

A Client is a Canadian provider of the globally distributed, best-in-class IoT gateway sensors and applications.



## Challenge

The client was in need of a fully integrated, end-to-end, intelligent office solution for their LoRaWAN™ IoT gateways and sensors.

The application solves the business pain of meeting room under-utilization. This usually happens when employees overbook meeting rooms. The result of no occupants or underutilized large rooms is especially frustrating when you need to hold an important meeting, and no rooms are available.

## Solution

The application tracks the occupancy of each meeting room through the uplink payloads sent by sensors. You can see whether a room is occupied or not on a dashboard that is synchronized with the rooms' bookings in Microsoft Outlook or Google Calendar.

The application provides an office manager with the functionality to set up and edit meeting rooms, including device management (gateways and sensors), the list of equipment available in meeting rooms (projector, whiteboard, web camera, TV), room capacity, floor plan and more.

Users can view available rooms and filter them by floor, capacity, the equipment they have and free time slots for booking. Rooms are grouped by building. The application also lets users book a vacant room or report a problem with it if anything is wrong.

The application records the performance and usage statistics showing meeting room efficiency with the "false booking" rate (when sensors detect "no occupancy" but the room is still booked in the calendar), room capacity efficiency, time of usage efficiency, room utilization, most popular hours, room popularity, bookings by employee, and more.

## Tools and technologies

- Java
- Angular
- Spring Framework
- JHipster
- H2 database
- PostgreSQL
- Liquibase
- Hibernate
- Apache Maven
- npm
- Swagger
- TLS
- Microservice architecture
- B2B
- Ribbon
- Hystrix
- RabbitMQ
- AWS
- JavaScript
- TypeScript
- HTML
- CSS

## Scope of work

- Architecture engineering
- Decisions on the technical stack
- User interface/User experience (UI/UX) design
- Front-end/back-end development
- Quality assurance
- Technical consulting

## Results

- The application was completed by a team of 5 engineers in 6 months.
- Software engineers developed reusable core code for further applications integrated with the client's devices.

- An end-to-end solution
- Integrated with its LoRaWAN™ IoT gateways and sensors
- Integrated with Outlook and Google calendars
- Management of multiple devices
- Collection and visualization of smart telemetry data
- Office manager view
- User view

