



TOTEM Warning Information System for Work Zones

SUMMARY

Totem is a warning information system for work zones. The system is based on a licence plate recognition system coupled with a speed measuring radar, providing a personalized real time display of speed and licence on a PVMS. It is entirely mobile, portable, safe and easily set up by operations professionals.

INTRODUCTION

Excessive speeds while entering a work zone doesn't permit proper anticipation of an event, which could arise, in such an environment. Road safety is a key issue at Sanef, and so is worker's safety. In recent years, 4 workers were killed in work zones (2002 to 2004), on Sanef's network.

Observations show that 44 % of all drivers exceed the permitted work zones speed limits by more than 20km/h. The problem of excessive speed in work zones, even though focussing on Sanef's network, is a common concern on all highway networks

PROJECT OBJECTIVES

Sanef aims at creating awareness by conveying information to the drivers relating to their speeding. The excessive speed issue is tackled by planning the deployment of the system, which automates the posting of licence numbers and speeds, in real time, through licence plate recognition coupled with radar measurement of speed.

The key objectives are:

- A smooth integration in a work zone,
- An optimal reliability of the system's performance, in order to gain credibility and make it a perennial solution,
- A formal recognition and identification of preventive aspects of the system by drivers.

DESCRIPTION OF THE TOTEM SYSTEM

Totem is a mobile, integrated and portable solution. It is composed of two key components, namely:

- **A mobile measurement and processing unit** – this unit has a head, a cabinet and folding legs, which ensure its stability. The head includes the radar, the camera and an infrared flash. The cabinet includes a computer and batteries. The complete unit is equipped with two wheels and a handle, allowing for easy transportation.



- **A mobile (set on a trailer) VMS** – The PVMS includes the necessary electronic system to display messages, a battery pack, a power-generating unit as well as an energy management

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unit. The sign is retractable through an electric screw. It allows for three lines of display (diodes) as well as two flashes.



FUNCTIONNALITIES AND PERFORMANCES

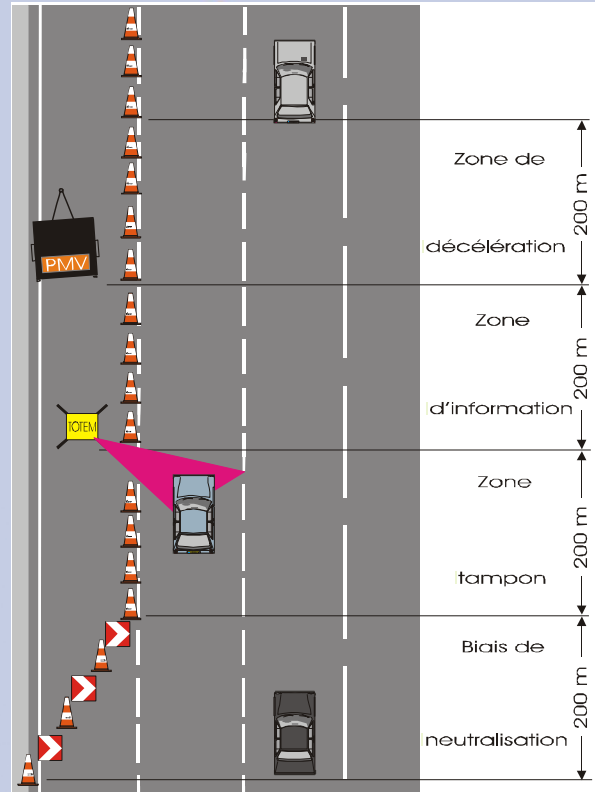
TOTEM is capable of:

- Measuring instantaneous speed
- Capturing and recognising number plates
- Processing and transmitting information
- Displaying of personalised speed information on the mobile VMS

Moreover TOTEM can operate during nights and days on 20 different European plates with a recognition rate superior to 85 %.

KEY EVALUATION RESULTS

As early as 2003, a dynamic sign display system was used to demonstrate that preventive personalised information (licence plate and speed measurement) would efficiently influence the drivers' behaviour in work zones.



The first complete implementation tests (known under the trade mark Totem) were undertaken in August 2004. Under normal traffic conditions, on Autoroute A1, France (Paris to Lille direction), the efficiency of Totem was demonstrated, on two separate work zones. The impact on speed was clearly measured, and a reduction of speed of approximately 20 % was recorded, in zones under Totem's surveillance, as well as the removal of recorded speeds above 130 km/h.

TOTEM is an easily exportable and turn-key solution that can be deployed to protect work zones or to increase awareness during specific safety campaigns.

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For further information on other CENTRICO activities visit:

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