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RESEARCH

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Students develop 'shoeprint' forensic aid

La Trobe University computer science students have made a major contribution to an improved forensic device to catch criminals.

It is literally a 'shoe print' - or more exactly about 6000 of them - stored in a database at the Victoria Police's Victoria Forensic Science Centre in Macleod.

Third year Software Engineering Project students in La Trobe's Department of Computer Science and Computer Engineering developed a prototype of the device - the only one of its kind with Australian data - during 2002. It is expected to be operational later in 2003.

The database houses electronically the patterns or design of about 6000 individual items of footwear manufactured or imported into Australia. A shoe impression left at a crime scene can be digitally photographed and the image conveyed electronically to the Centre where chances are it will be instantly matched against the database and recognised.

Dr Steve Gutowski, R&D Manager of the Victoria Police Crime Scene Division, says the forensic evidence the database will produce would be added to other evidence against a suspect.

For instance, if a suspect were found to possess footwear with an imprint matching one found at the crime scene, it would not normally automatically prove his or her presence as scores if not hundreds of shoes with similar footprints exist. However, it would be combined with other evidence to make a convincing case to outline to a jury or help detectives link different cases or narrow down their lines of inquiry.

'On occasions though, shoe impressions can be as individual as fingerprints and then the evidence has tremendous value,' Dr Gutowski said.

While fingerprints have been around as a forensic tool for a century, shoe impressions are much more recent. The Forensic Science Centre established a card-based impression database in 1984 and has since computerised it.

However it was inadequate technically and in late 2001 Senior Constable Steve Lake, Sergeant Trevor Evans and Dr Gutowski joined with La Trobe University to develop a completely new system.

During 2002, 36 students working on their third year Software Engineering Project for their Bachelor of Computer Engineering course, designed and built the system supervised by their lecturer, Mr Torab Torabi.

They were divided into six different development teams and worked on two major components of the system, the 'back-end' for managing the complex database and the 'front-end' to provide unique presentation, and also a uniform user-friendly interface to the database and other external applications.



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'By year's end the project teams had developed a prototype system that included the required features and functionality, incorporating the latest development technology that impressed the clients in Crime Scene Division,' Mr Torabi said.

Dr Gutowski said the prototype, called the Imprint Classification and Matching System, was a vast improvement on the old system. 'It is the best system in Australia and there may be possibilities for marketing it nationally,' he said. Discussions for further development of the system are under way between La Trobe University and the Victoria Forensic Science Centre.

Professor Tharam Dillon, Head of Department of Computer Science and Computer Engineering said: 'Development of this upgraded forensic tool illustrates the close collaboration between the Victoria Forensic Science Centre and La Trobe University.

'Since the development of the subject, Software Engineering Project, this department has collaborated with more than 20 companies and organisations to develop different systems from e-Commerce to Production Control and Rostering Systems.'

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