Aveiro Tech City Living Lab

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In the framework of the EU project Aveiro STEAM City, researchers in the University of Aveiro and the Institute of Telecommunications, have been deploying an advanced, large-scale communications infrastructure, spread throughout the city of Aveiro, that will be at the service of researchers, digital industries, startups, scale-ups, R&D centers, entrepreneurs and other stakeholders interested in developing, testing or demonstrating concepts, products or services.

Supported by state-of-the-art fiber link technology (spread across 16km in the city), reconfigurable radio units, 5G-NR radio and 5G network services, the access infrastructure covers 44 strategic points in the urban area of Aveiro, in the form of smart lamp posts or wall boxes on building facades with communications technologies, edge-based computing units and sensors. The communications infrastructure integrates a communication network with radio terminals, multiprotocol, spread throughout the city, connected by fiber optics to a data processing centre, located at Institute of Telecommunications. Buses and garbage collection vehicles have also been equipped with sensors, which currently record mobility and environmental data, making a complete live map of these parameters in the city, and providing the required data for traffic monitoring and safe driving systems.

All these points combine and interconnect a set of sensors, such as mobility sensors (GPS, radars, lidars and video cameras) and environmental sensors (such as temperature, humidity, pollution) with remote data collection units throughout the city, providing enough data to support a wide range of services and applications: from IoT and internet access to citizens, to mobility and intermodal services, smart parking, assisted driving, intelligent transportation systems, environmental monitoring, distribution of information and multimedia content, emergency, safety and health services, among others.

FIGURE 1
Aveiro Tech City Living Lab Concept.

FIGURE 2
City of Aveiro connected through 16 Km of fiber (red lines) and 44 smart lamp posts and wall boxes on building facades with communication, computation and sensing equipments: “green home” buldings, “green pins” smart lamp posts, “blue pins” gateways LoRa/LoRaWAN, “pink pins” UA residences.

FIGURE 3
Smart lamp post in Cais da Fonte Nova