

## AR Interface for smart home system

A smart home system with sensors and actors is installed at our chair. It shall be visualized in AR and VR. For this purpose, different tools and frameworks are in use and available. The goal is to connect the data gained from sensors and actors with the real world. Figure 1 shows a schema of the desired system part.

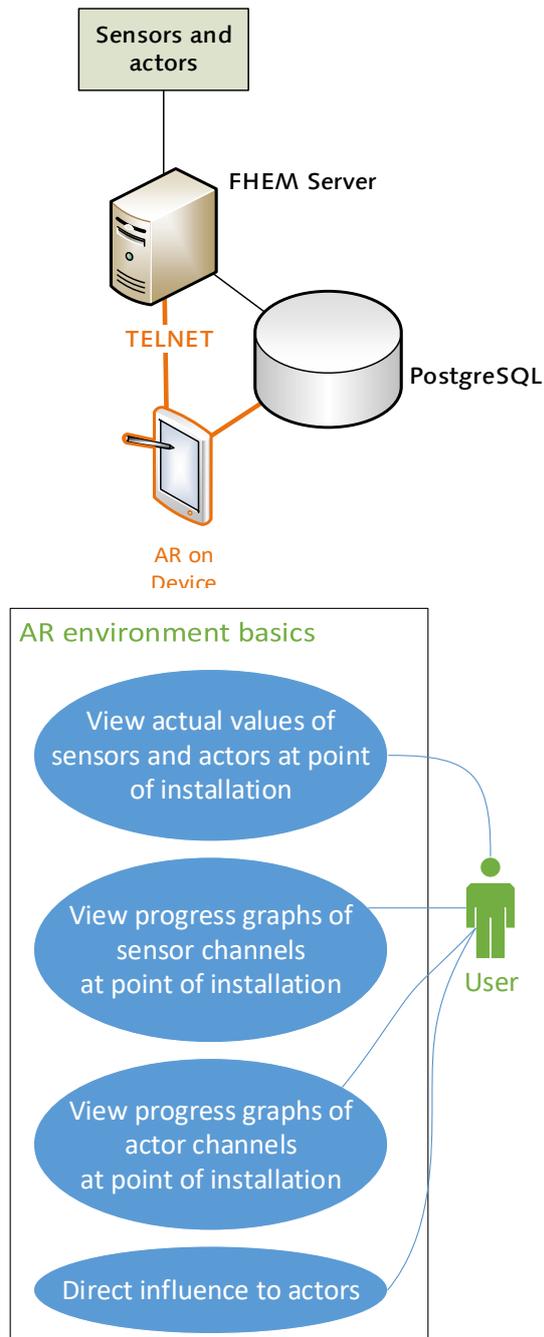


Figure 2: Use cases

Today, we know much about optimal control strategies, energy saving methods and climate changes. To give us a better perception about it, we want to visualize every day measurement data of our offices. Core values of this are Temperature, humidity and power consumption. The understanding of pure numbers is difficult for many people. Numbers are abstract and difficult to perceive. For this reason we want to make these numbers experienceable. A augmented reality (AR) app would support this.

The FHEM server represents the smart home system. It manages all devices and logs data into the PostgreSQL database. The connection between the sensors and actors works via radio-communication at 868 MHz. Every sensor and actor has multiple channels, i.e. actual temperature, temperature setpoint, humidity, low battery, valve state and so on.

FHEM pushes all data into the PostgreSQL server. There they stay persistent. It can be used to create graphs with progress, mean values and so on.

The AR software should be able to display actual values into the display of a smart phone or tablet at the points of the sensors and actors. Besides this, the interaction with actors shall be possible. This all is doable over the TELNET interface of FHEM.

Second is to overlay graphical data representation over the scene. This shows temperature, humidity or power consumption in an adequate way, i.e. graph, colors and so on.

This work is the basement for a later connection with a simulation tool.