The Royal Academy of Engineering MacRobert Award

The Royal Academy of Engineering MacRobert Award is the UK's premier prize for engineering and is given annually for an outstanding innovation of benefit to the community. The 2006 Award winner was Optos plc for the innovation of ultra-wide field retinal imaging

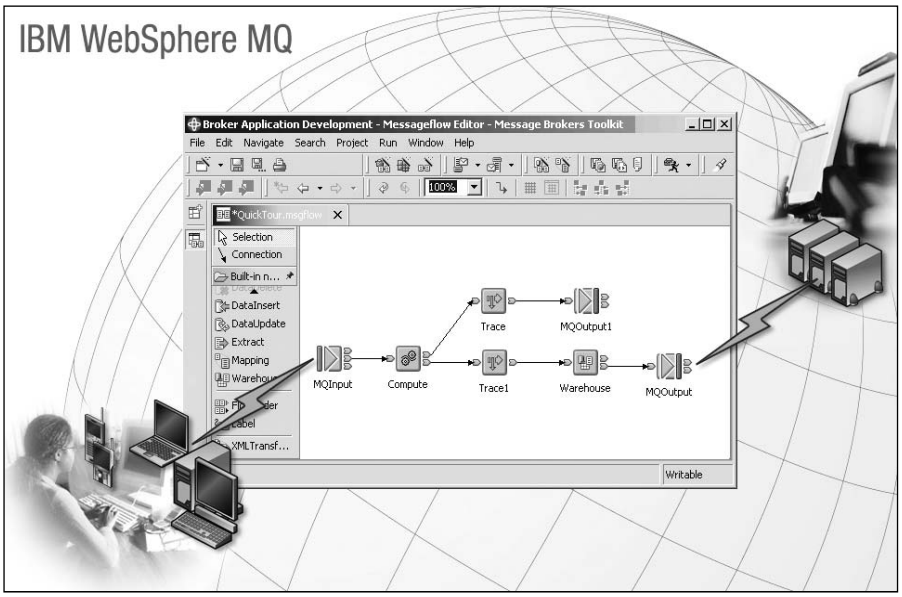
Described at its launch as "the Nobel Prize for engineering", the Award was founded by The MacRobert Trust and first presented in 1969. Since 1976 the award has been presented by The Royal Academy of Engineering, a prize fund having been established with donations from The MacRobert Trust, the Academy and British industry. It honours the winning company with a gold medal and the team members with a prize of £50,000, presented at The Royal Academy of Engineering Awards Dinner in June. Individual medals are then presented to each team member by HRH The Duke of Edinburgh at a ceremony in Buckingham Palace. There is also the opportunity for the winning team to stage a display at the Science Museum in London.

There are usually between 30 and 50 submissions for the Award each year which are reviewed by a panel of judges drawn from all areas of engineering, each bringing their own expertise to the task. A shortlist of companies are visited by panel members leading to the selection of no more than four finalists. Each finalist then receives a visit from the entire panel of judges before the overall winner is selected.

While competition is intense and the judging process both lengthy and rigorous, the rewards are many. In addition to the gold medal and prize money, one of the major benefits of the MacRobert Award is the public recognition that it brings. The winner becomes a role model, and a vehicle for publicising the achievements of British engineers. This recognition can also provide a major morale boost for many companies, motivating them to make further innovations and developments. It can strengthen a company's ability to encourage and motivate younger team members and helps to convince students and young people coming through the educational system to choose engineering as a career.

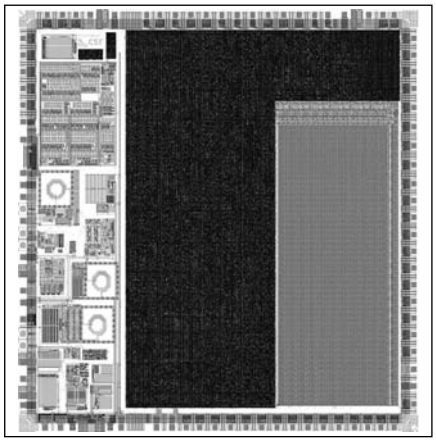
The MacRobert Award was devised with the specific objective of rewarding the very best innovation in engineering in any year, it being understood that successful innovation can take several years to bring about. The award would be open to individuals or teams (of up to five people) from any size of company or institution. From the outset, it was recognised that in order to meet this goal the Award would have to transcend traditional boundaries – sectors, disciplines and so on. In addition, whilst many past winners of The MacRobert Award have been for engineering innovation in the area of products, it was acknowledged that systems, processes, structures and software were equally eligible. All fall within the boundaries of engineering, making the Award a true manifestation of what The Royal Academy of Engineering is all about – the pursuit and promotion of excellence in engineering.

This multidisciplinary approach has been well demonstrated in recent years. In 2004, IBM UK Laboratories won the award for the WebSphere MQ family of software products. The products provide a failsafe means of exchanging business-critical information between computer systems, irrespective of their location and regardless of the hardware, programming language, operating system or communication protocol. Launched in 1994, it took ten years to establish. When IBM received the MacRobert Award in 2004, the Vice President, Graham Spittle had the following comments to make; "We are delighted that the IBM Websphere software family has been honoured with this prestigious award by The Royal Academy of Engineering… the award recognises the importance of software as an engineering discipline in its own right, as much as it recognises the success of WebSphere MQ. The MacRobert Award indicates the maturity of the industry and recognises the significance of the role IT plays in the modern world."



IBM's WebSphere MQ software © IBM

The success of IBM in 2004 was followed by CSR plc in 2005. CSR were responsible for the design and introduction of the single chip radio, BlueCore™00 – commonly known as Bluetooth. As the first company to place a radio transmitter and receiver, microprocessor and memory on a single chip of silicon, CSR were able to exploit a totally new market opportunity and as a result became a global success story. The Award recognised not only their innovation and commercial success but also the fact that they had gathered together some of the best engineers to develop it – including nearly 300 people at their research headquarters in Cambridge. CSR had captured the aims of the award perfectly – seeking, seizing and securing commercial opportunities through outstanding engineering innovation.



CSR's single chip device, BlueCore™ © CSR plc

The judging panel has always been adamant that the size of a company should not be an influencing factor in their choice of winner. Previous MacRobert awardees have included well known names and large companies such as Rolls-Royce plc (for the Trent aero-engine), BP International (for advancing the application of hydraulic fracturing technology used in the exploitation of oil and gas reserves), and Johnson Matthey plc (for the Continuously Regenerating Trap to control diesel pollution). However, smaller companies have been equally successful over the years. Employing only 120 members of staff, Cambridge Display Technology won the award in 2002 for its Light Emitting Polymers for Display Applications. This enabled flat screen televisions and computers to give as good a picture as the cathode ray tubes in conventional televisions, without the bulk or complexity. The 2006 MacRobert finalists inspired comparisons with "David and Goliath" – amongst the four companies competing for the prize were Airbus UK, who employ 13,000 members of staff, alongside a tiny spinout from the University of Aberdeen, Brinker Technology, who employ 13 staff members!

In the event neither Airbus nor Brinker won the 2006 MacRobert Award. The honour went to Optos plc, a company that has revolutionised eye care and the early detection of retinal defects with its ultra wide retinal imagers. Optos was founded in 1992 by Douglas Anderson after his then 5 year old son lost sight in one eye due to retinal detachment being diagnosed too late, despite regular eye examinations. Routine retinal examination methods provide only a limited narrow-field view of the retina – typically less than five per cent in a single capture. The limitations of these methods spurred Anderson to go on to oversee the development and commercialisation of a unique non-invasive imager which, in quarter of a second, captures a high resolution digital image of over 80 per cent of the retina. Such vastly increased performance has significantly reduced the risk of missing early signs of eye diseases, as well as indicators of other non-eye related diseases such as diabetes, hypertension and certain cancers, which are often first exhibited in the retina.

Optos now have over 200 imaging devices installed in eye and health care practices in the UK, Germany, USA and Canada, and have conducted over 8 million patient examinations to date. "We work hard to save sight and save lives; that is what it's always been about," says Global Product Director, Alastair Atkinson. "We are extremely proud of what we've achieved so far; not only in terms of the technology but also in terms of how we strive to make our innovations available in the most cost-effective way we can for our customers. To have the value of our technology and our contribution to society recognised by such an esteemed organisation as The Royal Academy of Engineering and its MacRobert Award means a great deal to us."

The 2006 MacRobert Award winning team – Executive Vice-Chairman, Douglas Anderson, Chief Technology Officer, David Cairns, and Alastair Atkinson – were presented with the MacRobert Award Gold Medal by the Duke of Kent on 5 June at the Academy Awards Dinner. On 16 June the team attended a private ceremony at Buckingham Palace where they were presented with their individual medals and prize money by the Academy's senior Fellow, HRH The Duke of Edinburgh.

David Cairns, Alastair Atkinson and Douglas Anderson receive their MacRobert Award Medals at Buckingham Palace

For further information regarding the MacRobert Award, or to make a submission, please contact Clare Huddlestone at The Royal Academy of Engineering or visit the Academy website at www.raeng.org.uk

Submission forms for the 2007 MacRobert Award will be available from October 2006 and must be received no later than 31 January 2007.