Machine-to-Machine Communications for Cloud-Based Energy Management Systems within SMEs

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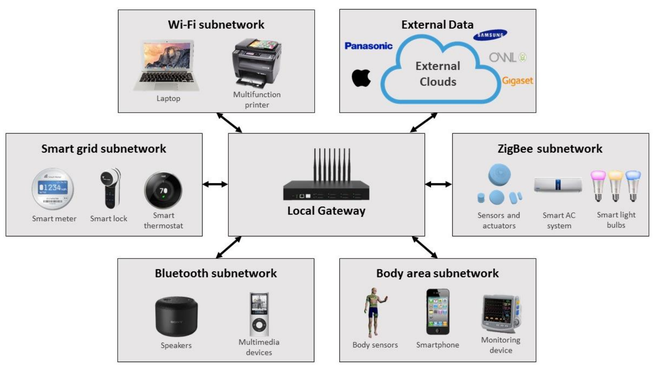
Context

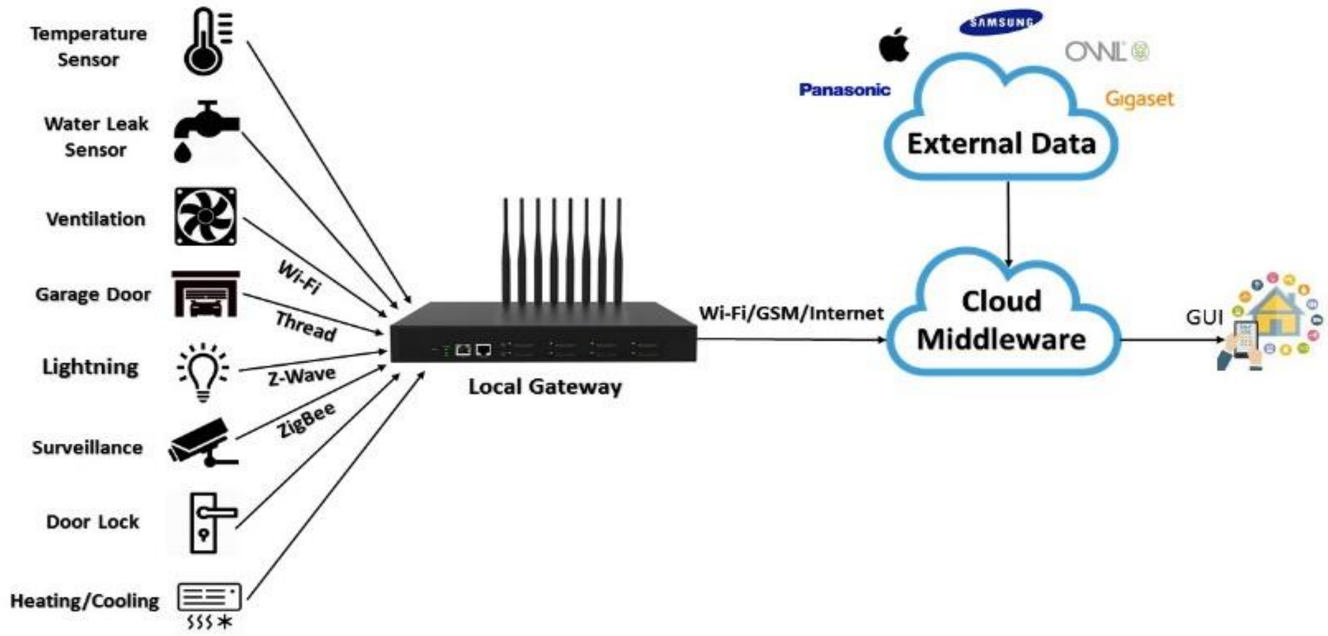
Nowadays, in order to reduce costs and ensure a proper working environment for employees, **Small and Medium Enterprises (SMEs)** concern themselves with the adoption of technologies and methodologies that could potentially help them **efficiently monitor and manage resources**.
In the context of **environmental policies** and **high energy costs**, many smart home solution providers tried to adapt their products and services for the business sector, promising to help companies achieve a greater **energy efficiency** and enhance **comfort** within the working environment.

Proposed Solution

The conceptual platform aims to **monitor data in real time** by using a wide variety of **sensors** capable of measuring environmental parameters and the amount of **energy consumed** in building.



To address the requirements of resource-dependent devices and IoT scenarios, M2M communications require the **integration and convergence of different communication systems and protocols**.



The integration of wireless M2M communications to **connect devices located in remote areas** even with limited accessibility. A fast and cost effective interconnection between M2M devices can be achieved by using **medium-range communication technologies** as ZigBee (IEEE 802.15.4), Wi-Fi (IEEE 802.11), Z-Wave and Thread.

Solution Features

- **Integration** within the existing electric network infrastructure;
- **Monitors data in real time** by using a wide variety of sensors;
- Measures **environmental parameters** such as temperature, moist, pressure, fluid level, light intensity, air quality, noise level, air particles, etc.;
- **Measures and manages energy consumption**;
- Allows **data visualization** in various forms;
- Allows **online remote control and surveillance** of buildings through a mobile or PC application.

Benefits

- Enhances **comfort**;
- Enhances **productivity**;
- Enhances **safety and security**;
- Enhances **energy efficiency**;
- Lowers **cost of building maintenance**;
- Lowers **operation cost**;
- Promotes **sustainable development**;
- Improves the **image of the company**;
- Enhances the **relationship with the stakeholders**;
- Promotes the provision of "**ethical products**".