Flanders House – Belgium:

This house on a large, wooded lot in the Flanders region of Belgium is designed by Saota, an award-winning international architecture firm from Cape Town.
The client has high standards on elegance and comfort.
Therefore was KNX the ideal solution to use as the home automation system.
To fit the high-standards of the architecture, the Tense touch sensors where used for the local control.
This includes the touch sensors, thermostats and iPad wall docks.

Most of the lighting is controlled via Dali so that they can be dimmed to create the right atmosphere.
32 Music zones and multiple streaming server allow for each resident to choose their own music wherever they are in the house.

All TV's in the house are controlled by a HDMI matrix which is connected via optical fiber to the TV for optimal 4K video.
The TV-room, PJ-lounge and wellness are equipped with Meridian audio possessors.
And of course there is also a large high-end home cinema controlled by RTI and KNX. The Storm Audio high-performance surround sound processor will immerse you in the ultimate sound experience. Together with the Barco Njörd projector for a razor-sharp image.

The climate in the house is controlled via a ventilation system with adiabatic humidification for the ideal indoor climate.
The ventilation for the underground parking space is controlled based on the VOC sensors.

The underfloor heating is divided into 41 zones and uses a geothermic heat pump to insure optimal energy efficiency for the heating/cooling of the villa, for the heating of the indoor swimming pool and the large koi pond.
In addition the bathrooms of the 4 suites have wall heating to provide a comfortable feeling,
If the cooling with the heat pump is not sufficient and additional cooling is desired 13 air-conditioning units will deliver this additional cooling.
To make it more cozy, the lounge, the TV room and the kitchen are equipped with their own open fireplace which of course is controlled with KNX.
In addition there is also an outdoor fireplaces which can be used on gas.

Where does the needed electricity for all this come from?
To reduce the electrical consumption and CO^2 footprint there are 136 solar panels spread across the roofs and a battery system of 60kWh.
With the data we collect from these solar inverters we control eg. the 6* 22kW EV-chargers in the underground parking.
These are controlled via KNX so the available power is optimally used.
With the data we send an collect from the EV chargers we control the RGBW-LED strips located underneath each EV to indicated the charging status with different colors.
Allowing the client to immediately see which car is charging, and which car is finished.

The koi pound which spreads over different segments around the house is temperature controlled, and monitored so that the client is notified if something is wrong.

In the annex building there is a large fitness/wellness space.
This space also includes a large indoor swimming pool which is hidden underneath the floor.
By choosing the right scene, the floor will lower in the water, revealing the large pool with glass walls and RGBW lighting.
The depth that the floor will lower into the water is controlled via KNX and depends on which scene has been activated.
In the summer the glass windows which go from the floor to the ceiling all across the 2 outside walls will lower in to the ground, because there are no supporting pillars used in the corners, the view from inside to outside is beautiful and connects the swimming pool seamlessly with the large open garden and terrace.
To optimize the indoor humidity and temperature from the fitness area and swimming pool a separate ventilation system is used to control the optimum conditions in this room.
Depending if the swimming pool is open or close, or the big glass windows are open or not the system will be switched to different modes.

Oh yes, there is a KNX controlled elevator in the house which is hidden behind wooden sliding doors.
The elevator is called with a Tense touch sensor. When the elevator doors open, the wooden doors will slide open.

The large driveway, from the underground parking to the ground floor and the walking pad is foreseen with underfloor heating so these are clear from snow and ice in wintertime.
This allows the owner to safely drive out the parking and walk to the front door.
Because these are electrically heated and at startup a very large electric current is present, The KNX will switch the different parts in sequence to prevent an overload of the electrical installation.

To make all the above mentioned, and more, technics used in the house visible and controllable, we used the visualization of ComfortClick.
There the owner can control his whole house.
He can see if all outside doors are electrically locked, and can unlock them if required.
But also receive push notification when there are alarms or things that need to be addressed.
This information is also available in the different technical pages of the visualization for remote services.
Some examples:
There are multiple water pumps in the basements around the house to prevent water in the basements in cause of emergency or eg. a leak in the swimming pool.
Water detections in the basement and elevator shaft.
Water detection in the drainage pipes of the roof, in case there is a blocked pipe an alarm is generated.
Salt levels in the water softener systems needs refilling.
Warning messages from the swimming pool or Koi pond.

- Water level to high, to low
- Water temperature high and low alarm
- PH of the water to high or low
- If the moveable floor of the swimming pool is blocked by something

Alarm messages from the alarm system or High-Voltage cabin.
Maintenance for the ventilation.
Error messages from the air-conditioning units

Error messages from the big retractable windows and sliding doors
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To end this summery, a fun fact. In total there is more than 60km of electrical wire used in this building.

Website: https://www.saota.com/project/flanders-house