POLYTECH GRENOBLE - LIG

INTEGRATION OF SENSORS IN THE DOMUS PLATFORM

A new way to manage your home!

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About connected home

Welcome to the future of home technology with the connected home! A connected home is a smart system that links all the electronics and objects in your home to create a convenient, comfortable and secure experience.

Imagine being able to control your thermostat, lights, TV, security system and more, from your mobile phone or tablet, wherever you are in the world. With a connected home, you can do it!

The benefits of a connected home are many. You can save energy by adjusting your thermostat remotely, which can reduce your electricity bill. You can also improve the security of your home by monitoring suspicious activity, receiving instant alerts and controlling access remotely.

The connected home can also help you manage your time and daily life more efficiently. For example, you can program your washing machine or turn up the temperature in your home before you arrive.

In short, a connected home allows you to live more comfortably, safely and conveniently. So why not join the movement and enjoy all the benefits of modern home technology?

What we do ?

The aim of our project is to improve the smart home available at Domus, by adding new sensors into openHAB, the open source software that is used to monitor and control the flat.
The project also aims to produce documentation to help with the future integration of various sensors.

This will increase the possibilities of automation!

OpenHab in detail

openHAB is an open source home automation software designed to connect and control different smart devices in a home automation network. It provides a neutral platform for the integration of smart home devices from different manufacturers.
With openHAB, users can create rules and automate tasks based on various events and conditions, such as motion detection, temperature changes or time of day. It supports various communication protocols, including Wi-Fi, Bluetooth, Z-Wave, etc.

All the sensors communicate with OpenHab using different technologies. Here is a small overview of those we have been led to integrate

Our technologies

Bluetooth

Bluetooth is a wireless communication technology designed short-range communication. The uses are multiple and are in our case used to transmit data between connected objects. The range is 10 meters, up to 100 meters.

Z-Wave

Z-Wave is a wireless communication technology designed for home automation devices.
It operates on a low-power mesh network. The range is between 100 and 800 meters.

MQTT

MQTT is a simple network protocol.
It is made to connect to distant areas where there are devices with resource limitations or low network bandwidth.

The Domus flat now has many sensors! Here is what is now available to control in the flat.

The sensors

LoraWan door sensor

This door sensor detects the opening/closing of the door but also the number of movements detected!

Z-Wave motion sensor

In addition to being a motion sensor, it is capable of measuring temperature and light intensity!

Z-Wave motion sensor

This sensor can detect water leaks by activating an alarm. It can also be used to measure the ambient temperature.

Netatmo Air Quality Sensor

This sensor measures the air quality in your home. Among other things, it provides information on CO2, temperature, noise and humidity in the room.

Meross Plug

This connected plug allows remote control of remote devices. For example, you can turn on your washing machine or oven from work.

and some others ...

About us

We are 4 engineering students from Polytech Grenoble in the last year of the Computer Science course. This project is part of our end-of-study project in collaboration with the LIG (Grenoble Computer Science Laboratory).