ICT Centre
Cnr Vimiera & Pembroke Roads, Marsfield NSW 2122
PO Box 76, Epping NSW 1710, Australia

Telephone: (02) 9372 4222 • Facsimile: (02) 9372 4585 • ABN 41 687 119 230

CSIRO

Our Ref: Zelinsky/AS Lab/APNR Submission Jan 2008

Mr Jim Pierce MP
Chair, Travelsafe Committee
Parliament House
George Street
BRISBANE QUEENSLAND 4000

14 January 2008

Dear Mr Pierce

Thank you for your letter to Dr Geoff Garrett of 4 December 2007 inviting the Commonwealth Scientific and Industrial research Organisation (CSIRO) to make a submission to the Travelsafe Committee Inquiry into Automatic Number Plate Recognition Technology.

Please find attached CSIRO's input on this important issue. We trust that these viewpoints are of value to your inquiry.

Yours sincerely

Dr Alex Zelinsky
Director, CSIRO ICT Centre
alex.zelinsky@csiro.au
(02) 9372 4202

CSIRO Submission – 07 - 273

Queensland Travelsafe Committee Inquiry into Automatic Number Plate Recognition Technology

January 2008

Enquiries should be addressed to:

Michael Brünig
Research Director, Autonomous Systems Laboratory
CSIRO ICT Centre
P.O. Box 883
Kenmore QLD 4069, Australia
Phone: +61 7 3327 4431 Fax: +61 7 3327 4455
Email: Michael.Bruenig@csiro.au

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Terms of Reference

The Inquiry will examine:

- The efficacy of Automatic Number Plate Recognition (ANPR) technology for road safety applications;
- Potential costs and benefits;
- Whether ANPR-enabled intercept teams should be used for traffic enforcement in Queensland, including examination of existing applications; and
- Other opportunities and considerations for its use by Queensland Government agencies to promote road safety.

Introduction

CSIRO wishes to make a background submission to the QLD Travelsafe Committee even though the Terms of Reference do not formally apply to our Organisation. CSIRO has been a technology developer rather than an operator of the Safe-T-Cam system. Consequently, CSIRO has not been in a position to comment on the efficacy of ALPR for road safety applications, the related cost benefits or whether ANPR-enabled intercept teams should be used for traffic enforcement in Queensland. The NSW Roads and Traffic Authority as our partner and operator of the Safe-T-Cam system is better placed to provide relevant input into your inquiry on these matters.

CSIRO Research Activity

CSIRO has been an active developer of vehicle monitoring systems since the early 1990's. Much of this work was carried out in partnership with the NSW Roads and Traffic Authority resulting in the Safe-T-Cam system that has been deployed in NSW since 1996. This system is based on automatic licence plate recognition and there are more than 20 sites on NSW highways that monitor traffic movements. While initially designed to monitor large vehicles, the system has been upgraded in almost every component since the initial deployment and today can monitor all vehicles and recognize considerably more licence plate types than in its initial configuration. An overview of that system can be found at http://www.csiro.au/solutions/psah.html. As early developers of vehicle monitoring systems, the NSW Roads and Traffic Authority and CSIRO are joint patent holders of this technology.

Vehicle monitoring systems and associated automatic licence plate recognition technology have benefited over the past ten years from improvements in digital camera resolution and sensitivity. Higher resolution images of licence plates improve recognition accuracy, while improved camera sensitivity extends the range of viewing conditions under which acceptable images can be obtained. Today, worldwide, many companies successfully use the technology. However, it should be noted that the modern trend for road authorities to allow a large variety of different types of licence plates and hence less restrictions on the format of the licence plate, has tended to reduce recognition accuracy of automatic licence plate recognition systems. This is because the strict format of standardized plates allows information about that format to disambiguate characters that might otherwise be confused, for example the letter "O" and a zero "0".

Comment on Tracking Systems for Vehicles

The inquiry will be aware that there is a significant trend towards active tracking systems for vehicles. Most toll roads use such systems and commercial companies, particularly overseas, have been using tracking systems to monitor their fleets. This trend is likely to continue as active tracking systems can provide more detailed information than that available from a limited number of monitoring stations as used in automatic licence plate recognition systems. On the other hand, licence plates are identifiable by humans whereas current active systems are not, and quite importantly, tampering with a licence plate is often highly visible to the public, whereas tampering with an electronic system is not. Given the avoidance actions taken by some vehicle users to avoid detection by Safe-T-Cam stations, it would seem prudent to assume that tampering will occur with any system and the high visibility of licence plates may offer significant advantage.

CSIRO Capabilities in the field of Automotive Number Plate Recognition

In relation to further opportunities associated with the development of ANPR, CSIRO has technical expertise in a range of technologies for automatic licence plate recognition system, such as sensing, optics, data analysis, object recognition and classification. CSIRO is able to act as an advisor or research partner to provide expert technical input for the development process or to provide independent technology evaluations.