University of Essex

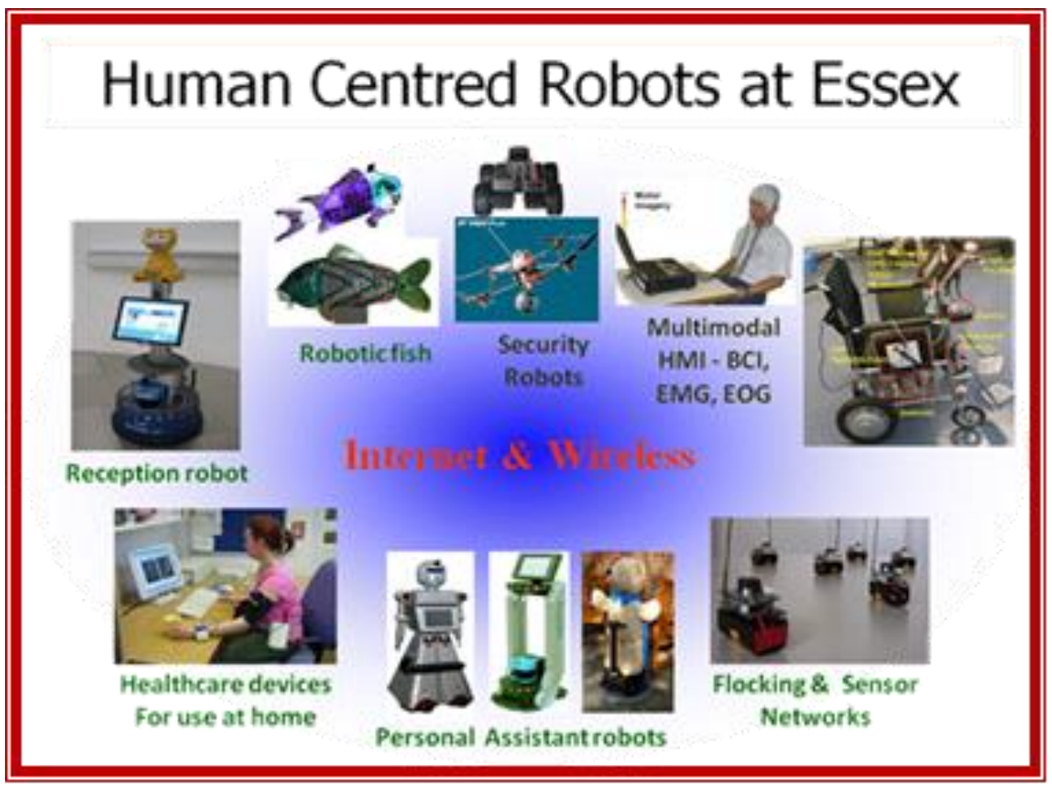
School of
Computer Science and
Electronic Engineering

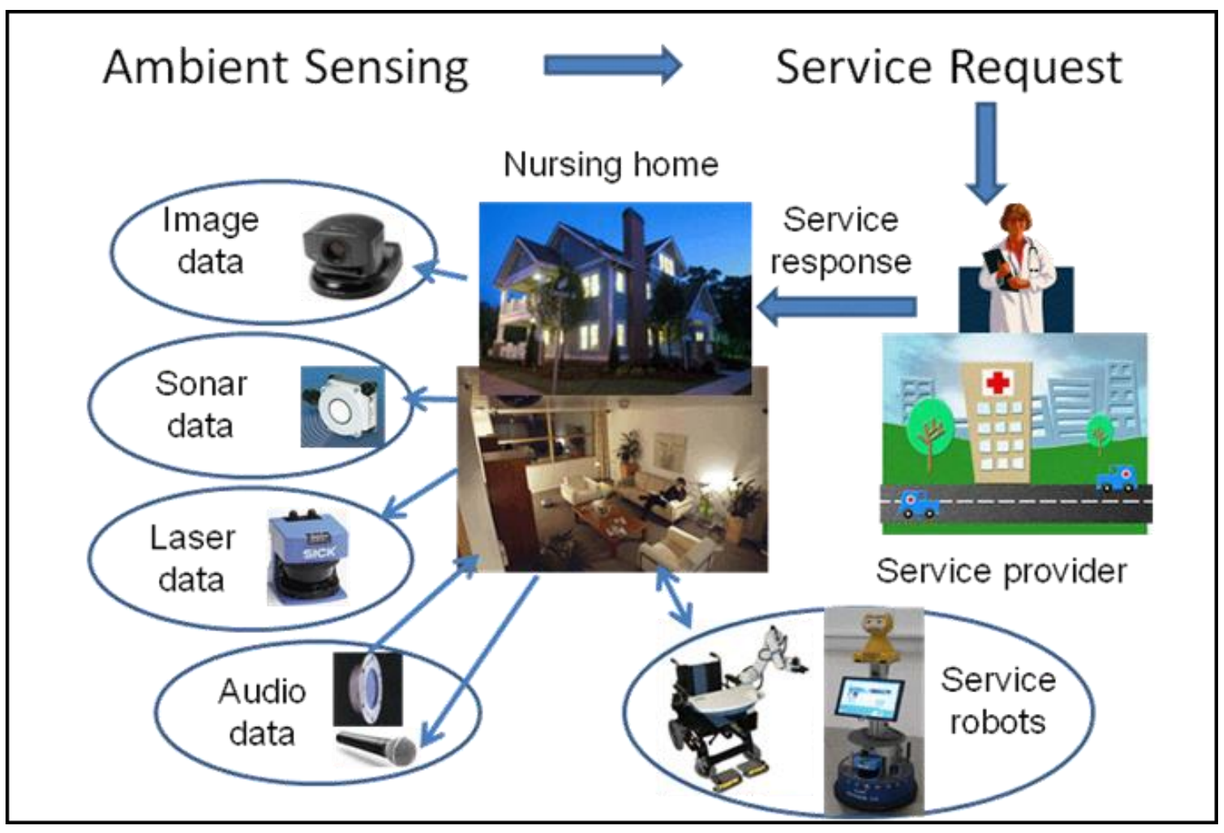
# Human-Centred Robotics Group

**Introduction**

Human Centred Robotics (HCR) puts humans in the centre of technological developments and represents a vision of the future where various kinds of intelligent robots that will coexist with humans. These systems and robots will be interactive and useful assistants/ companions for people in different ages, situations, and environments in order to improve the quality of life. It is a new, stimulating & challenging research area.

The Essex HCR research group aims to promote the integration of research, design and strategy to deliver cutting-edge science and technology in service & healthcare robots. The group has received about 20 research grants worth over 1 million pounds during last 5 years, funded by the Royal Society, EPSRC, and industry. The group has published over 300 papers in this area, and has built strong presence both nationally and internationally. The group currently has 6 academic staff, over 20 research staff and PhD students, a number of academic visitors from overseas.




**Objectives**

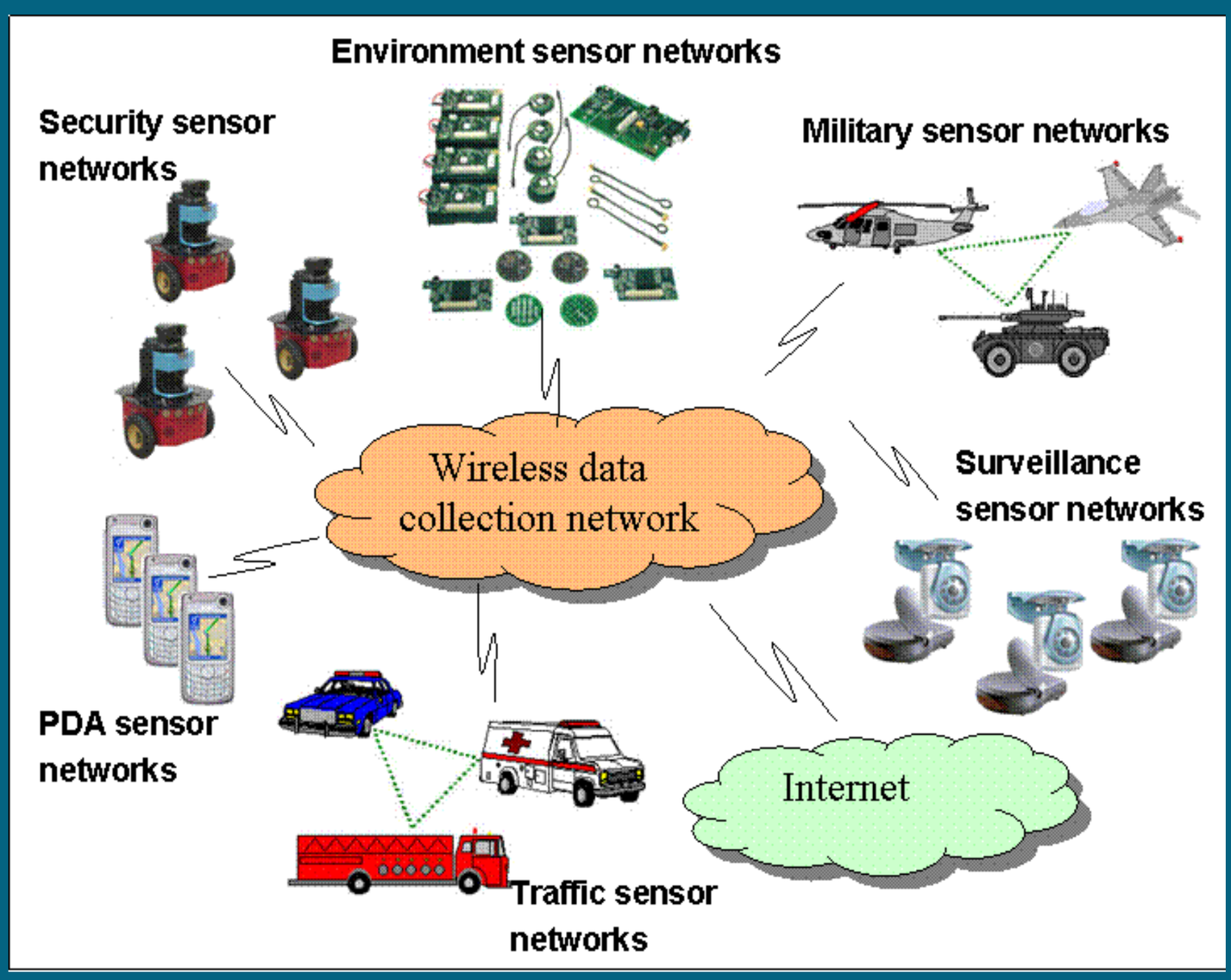
Essex HCR Group believes that Human Centred Robotics offers a proving ground where the most advanced ideas and design in intelligent robotics and Human robot interface could be tested and put to operation.

It is expected that leading technology will emerge here and later transfer to many other application areas of intelligent systems and robots such as entertainment, healthcare, sport, rescuing and service.

More specifically, our objectives are:

- to promote the integration of research, design and strategy;
- to deliver cutting edge science and technology;
- to focus on the challenge of future intelligent systems and robots;
- to create a promising research work environment, with a clear vision,
- to attract talented researchers and fascinating projects so that we could remain creative, well-motivated and full of imagination all the time.

**Research Projects**

- Application of AI and Robotics in hazard environments
- Internet-based Devices & Robots
- Multi-sensor Navigation & Mapping
- Multi-robot cooperation and learning
- Personal and Service Robotics
- The smart wheelchair project
- Brain wave detection and recognition
- home-based rehabilitation
- Robotic fish & underwater robots
- Unmanned Arial Vehicles
- Multi-robot coordination & formation
- RoboCity: Public Awareness of Robots
- Adaptive Techniques for Robots
- Human Machine Interface
- Human facial and emotion detection
- Robot learning from imitation

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