



NMRC



PLANTS

The Goal of Ambient Systems Research

Use Electronics with learning capability to Support and Enhance our Everyday Lives

Embed numerous distributed devices to monitor and interact with physical world: in work-spaces, hospitals, homes, vehicles, and "the environment" (water, soil, air...)

Network these devices so that they can coordinate to perform high-level tasks.

Use ad-hoc networks as computational entities which provide of the some intelligent capabilities of people.

NMRC Research Goals

The Development of Microenvironments

- Miniature Processing Systems with capabilities that include perception, computation, and actuation.
- Formation of ad-hoc networks with very large numbers of unit cells.
- Power Harvesting Capabilities and Wireless Communications.

Ambient Electronic Systems

Team Formed in May 2001

Currently Nine People in Team

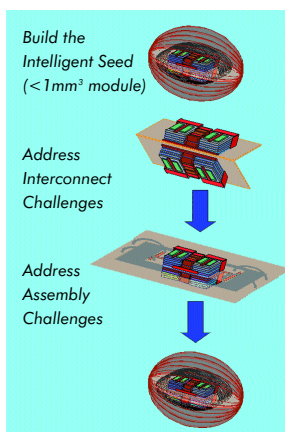
- Four Postgraduates (2 PhDs).
- Five Staff (2 PhDs + 1 Postdoc).
- Increasing to Fourteen in 2003 (+ Postdoc x2, PhD x3)

Eight Funded Projects

- Three EU IST Future & Emerging Technology projects
- Two EU IST projects
- Three National (E.I. & HEA) projects

Funding 2003 – 2005

- 2.5 MEuro.



Research Routes

Design / Development of Basic Wireless Module

- Hardware Foundation for Scenarios.

High Density Interconnect Technology Platforms

- Solutions for Embedding into Artefacts.

Implementation of Micro-Sensor Networks

- Personal Area Networks.
- Embedded Networks in Artefacts.

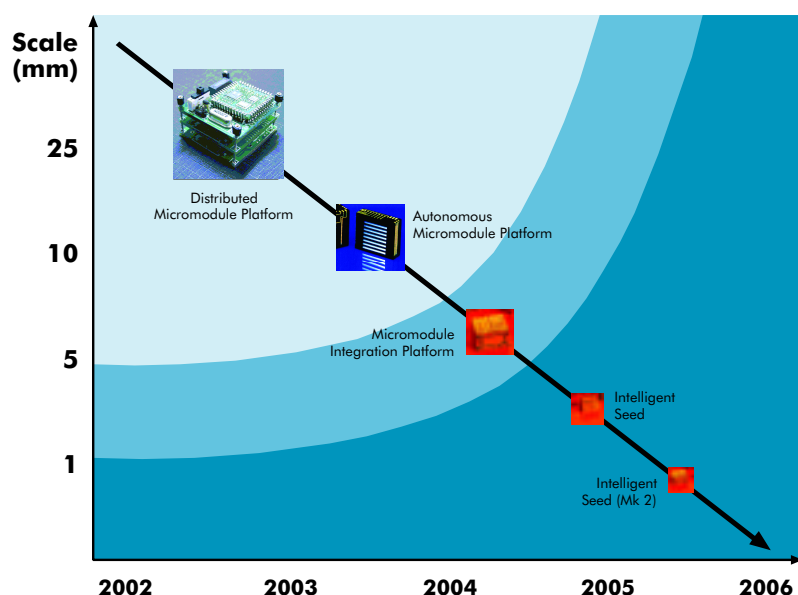
System Evaluation

- Analysis of System Response to Context.
- Investigate Scaling, Granularity, Sensitivity.

Target Applications

- Mobile Commerce
- Smart Buildings
- Bio-medical Diagnostics
- Environmental Monitoring
- Sport / Recreation
- Entertainment
- Wearable Electronics

Developmental Approach: Hardware Roadmap



Mobile Commerce

CAMS: Context Aware Mobile Services - Enterprise Ireland Informatics Programme

In collaboration with Trinity College Dublin

Objective: Develop the software infrastructure for next generation mobile applications.

NMRC Role: Microsensor integration into mobile artefacts for context awareness and user location.

Smart Homes/Buildings

CAMS: Context Aware Mobile Services - Enterprise Ireland Informatics Programme

In collaboration with Computer Technology Institute, Greece and University of Essex.

Objective: To provide a conceptual and technological framework that will assist people to compose, use or (re)configure many enhanced everyday artefacts through explicit or implicit manipulation.

NMRC Role: Specification and design of components for sensing, and communication between intelligent electronics modules and integration into everyday objects.

NMRC Ireland, the co-ordinator of the PLANTS project, will undertake the design, assembly and test of the hardware implementations the artefacts needed to carry out the scenarios of the project.

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