AUGMENTED REALITY
AND KNX IoT

Operating comfort by "augmented reality"

Task

Incomprehensible operation of systems can be frustrating. Intuitive operation is the prerequisite for the acceptance of a technical device. Who does really like to read the user manual often written in an unwieldy way? This applies for the own and especially for an unfamiliar living environment. The function of switches for lighting, shutters, heating or sound system has to be palpated in the full sense of the word. Christian Kiefel, Valbonne, France, faces the challenge of creating an easily understandable operation concept for the smart home. He uses the possibilities of a computer aided enhancement for the perception of reality, the so-called "Augmented Reality".

Solution

An application for the smartphone or tablet in combination with the built-in camera enables the detection of objects in the environment. The camera image is directly overlayed with the operating elements for the control of an object. Next to a lamp appear the control buttons for switching or dimming, if a window is detected, the control elements for moving the shutter are overlayed, while targeting a speaker the current music title is displayed and by an appearing slider the loudness can be controlled.

Realisation

A software package for a NAS embedded mini-server allows the local data storage of the different objects in the living environment. As a first step, they have to be teached-in by the camera of a smartphone or a tablet and thereafter they are allocated to the devices being accessible via the KNX installation. When connected to the local WiFi the application of the customer's smartphone imports these data. As soon as the camera image of the application is activated, the application compares the current image with the imported data. In case of identification the respective device is connected via the KNXproServ Controller and it can be controlled by the overlayed operating elements.

Functions

Nowadays image recognition is very reliable. Especially tablets with 3D cameras allow the detection even under adverse lighting conditions. Also the direction, from where an object is targeted by the camera, does not influence the recognition. Teaching-in the objects is very simple and the allocation to the devices in the KNX installation can be made even by a layman. The KNX proServ Controller operates object oriented. The KNX Datapoints of a device are already grouped in ETS. Thus a device can be addressed as a whole.

Advantages

- Intuitive operation in a previously never enjoyed way.
- Contact-free control is also possible for persons with restricted mobility.
- Later adaption of objects also possible by layman (e.g. when changing a pending lamp)

augmented Reality for KNX

fully automated export of KNX configuration

allocation of KNX functions and images

proServX+ embedded Data-Server storage of real objects as images

comparison of the camera image with the imported data

showing control elements and states

KNX-proServ
KNX Objekt Server

Controlling of recognized objects and displaying the state

Smartphone

Bleu Comm'Azur SARL
Christian KIEFEL
180, imp du Baou
06560 Valbonne
France
Tel +33 607 50 25 06
Fax +33 9 55 27 50 25
realknx@proknx.com

فراهوشمند انرژی آرتمن
هوشمندانه زیست
www.smart-buildings.ir