

EXPANDING THE WIRELESS WORLD

- MEDICAL DEVICES
- HEALTHCARE
- ASSISTANCE FOR THE ELDERLY
- SPORTS & RECREATION
- ENTERTAINMENT

The logo for WiSAR Lab is a solid blue circle containing the text "WiSAR Lab" in white. The background of the entire page is dark grey, and it is decorated with several thick, light blue curved lines that resemble Wi-Fi signal waves, positioned in the top right and bottom left corners.

WiSAR Lab

WiSAR Lab is an Enterprise Ireland supported Applied Research Centre based in the Letterkenny Institute of Technology. **Our research:** The application of Wireless Sensor Networks in Body Area Networks and buildings, with an emphasis on evaluating and minimising the power consumption of wireless devices used. **Our goal:** To be a centre of excellence in Wireless Sensor Networks, and a hub of research and applied solutions for technology companies locally and nationally.

OUR RESEARCH EXPERTISE

WiSAR Lab carries out research and development in the area of Wireless Sensor Networks (WSN). A Wireless Sensor Network consists of distributed and independent sensors which monitor physical or environmental properties and use wireless communications to report their readings and to receive commands. The monitored properties can include temperature, sound, vibration, pressure, motion, pollutants and medical properties such as heart rate, blood pressure and ECG.

Our primary research goal is to achieve ultra low power consumption in WSNs. Body Area Networks (BAN) in particular impose challenging requirements on hardware and software. BANs are an emerging area of wireless communication and consist of implantable and/or body-worn wireless devices which can be used for medical applications, such as monitoring vital body signs, or for consumer applications, such as fitness monitoring.

The very limited energy supply (usually from a battery) and the desire to maximise the lifetime of devices means that their hardware and software need to be as efficient as possible.

We're actively researching the new wireless communications protocols that will lead to increased sensor device lifetimes by providing more functionality while consuming less power. Our focus is on the protocol standard being developed by the IEEE 802.15.6 Working Group for medical and non-medical sensing applications in the vicinity of, or on, the human body. WiSAR Lab are active members of the IEEE 802.15.6 Working Group.

WORKING WITH INDUSTRY

An important goal of WiSAR Lab is to transfer the knowledge gained from our research to the wider economy. We have a flexible and open approach towards intellectual property aspects of collaborative research and our consultancy services. This flexibility allows us to adapt to the needs of our industrial partners on a per-project basis.

We provide indigenous and multinational companies operating in Ireland with leading edge R&D services. These services include the capability to develop and build advanced wireless sensor prototypes and WSN solutions. To support these services we have state of the art RF and

microwave instrumentation for testing and configuring wireless devices and networks. We make it possible for companies to investigate the suitability of wireless technology for their future product development without having to commit significant amounts of their own resources.

WiSAR Lab will also manage applications for funding to support collaborative R&D — such as the Innovation Vouchers and Innovation Partnerships provided by Enterprise Ireland — as well as manage the subsequent administration required by the funding body.

FIND OUT MORE ABOUT PARTNERSHIP

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