

## The Proposal of Support Software System for Smart Home

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**Abstract.** The selection of Smart Home (short of „SH“) function is now generally understood. Categorization functions SH have not been processed yet. The new approach is that the first steps in the design function specify the type of user and for the selected type of user specified function SH. The paper outlines two types of problems. The first problem involves the identification of specific functions based on the types of users of the SH. The second problem is the proposal of support software system which can access an interactive designer to formulate specific requirements by SH. These are then processed in the form of automatically generated text user requirements.

**Keywords:** Smart home, Functions of Smart Home, Type of user

### 1. Introduction

Development of new technologies tries to bring closer to user comfort. For most SH starts development of home automation. The object is to control home automation, control multiple devices in the SH. The term home automation understand a lot of equipment [1],[2]. On Figure 1 can be seen that today is home automation is divided into several parts. At the bottom of the graph can be see the most prevalent part of home automation.

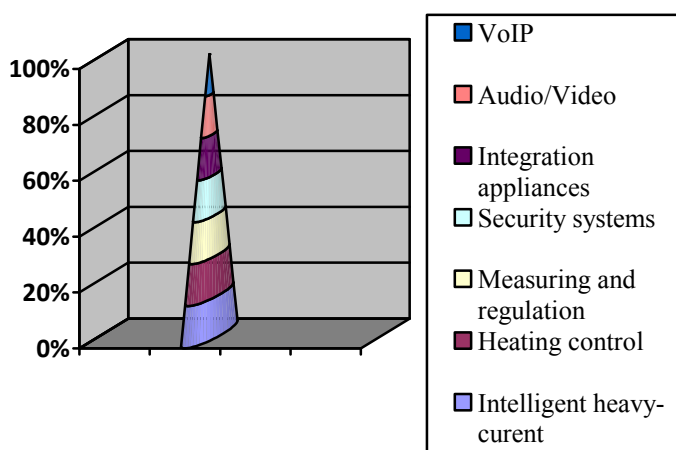


Fig.1 The use of home automation on the market [3]

Optimizing selection of SH functions is determined by specific user requirements. Each user can select functions on each level is different. Function selection affects so many factors [4]. The paper presents a systematic approach to functions according to types of users. There are selected SH so as to cover the largest possible range of users. In Figure 2 can be seen distribution the groups features SH.

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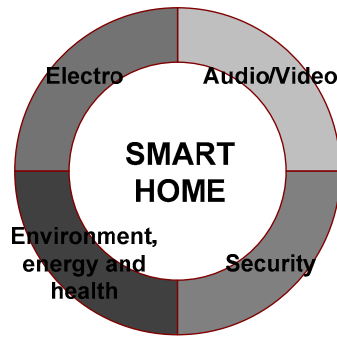


Fig. 2 Integration of complex functions for the smart home

Under the group *Electro* understand the cooperation of several functions such as system control touch panels, planning operations in the specified time, control of appliances, control of kitchen appliances, control irrigation systems and control via SMS. A very important aspect is the placement of individual elements and components. Therefore, the operation began to centralize various functions into one control. The big advantage is centralized in one control, which may facilitate access to the system, which is desirable for a group of seniors [5].

The group of *Audio/Video* features includes individual home theater, music and games. Functions of home theater offers live the same cinematic experience as if the user was in the cinema. The great advantage of home theater is the central library of multimedia, internet access and email. Music brings users of SH the perfect atmosphere for example to relax: in the sauna, in the bathroom, at the fireplace. Games are not just for children but became part of family entertainment with no age limit, because with a simple operation and control can play each [6],[7].

Every house shouldn't be only beautiful, but also *environmentally friendly and economical*. Under the common sense functions that oversee *the health* of the user [8]. For example simple download window shutters can save on cooling costs, saving modes in the absence of well users, family physicians and drug dosage.

*Security systems* protect the house from the first seconds of leaving users, but for example they can control the children so on the screen can be seen the movement of children in the bedroom, at the pool or around the house [9].

## 2. The proposal of software support for a designer SH

At designing software to support the design of SH in mind the individual requirements of the future user, developer and investor. In Figure 3 is a diagram of the software support activity planner SH. At the beginning of the award are distinguished administrator user and user system. If the user types the administrator has made available to all functions, including data editing, editing of users and passwords. Otherwise, they are accessible only to certain parts of the program.

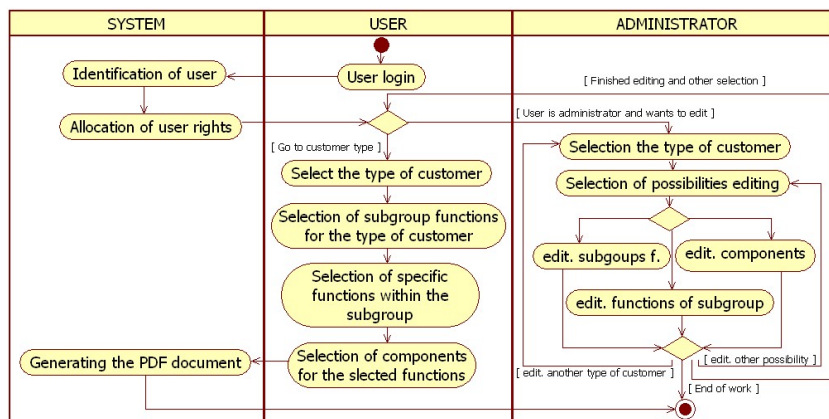


Fig. 3 The proposal of software support for the designer SH.

The proposal software support provides for openness, i.e. in the event that a new type of user or function, it will be incorporated into the system under the scheme by the support system. On the user selection system offers subgroups (lighting, shading, control of appliances, heating, health, kitchen, irrigation, clean and control) that are designed for the type of user. After selecting a set of functions and components that are chosen by the user, the system generates requirements with the individual components in the given format. Generation requirements, it is possible to print or save to pdf.

After the logged in user is allowed to choose the type of user, the user will reveal individual functions (1- base group Fig. 4; 2- level Fig. 5; 3- II. level Fig.6).

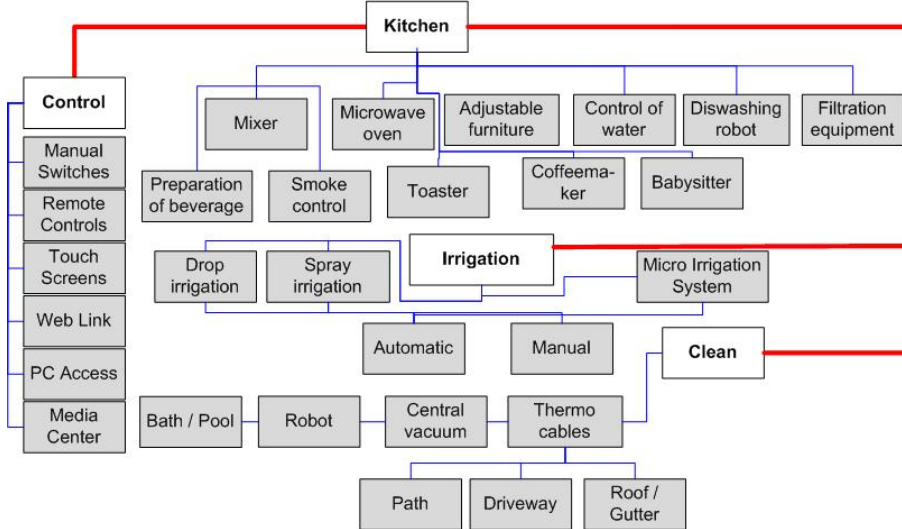


Fig. 4 Part of the proposal for the basic functions of the SH

In the basic group Fig.4 are assigned functions which form a substantial part of the SH. Each SH should contain at least the functions listed in the group. Criteria used in selecting functions into basic groups: standard security needs of users, automation of routine activities.

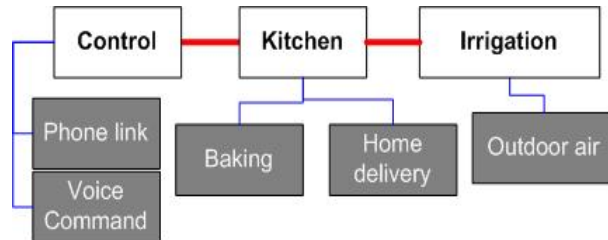


Fig.5 Part of proposal functions for I. user level

To I. level Fig.5 are includes functions, which are directly related to the baseline. These are specific functions that are used for a specific range of users. The individual functions are not directly dependent on each other.

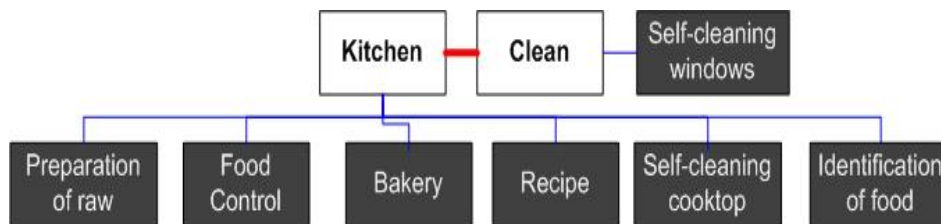


Fig. 6 Part of the proposal functions for II. user level

To II. level Fig.6 are functions that contain the maximum possible and available amenities installed in SH. The implementation of these functions is a higher cost.

### 3. Summaries

SH offer many possibilities, which is continuously growing in HW and SW for home automation. In the design phase is to select functions a complex process. Depends on the experience of the designer, and the resulting solution will be optimal. This article presents a proposal to simplify the issue. According the proposed methodology select the first type of user, so defining functions SH. The article proposed hierarchical structure SH functions to facilitate the optimal selection of functions. The main benefit of this proposal is that the optimal selection process SH function is systematic and is not influenced by experiences and habits designer SH functions.

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