

PASSIVE SENSOR SYSTEM POWERED BY WIRELESS POWER TRANSMISSION



TECHNOLOGY SUMMARY

Network of wireless and passive sensors (without batteries), using a set of unique sensors which use a frequency for the data transfer (obtained by sensors) and another frequency for the reception of energy that is emitted by transmitters that power the sensors. For this, only a central data reception and wireless transmission structure is required which communicates with each of the sensors independently. These sensors have lower power consumption and higher data rates (up to 960 Mb/s).

BENEFITS

Compared to traditional sensors:

LOWER COST: these sensors don not use any kind of batteries.

INCREASED CONVENIENCE: these sensors do not require battery charge or change as well as wiring.

Compared to other passive sensors:

LOWER POWER CONSUMPTION

HIGHER DATA TRANSMISSION RATES: up to 960Mb/s.

CONTEXT

Wireless sensors, which transmit the collected information without the need of wiring, have gained increasing commercial importance. These sensors can be used in a wide range of situations, from environmental monitoring to farm and industrial control. However, most sensors still need to use batteries, which increases maintenance and environmental costs.

The presented sensors are an alternative since they do not require any type of battery and receive energy through a specific frequency emitted by an energy transmitter. These passive sensors gain even more relevance if sensor networks are formed, in which several nearby sensors detect and transmit environmental data.

APPLICATIONS

This passive sensor system can be used in a wide range of applications, such as:

COLLECTION OF ENVIRONMENTAL DATA (e. g. farm fields, inside buildings)

ACCESSES CONTROL (e. g. parking lots, buildings)

APPLICATIONS THAT REQUIRE HIGH TRANSMISSION RATES (e. g. audio or video sensors)

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IP RIGHTS

Internacional patent pending (*Patent Cooperation Treaty*).

DEVELOPMENT STAGE

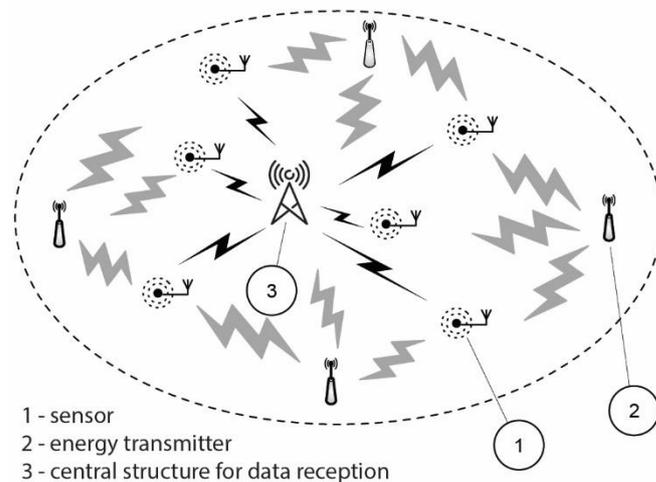
TRL 4: Field tests performed with prototypes.

KEYWORDS

BACKSCATTER

WIRELESS POWER TRANSMISSION

PASSIVE SENSORS



DEVELOPED BY

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BUSINESS OPPORTUNITY

License agreement.

Joint development.

Adaptation to specific needs.

Testing of new applications.

Industrialization.

PARTNERSHIP

The University of Aveiro seeks partners with the area of sensor development and manufacturing.