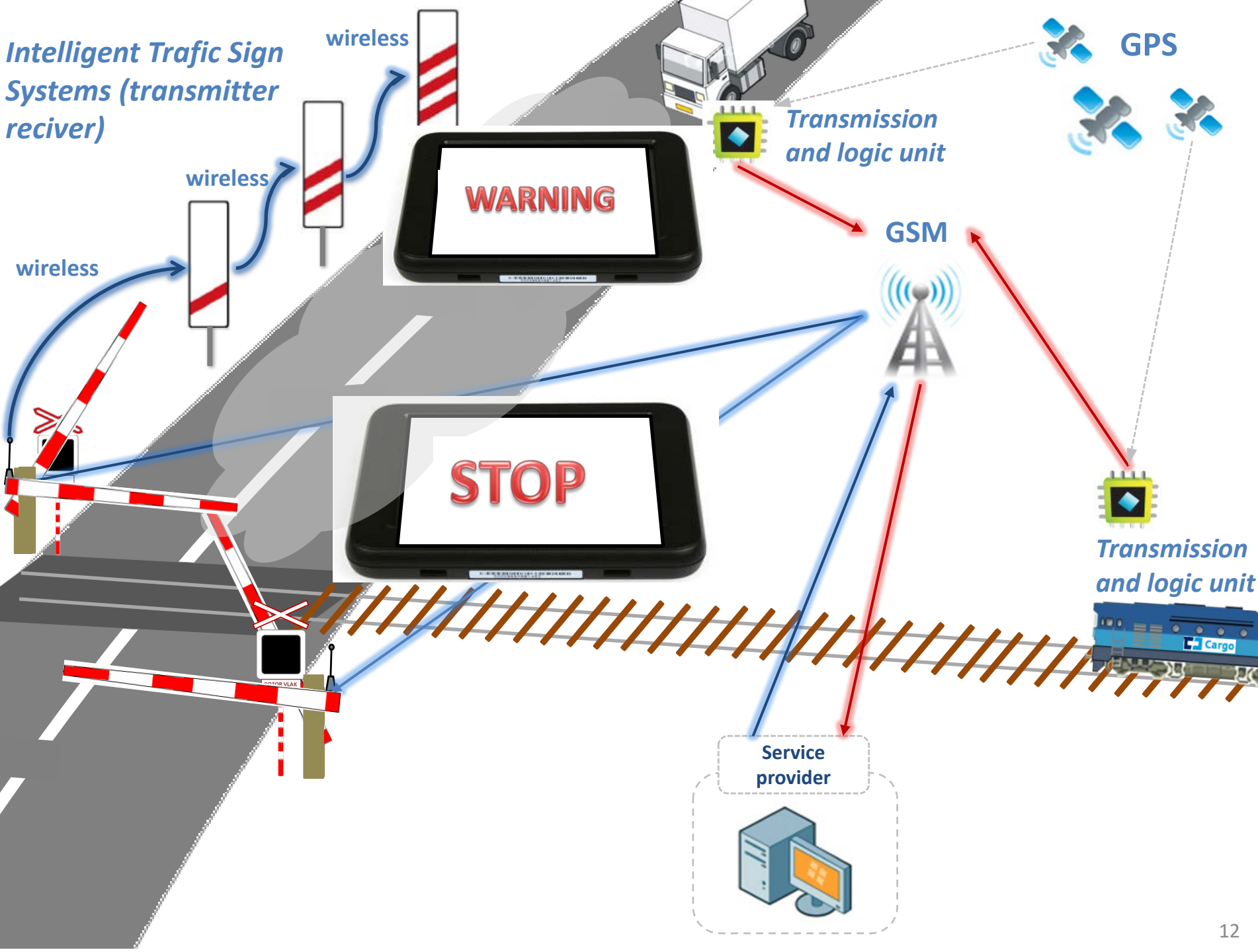
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Intelligent Traffic Sign Systems (transmitter reciver)



Statistics transmission

Výsledné hodnoty

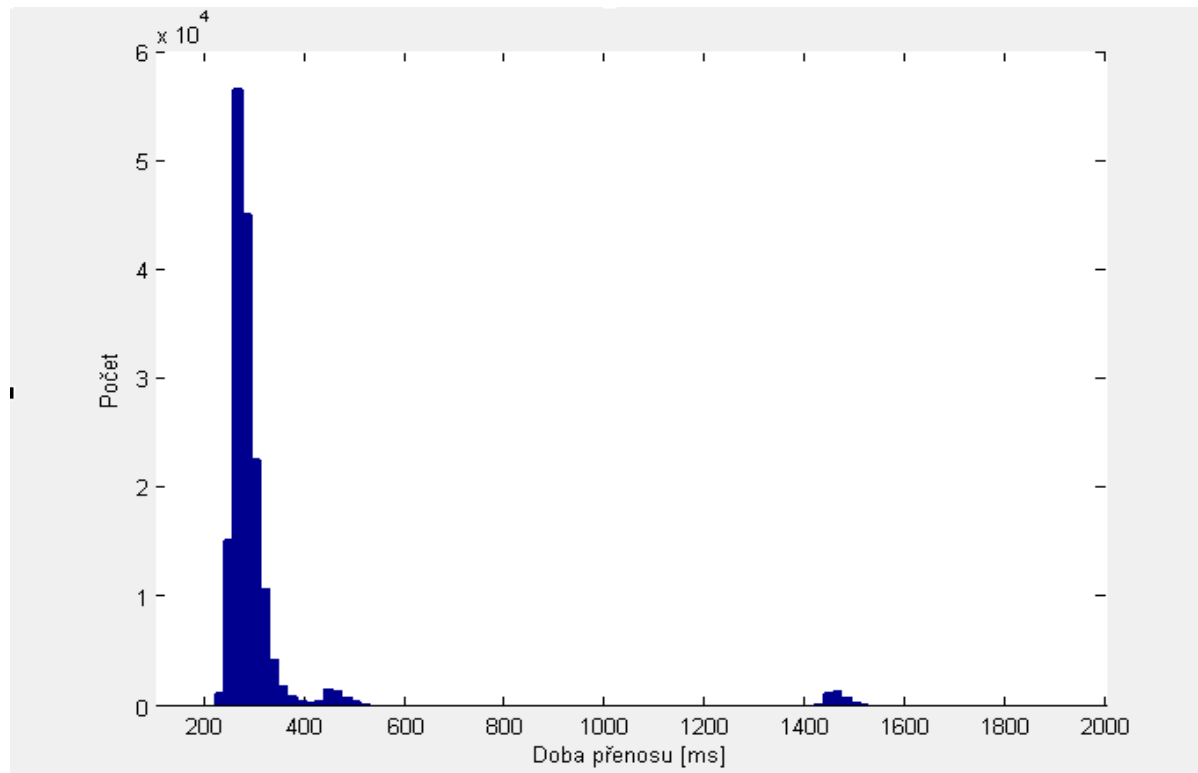
Provider 02 Czech Republic a.s.

ztracená data:

0,75 %

Modus doby přenosu:

325 ms





Pilot project



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System was tested on the railway line Šumperk – Kouty nad Desnou, operated by ARRIVA carrier.



The four railway vehicles and one road vehicle are operated in the frame of the pilot service. The pilot testing runs on the rail road crossings secured by the safety light devices and also one crossing, which is secured only by the warning traffic signs (crosses).

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Train





Thank you for your attention



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