

Data modulation method for Wi-Fi off-the-shelf transmitters to communicate with non-Wi-Fi IoT devices

A technology that enables the communication from an off-the-shelf Wi-Fi device to non-Wi-Fi Internet of Things appliances, only through a software update. Partners to further develop the system and/or to establish commercial agreements along with technical cooperation are sought.

The Challenge

Wi-Fi communications are nowadays an indissoluble part of our daily life. Our phones, laptops, tablet PCs even our wristwatches are equipped with such technology, allowing us to be connected everywhere, all the time. Coping with users' increasing demands, **Wi-Fi technology is becoming more and more sophisticated** with each new generation to provide more capacity and less delay, but it comes at a cost: more complexity, power consumption, etc. On the other hand, many small devices are making their way into our smart home or smart cities to become part of the forthcoming Internet of Things (IoT). Those **IoT devices require simple, cheap and low energy consuming communications solutions**. Then, how can we connect both worlds? Could we connect our **Wi-Fi with other (non-Wi-Fi) "things"**?

The Technology

To tackle that challenge, we could design a new Wi-Fi transmitter, capable of generating new radio signals that our target IoT devices can "understand". This would require a new generation of Wi-Fi chipsets and, thus, a long and expensive time to market. Our alternative, however, consists in giving a **new use to functions and signals that are already present in Wi-Fi transmitters**. With only a software update, our technology makes it possible for existing Wi-Fi devices (billions of devices already!) to communicate with a very simple receiver, suitable for many IoT applications.

Innovative advantages

- Use of already existing Wi-Fi capable devices only through a software update.
- Reduce the time to market of a Wi-Fi-based transmission system for IoT applications.
- IoT appliances do not require sophisticated Wi-Fi chipset to receive data from a Wi-Fi device.
- Enable IoT chips to be controlled /communicated with Wi-Fi devices.

Current stage of development

The technology has been explored and verified through a proof of concept using an off-the-shelf Wi-Fi device and a custom-made low-rate receiver.

Applications and Target Market

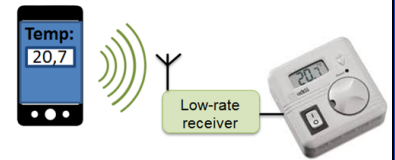
Applicable in consumer electronic devices with a Wi-Fi interface, and in the same use cases as the forthcoming IEEE 802.11ba for WuR operation in Wi-Fi networks.

Applications:

1. Wake-up radio solutions for energy saving in battery-powered devices.
Example: Wi-Fi APs go to sleep mode when not in use, running only low-power radio (saves energy, reduces interference, improves security); when needed, user wakes-up the AP (message from user's Wi-Fi device to AP's low-power radio) to resume AP normal operation.
2. Human interface enablers in smart home, smart city, smart toys applications
Target market: Wi-Fi Alliance members, Wi-Fi device vendors, and vendors of IoT or smart home/smart city/smart toys solutions.

Reference number

MKT20190168_I



Smart home appliance controlled by a smartphone through Wi-Fi transmissions



Wi-Fi Access Point and sensor devices controlled by a smartphone through Wi-Fi communications

Business Opportunity

Technology available for licensing with technical cooperation

Patent Status

Priority application

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