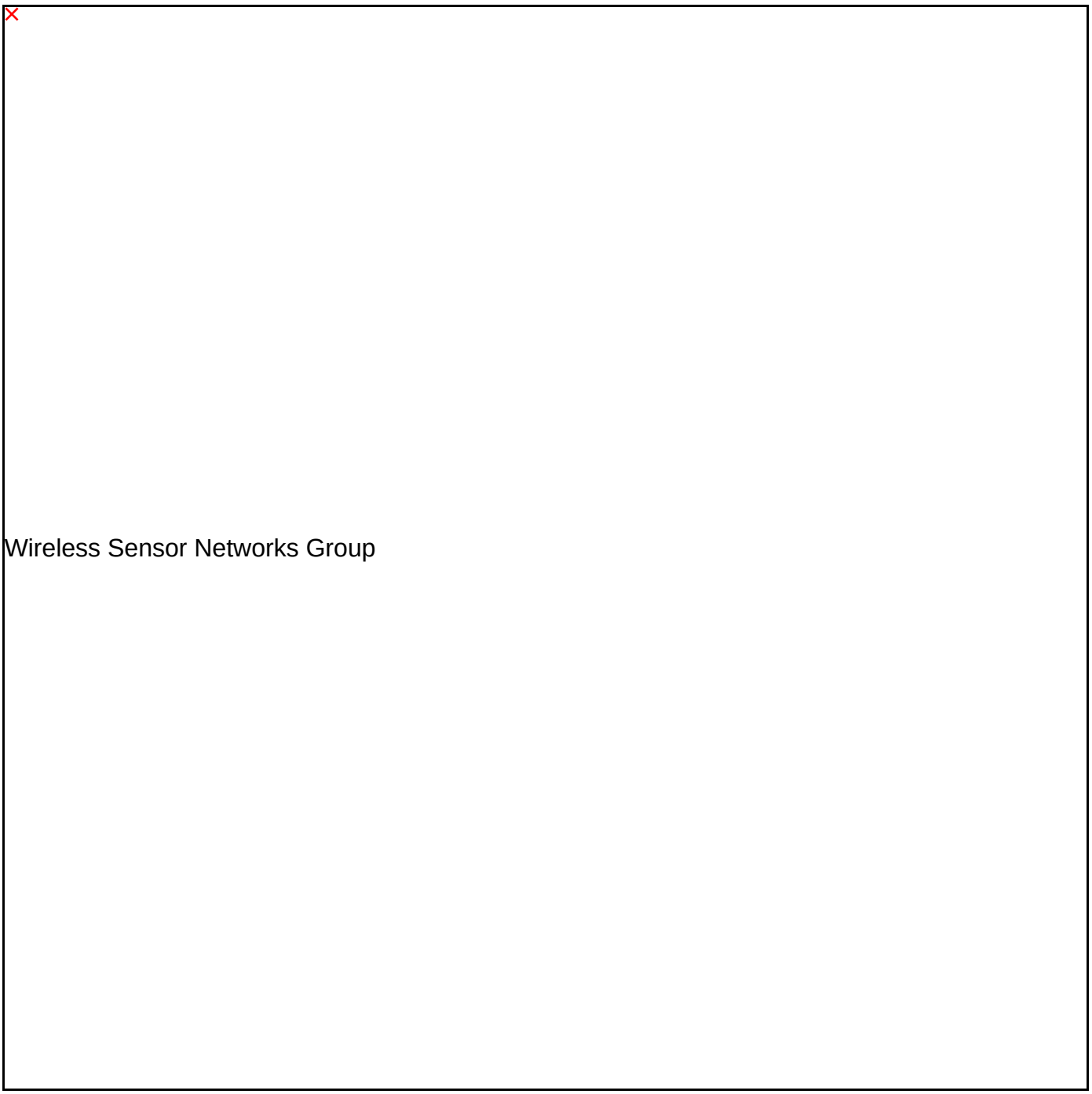
WSN (Wireless Sensor Networks)

Wireless Sensor Networks Group



Wireless sensors are a key technology enabler in sensing the environment around us. Real time data acquisition using wireless sensors is an integral part of the *Internet of Things* research vision and are being developed and deployed for use in environmental monitoring applications, building monitoring, structural health monitoring and wearable applications for fitness monitoring.

Tyndall 25mm and 10mm Mote

Tyndall 25mm and 10mm Motes

These sensors are being used to monitor air and water quality parameters, CO^2 levels, light levels, sound levels, nitrates, phosphates sulphates, in our environment and smart cities to monitor factors such as structural integrity, temperature, light, humidity, CO_2 levels, electricity usage, occupancy etc. in buildings and in wearable systems to monitor biomechanics and motion parameters associated with people (and animals movements as well as physiological signals such as blood oxygen levels, heart rate, ECG signals, EEG signals, blood pressure and temperature).

Application Spaces for Wireless Sensor Network Systems

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The Wireless Sensors Network (WSN) group is developing a range of low power consumption smart sensor systems to meet these needs and application spaces. The development of low power consumption sensing platforms requires a system level focused hardware/software codesign approach. In addition to developing novel hardware to address the challenge of providing a solution for structural health monitoring with long lifetime, appropriate algorithms and networking protocols must be developed to facilitate these goals.

WSN System Level Architecture

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The WSN group R&D is focused on the development and deployment of these wireless sensing systems to enable the scaled commercialisation and deployment of sensor network systems.

It is clear that when looking at the scale up of deployments of novel WSN that to be successful such systems need to *"be invisible, last forever, cost nothing and work out of the box"*.

Wireless Sensor Networks Research

Specifically, the research focuses on the areas of:

- Bio Mechanic and Motion Monitoring
- Smart Radio Systems
- Location Aware Systems
- Smart Systems Integration
- Applied Research Projects _ Industry Interaction

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