Brief summary on smart homes

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Abstract. This paper provides a brief summary on smart homes technology.

Summary

An older adult might have physical, cognitive, or other health problems and requires a caretaker most of the time in order to avoid any unfavorable situation. Today, a smart home is available to relax the life of a caretaker by providing a help to look after an older inhabitant up to a great extent. A smart home is an intelligent, technical, and automated home which consists of a number of devices functioning based on some context. An older inhabitant needs to operate some kind of interface to control these devices. The design of the interface is a critical issue and should be a human-centered design that requires minimal mental and physical efforts by an older adult to control the devices in the smart home. In this research work we design a new command structure for the gateway interface to control the smart home devices. We devise few hypotheses which are validated through literature and informal surveys. To improve the usability we use those validated hypotheses to design the interface. At every stage of our design three button constraints has maintained its perseverance. With the growing age a person may encounter with different impairments physically and mentally such as vision problem, cognitive problem (dementia) etc. Few of them may be lighter and healable but some of them may be severe and are not curable. In those situations an older adult needs a care taker most of the time in order to avoid any unfavorable situation to occur. Due to the busy schedule and adverse circumstances, it may not be possible for a care taker to be available with elderly all the time. To combat these difficult situations, the concept of smart home has come into existence and serves as a help not only for elderly but also for care taker as well as it absorbs lot of responsibilities of a care taker. Smart homes are intelligent, technical, and automated homes which are employed to help elder people. Smart home project at Iowa State University is one such development with the same objective to help elderly. Design is one of the most important phases in the development of a smart home. The motivation behind a good design is that the end product should provide an easiness and comfort to an older adult whenever the product is being used. One should put extra efforts to come up with good design. A good design leads to the development of a good product. The objective of this project is to come up with such a command structure for our smart home gateway which is based on hypothesis, literature, and informal survey and requires very minimal mental and physical efforts by an older adult to operate that. The main constraint of our design is the three button interfaces and that should not be violated in any case. We want that each interface being used in smart home gateway should consist of exactly three buttons at every level. There are seven module as of now our smart home consists of. There are few modules which have higher probability of usability in day and night activity where as other have comparatively less. There are two orientations possible to organize the buttons 1) Flat, 2) Hierarchical. The flat orientation consists of the related object in the same level whereas in hierarchical orientation
parent object consists of child objects. In both cases the organization of buttons is based on our hypothesis.

**Conclusion.** This paper was a one pager on smart home technology.

**References**