

How scanning your finger could save your life

June 13 2005

Who would have thought taking a simple scan of your finger could save your life?

Unlikely on the face of it, perhaps, but a consortium including Cranfield Impact Centre and Nissan Technical Centre Europe, has developed a prototype bone density scanning system which could be used to improved driver and passenger restraint systems in cars.

The system would work by taking an ultrasound scan of your finger and using the data to estimate the bone strength of each passenger, in particular the chest area which is most vulnerable to seat belt injury during accidents.

This information would then enable the system to assess a person's potential tolerance to injury and adjust the force of their seatbelt accordingly so it 'gives' a little once the brakes are applied and the car begins to decelerate.

It will also adjust the firing of airbags. In cars with dual-stage airbags, for instance the system would be clever enough to decide whether or not to fire both stages.

Ultrasound was chosen because, unlike x-rays, it uses no ionising radiation. This not only makes it a much safer option; its routine use in foetal scans makes it more likely to be readily accepted by the public.

Cranfield Impact Centre's Technical Director, Roger Hardy, said: "The system could be built into dashboard consoles, the driver's door or even,

when miniaturised sufficiently, into the gear lever.

“It would need to be used each time the car’s ignition was switched on, before the driver was able to move off. In its simplest form, it could be a hole into which you place your finger; the instrument would be powered to lightly grip the finger, take the reading and then release. This would then feed into the restraint system, part of a processing unit in the car, in addition to what is routinely used to detect a go/no-go situation for firing airbags and controlling the seatbelt operating characteristics.

“A lot of the ground work has been done and we’re putting together our final report. We do, however, need to make further investigations before we look to commercialise the system,” continued Roger. “We need to assess how it might be integrated into a car; what would be the power consequences on the battery, will it affect the engine management system, for instance – these are just some of the things needing consideration.”

Source: Cranfield University

Citation: How scanning your finger could save your life (2005, June 13) retrieved 23 April 2024 from <https://phys.org/news/2005-06-scanning-finger-life.html>

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