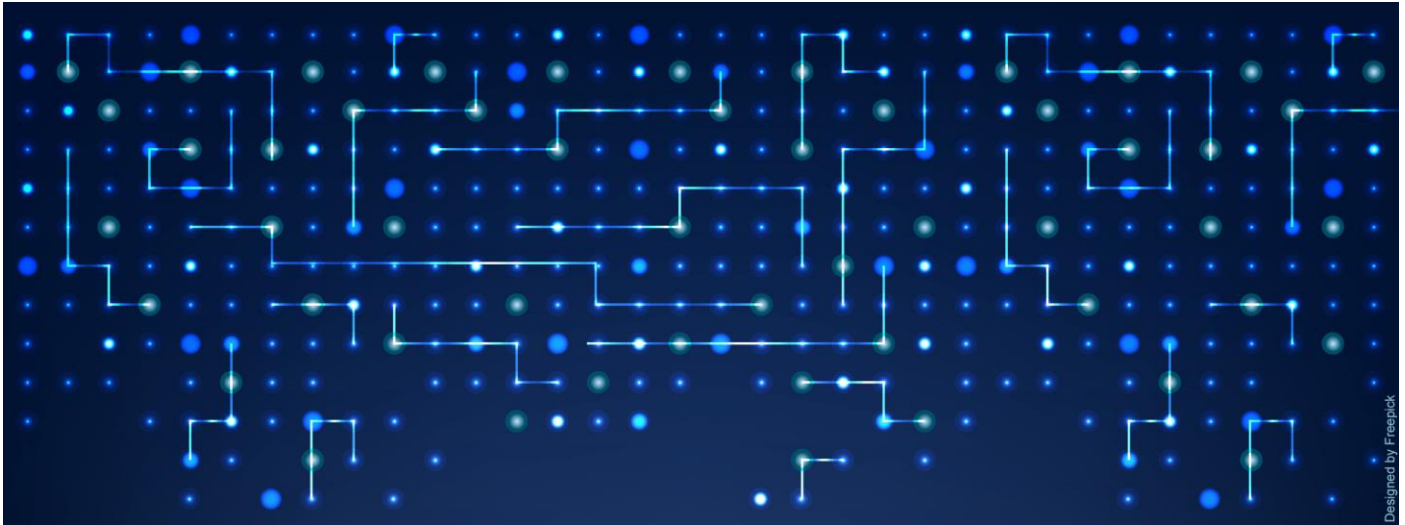


SMART FLOOR – LOW POWER AND WIRELESS SYSTEM FOR INDOOR DETECTION, LOCALIZATION AND NAVIGATION



TECHNOLOGY SUMMARY

Wireless system for indoor detection, localization and navigation support of people or objects. The system is composed by a set of passive sensors integrated in the floor, which may be constituted by several materials, and does not require wired power feeding. The data collection and analysis modules communicate wirelessly.

APPLICATIONS

MONITORING OF PEOPLE FLUXES:

- Supermarkets and stores
- Factories and warehouses
- Museums
- Hospitals

ROBOT NAVIGATION (e.g. factories/warehouses)

MONITORING AND FAST LOCALIZATION OF PEOPLE AND

CRUCIAL PORTABLE EQUIPMENT (e.g. hospitals)

SAFETY AND MONITORING SYSTEM FOR ELDER PEOPLE

ORIENTATION AND SAFETY SUPPORT FOR BLIND PEOPLE

CONTEXT

Emerging trends such as the Internet of Things, wireless sensing networks and ubiquitous computing are pushing electronics to become more pervasive in an increasing number of applications. The aim of these circuits and systems is to assist human life – for instance, optimizing production processes, improving health care, and allowing more efficient energy use – thus turning familiar, everyday items into smart, cooperative objects.

The present technology allows the indoor detection, localization and navigation of people and objects, using sensors networks easily installed in the floor, both underneath and atop the pavement, which can be made of several materials. The system uses passive sensors and is wireless, avoiding power cables in the floor and for the communications between the sensors, readers and analysis modules. In contrast to available technologies, this system does not require using memory units along with the sensors; do not collect sensitive data such as images and the reading modules may be up to 10 meters away from the sensors.

BENEFITS

LOW COST SENSORS AND INSTALLATION PROCESS: the sensors have a unique identifier and dispenses memory units, avoiding individual programming and geo-mapping. The sensors are also passive, avoiding power cables in the floor.

VERSATILE: the sensors can be installed in any non-metallic pavement (e.g. wood, cork or ceramics) and in textiles, including underneath stamping areas. Moreover, the system has an elevated resolution and the reading modules read sensors up to 10 meters away, which considerably increases application possibilities and covered area per reader. The data collected from the sensors can be processed by portable devices such as tablet or smartphones.

NON-INTRUSIVE: the system dispenses image collection.

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IP RIGHTS

Provisional patent application filed in Portugal (priority date: 18-04-2018).

DEVELOPMENT STAGE

TRL 4: It has been developed functional prototypes, which are available for demonstration.

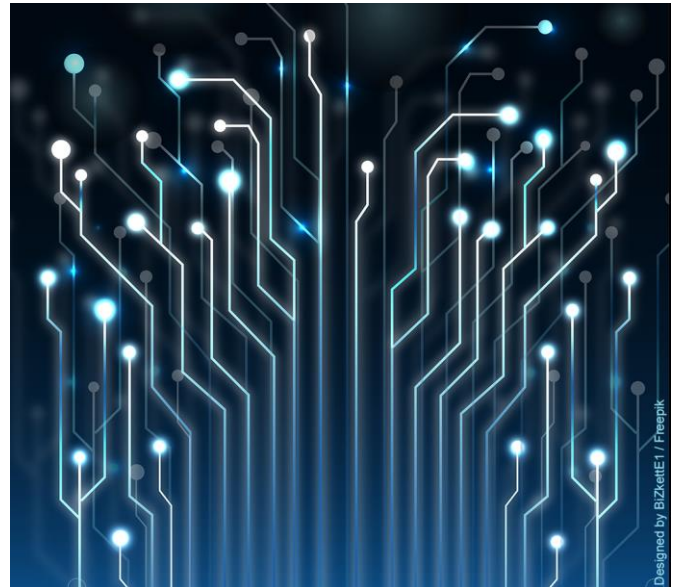
KEYWORDS

LOCATION SYSTEMS

NAVIGATION

PASSIVE SENSORS

SECURITY



DEVELOPED BY

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BUSINESS OPPORTUNITY

Licensing agreement.

Testing new applications.

Joint further developments.

PARTNERSHIP

Universidade de Aveiro seeks partners within information and communication technologies area, as well as possible end-users to further develop or license the technology, as well as to test new applications.

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