



WELCOME

By Interim Cluster Chair, Dr Chris Nicol

NEWS

- Future Trends and Directions in ESA
- Capability Register, Membership & Sponsorship
- The ESA DSRC Project
- Dr Chris Nicol Wins NSW Scientist of the Year
- Acknowledgements

REGULAR ITEMS

- Events
- About ESA
- ESA Steering Committee
- Sound Bytes
- Contacts

WELCOME

Welcome to the first edition of the Embedded Systems Australia newsletter.

Embedded Systems Australia is a horizontally-aligned, project-based national industry cluster. Our members are interested in developing embedded systems technologies and marketing smart products to global supply chains. The activities span the complete product lifecycle of embedded systems development and deployment. These include Design: electronics, software, computer aided design and methodologies; Manufacturing & systems integration to create competitive smart products for vertical applications; and Marketing, sales and support of embedded systems product development.

NEWS

Future Trends and Directions

Each day, every one of us interacts with hundreds of microprocessors – in cars, at work, out shopping, at home. Only a few of these will be in your desktop PC. Embedded Systems are the Information and Communications Technologies embedded within these products. For example, push a button on a dishwasher and an embedded system makes the machine do it's thing. There is a growing international trend to embed smart digital control systems into practically everything. 40% of the price of a car in 2010 will be in the embedded systems. 12% of the price of an A380 airbus is embedded systems. 98% of the world's microprocessors are embedded into products.

Embedded Systems are evolving into complex embedded real-time software platforms. They are deployed in an increasing number of applications shown in the opposite table. Recognising these global trends, The Warren Centre for Advanced Engineering at Sydney University proposed that a cluster might position Australia to take a leadership role in Embedded Systems.

EVENTS

Recent

Brisbane: 7 November 2008
 Combined Ai Group QLD Cluster and ESA Event

Today

Sydney: 10 November 2008
 Announcement of NSW Govt. \$100,000 seed funding for a DSRC project and launch of the "Industry & Research Capability Directory."

Upcoming

Melbourne: First week of December
 Possible combined AusDSRC Event (TBC)

Embedded Systems Applications and Markets		
Domestic	Business	Infrastructure
<ul style="list-style-type: none"> • PDAs/GPS/Games • Mobile Phones • MP3 players/iPods • Cameras • TV/Sound • Smart appliances • Security systems • Computer peripherals • Climate controllers • Automobiles 	<ul style="list-style-type: none"> • Communications • Robots • Automation • Photocopiers • Medical devices • Instrumentation • Diagnostic systems • Billboards • ATMs • Vending 	<ul style="list-style-type: none"> • Telecomms • CCTV & security • Tolling • Information signs • Speed limit signs • Signalling • Navigation • Ticketing • Radar • Traffic Control

In 2006, David Skellern, the CEO of NICTA, announced a new research theme at NICTA into embedded systems. In 2007 NICTA joined with the Warren Centre, the Department of State and Regional Development and AEEMA (Now AIG) to create an industry cluster in embedded systems.

What was needed was for people to get together to make it happen. We formed a Steering Committee containing members from Government, Industry groups and Companies to create an industry cluster called Embedded Systems Australia. Last year, we held a roundtable at the State Government offices. We asked companies about their issues, the challenges that they face, and to see if there was interest in forming a cluster.

What we learnt was that there are many companies working in isolation - with low awareness across the industry. Many are creating great technology and embedding it into smart products, but feel they are working alone, and that there is no voice that represents their interests. They were also having difficulty finding people with the right skills. Finally, there was widespread interest in an industry cluster.

The ESA DSRC Project

Also this month, we are announcing our first ESA-sponsored project. It is in the transport and logistics area and is known as DSRC or Dedicated Short Range Communications.

DSRC is essentially high speed digital wireless communication between moving vehicles and to the traffic infrastructure. Within the automotive sector, considerable attention has been placed on V2V where cars communicate with each other to avoid collisions, propagate warnings about incidents ahead, prevent wandering across lanes and so on. I believe that Australia's opportunity lies in the V2I domain where vehicles (like cars, buses, trucks and fleets) communicate with infrastructure. By bringing together infrastructure and automotive, we can create a testbed for new applications. It is the *applications* that will provide the greatest opportunity to create value. Consider road-work signs that communicate with your navigation system to adjust the speed limit and re-route the car around congestion. Or systems that prevent heavy trucks from damaging bridges and tunnels. Or smart children's crossings that detect children moving onto the road and alerting oncoming traffic. The more you think about the potential applications, the more you realise that there is so much opportunity. Opportunity to reduce emissions, travel time, and fuel consumption by optimising traffic flow through motorways, tunnels, bridges and intersections. Opportunity to save lives with cars that co-operate with infrastructure to avoid collisions.

So that is the big idea...

Reducing emissions ◇ Reducing fuel consumption
◇ Reducing traffic congestion ◇ Saving lives ◇

And the enabling technology is V2I communications known as DSRC.

Only 12 months ago, few people in the embedded systems industry had even heard of DSRC. Today, we are announcing DSRC as a major project within the cluster. This opportunity emerged from project workshops and discussions with the ITS community and leading authorities like the RTA. The challenge is not so much a technical one - but an organisational one; namely, bringing together companies with a wide range of skills from completely different industries like embedded software, electronics, traffic and infrastructure and motorway construction - and getting them aligned to a global opportunity.

Through the efforts of ESA and the AusDSRC clusters, several organisations in Australia are now ready to take on this challenge. ESA companies will be right there in the thick of it.

By bringing NSW industry into the picture early, we are taking an important step in facilitating the global commercialisation of discontinuous innovation in an area we believe will be important, substantial and exciting. Where we can leverage existing strengths and develop competitive advantage.

Our aim is to take a National approach to this opportunity. The project that we announce is based in NSW, and will collaborate with DSRC activities in other states. Taking a National approach to this opportunity aligns our vision to opportunities abroad.

There is an innovation gap between public funded research and private funded development in Australia. One of NICTA's goals is to bridge this gap. This means focusing the research we do towards the use-inspired needs of industry. And it also means through our involvement with organisations like ESA, to raise the sights of Australian industry to the horizon - where the opportunities are green and the rewards are gold. [see back page for more detail]

Dr Chris Nicol Wins NSW Scientist of the Year (Computer Science)

Dr Chris Nicol, Chief Technology Officer - Embedded Systems, NICTA received his award at a ceremony held at Government House in Sydney in September. "It was an honour to receive this award," said Dr Nicol. "I would like to acknowledge the many people I have worked with over the years, who contributed to this most welcome recognition."

Dr Nicol established the first Asia-Pacific Bell Labs research facility in Sydney's North Ryde. His team invented new circuit techniques that have been

deployed in mobile phones and mobile network infrastructure around the world.

The NSW Scientist of the Year Awards is an initiative of the NSW Government's Department of State and Regional Development through its Office for Science and Medical Research. The awards were established to recognise New South Wales' leading researchers who are doing cutting edge work of economic, health, environmental or technological benefit to the state.

Congratulations Chris! — The Editor

REGULAR ITEMS

Acknowledgements

I would like to thank those people who have done much of the work to get us to this point. John and Janice Humphries of Global Innovation Centre who serve as cluster mentors and event organisers. Thanks to NICTA for continuing to support this cluster activity. Thanks to the Warren Centre, the Department of State and Regional Development, our friends in AEEMA – now the Australian Industry Group and a special thank you to the many members of the ESA interim steering committee. We are now at the point where committee members are gifting us with initiative and passion which is terrific to see. Our strategy is to follow and invest in such people. And speaking of passion, my sincere thanks to Neil Temperley, the ESA cluster administrator.

I hope you enjoy this newsletter, and that you will join with us to help strengthen Australia's competitive position in international embedded systems markets.

Sincerely,



Dr. Chris Nicol
Interim Chair

About ESA

Embedded Systems Australia was launched on Tuesday 11 December 2007 at the Premier's Reception Room in Governor Macquarie Tower. Its members are collaborating to strengthen the embedded systems and related industries in Australia. The cluster aims to provide the following business benefits to participating companies:

- expanded market opportunities
- resource exchange
- joint tendering
- identification of skills and synergies
- development of leads in new markets

The initial cluster consortium is representative of prominent companies, industry associations, NSW government and ICT research. The organisations exploring the cluster establishment include: AEEMA, BCS Innovations, CiSRA (Canon), Cochlear, iTech, Invetech, Machinery Automation Robotics, Microsoft, NICTA, NSW Department of State & Regional Development, ResMed and The Warren Centre; with assistance from the Global Innovations Centre and Sinclair Knight Merz.

The cluster chairman is NICTA's CTO of Embedded Systems Dr Chris Nicol.

Sound Bytes

"Coming together is a beginning. Keeping together is progress. Working together is success" ~ Henry Ford

Contacts

General Enquiries ESA@nicta.com.au
Dr. Chris Nicol Chris.Nicol@nicta.com.au
Neil Temperley (Editor)
Neil.Temperley@nicta.com.au

ESA Founding Steering Committee Members



Focus on Dedicated Short Range Communications (DSRC)

With the announcement on the 10/11/8 of valuable seed funding from the NSW Government I think it is appropriate to answer some of the questions that the cluster members may have.

Can there be more than one DSRC project?

Definitely. A great result would be to have several projects demonstrating different applications in different states.

What will decide the project?

The exact scope of the DSRC project(s) is not yet decided. ESA wants its projects to have commercial potential. Therefore the ideal project is customer-driven with a strong customer lead. Candidates include transport and logistics, tolling and safety applications on a motorway, pedestrian crossings and school zone safety, and infrastructure damage protection (tunnels and bridges).

How is a project funded?

The NSW Government have been very generous in providing vital seed funding towards transport and logistics related applications. However, regardless of the project, the bulk of resources will come from team members, e.g. in-kind.

What factors determine which companies are on a project team?

A successful project will require strong collaboration built on goodwill and trust. Furthermore, each member must be convinced that their team mates are adding value and working for the good of the group. We expect that to a large extent a team will be self-selecting. The cluster executive will manage a voting process if this helps team formation. Note that each project team member will be required to be a cluster sponsor which will support the general cluster program for the year.

If you are interested in being part of a DSRC project it is vital that you register your interest ASAP!

What about IP?

Ultimately a team must decide the nature of the project agreement. There are no fixed rules in place. A useful starting place for discussion are these principles:

- Background IP will be retained by the owners and will grant a licence to other teams to use that IP for purposes of the project.
- New IP resulting from the project will be owned equally by team members.

What is the timeframe for the seed funding?

NSW Government is offering up to \$100,000 on condition that matched funding be raised. The required timeframe is to have an appropriate project scoped out, along with team and matched funding all in place by *mid-June 2009*.

How do I get involved?

Contact Neil Temperley, ESA Manager on Neil.Temperley@nicta.com.au