

EXHIBIT 1069

R. WILSON, "Technology: A little camera with big ideas – The latest smart vision system," Financial Times, 17 June 1993

TRW Automotive U.S. LLC: EXHIBIT 1069  
PETITION FOR *INTER PARTES* REVIEW  
OF U.S. PATENT NUMBER 8,599,001  
IPR2015-00436

Financial Times

<HEADLINE> FT 17 JUN 93 / Technology: A little camera with big ideas - The latest smart vision system </HEADLINE>

<BYLINE> By RICHARD WILSON </BYLINE>

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Motorists around the world may soon no longer be blinded by headlight glare in their rear-view mirrors thanks to a microchip camera and image processing system invented by a Scottish start-up company.

That is only the first commercial application of what has the potential to be world-beating semiconductor technology developed by a group of scientists at Edinburgh University three years ago.

Last month, VLSI Vision Ltd (VVL), the company set up to develop this technology, introduced the world's first image-processing system on a single microchip.

Donnelly, the big Massachusetts-based manufacturer of rear-view mirrors, has snapped up the combined camera and computer on a chip, known as the imputer, to control a new self-adjusting anti-glare mirror. Using electrochromic technology, the mirror's surface (containing the imputer) darkens to cope with outside glare. The deal is a valuable one for VVL, one of a new generation of small design houses which have limited resources but must survive on the uniqueness of their ideas.

'Without VVL, Donnelly would not have thought about putting a camera into a rear-view mirror,' says Stewart Smith, VVL's marketing manager. Peter Denyer, the Edinburgh University professor who invented the technology and is now managing director of VVL, believes it can grow into a Pounds 20m company within five years. 'I have learnt to speak cautiously,' said Denyer, 'but that's possible if one of our products takes off and I believe any of them is capable of it.'

Denyer and his team have created a smart vision system which can be made small enough and cheaply enough to introduce image-processing technology into new applications from production-line monitoring to supermarket checkout scanners. 'Nowhere in the world can you find a camera at such a size and price. It will be unique for a while,' says Denyer.

Japanese companies such as Sony lead the world in miniature optical sensors called charge coupled devices (CCDs) which are used in camcorders. US companies specialise in fast microprocessors which can turn optical data into usable information. VVL, which has Pounds 2m of development capital, combined the CCD sensor with a microprocessor which can process digital picture information at 1bn bits per second on a single integrated circuit costing less than Dollars 10 (Pounds 6.40).

But the first production order from Donnelly, the world's largest company in its sector, is likely to be priced at less than Dollars 5 per circuit. Denyer and his team have none of the financial resources usually thought necessary in the semiconductor industry. The VVL microchip is made in France by custom chip-maker ES2. Their asset is the ability to innovate in semiconductor chip design and software development. To help find commercial applications for the imputer - such as inspection, traffic control, navigation, and robotics - VVL has produced a development system, with special software, costing Pounds 500. It can be used as an image

processor in its own right, but Denyer says its real aim is to enable customers to develop applications.

Once the application is found, VVL will compress the system into an integrated circuit the size of a postage stamp. Denyer believes this will give VVL a technological edge over Japan and the US.

VVL is typical of the small, high-tech start-up companies scattered across California which have done so much to give the US its world lead in computer, semiconductor and software design.

It has long been suggested that the reluctance of British investors to back new technology companies has stifled the start-up culture in the UK. Denyer believes this is a myth. He had no trouble in raising the necessary capital from private investors.

He believes inventing something is not enough for university scientists if they want a successful product. The ideas must have a commercial application.

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