IOT MASSIVELY MULTIUSER INTERACTIVE EXPERIENCES (M2IX)

Mesh wireless network infrastructure for interactive «real-time» applications with a very large number of connected objects.

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PRESENTATION

The use of a large number of connected objects in a small area causes problems at the level of the IoT network: on the one hand, an increase in delays (high contention to access the channel) and on the other hand a congestion and high packet loss rate, due to the large volume of data generated. This is the case, for example, of the connected bracelets used by spectators, gathered in restricted areas (concert halls, stadiums, etc.), to produce light effects synchronously via remote control. The proposed solution based on a multi-tier mesh network architecture with four levels of communication and algorithms makes it possible to overcome this problem and ensure an adequate quality of service (QoS).
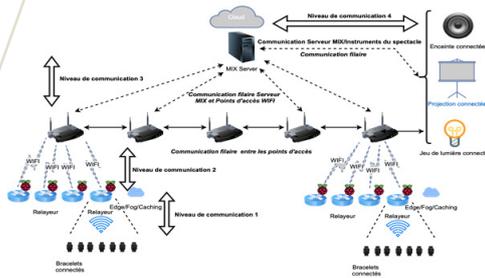
Edge computing - IoT - IEEE 802.11 -
Multi-tier mesh network architecture

INTELLECTUAL PROPERTY

Source code in C++ language that allowed to perform the simulation with the NS3 network simulator (Network Simulator 3).
Prototype based on a Raspberry PI module and 300 connected bracelets.

APPLICATIONS

- Interactive application with IoT in event (concert, stadium, team building)
- Health crises : monitoring of users in a closed environment
- Management of user flows to avoid jostling and streamline traffic

COMPETITIVE ADVANTAGES

- «Real-time» interactivity with a large number of wireless connected objects
- Increase in the number of connected objects compared to a star network architecture (IEEE 802.11b : 300 nodes vs 200 nodes ; IEEE 802.11n : 400 nodes vs 300 nodes)

CONTACT

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DEVELOPMENT PHASE

☑ Multi-tier mesh architecture and communication algorithms validated in a simulated environment (TRL5)