

Smart Shelf: Project Proposal

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ABSTRACT

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ACM Classification Keywords

H.5.m. Information Interfaces and Presentation (e.g. HCI): Miscellaneous; See <http://acm.org/about/class/1998/> for the full list of ACM classifiers. This section is required.

Author Keywords

Smart Fabrication, Smart, Shelf, HCI, Physical Computing

INTRODUCTION

Today the word smart is almost everywhere. There are smart homes and smart fabrications.

PROBLEM

Most people when they hear about a shelf they think about their bookshelf or some shelves in the kitchen. Almost everyone who have a bookshelf searched at least one time in his/her life for a book in it and wished to have a guideline how to find it the fastest way. Imagine big shelves with a lot of small drawers. Every drawer is only labelled with a small name which describes what is in that drawer. Searching for items in these shelves can be hard and cost a lot of time. An additional scenario is if you apply this concept to big warehouses with hundreds of shelves and more drawers or places where you can place items. Finding in such a warehouse an item can be still harder.

Especially if you use shelves to store for example electronic components the next problem appears if you finally found the correct drawer with the searched component. The drawer is empty and no one ordered supplies. This is not only annoying, also the productivity of team sinks. Maybe the team or colleague can not finish work because they need that component that is not in stock currently.

Not only warehouses or storage rooms with shelves have those problems with the inefficiency in finding items or the premise if one item is out of stock. The same problems

appear in retail. Customer which can't find their favourite product in a shop are unsatisfied. Maybe they go to another shop and from that moment go directly to that other shop. This problem can also be tackled with smart shelves. The shelf itself could detect if some products in it are only available in a small amount. In this case the shelf could order new products or at least send an information to an operator who can order supplies. With this strategy there will be no more empty shelves in shops and customers can find their favourite product all the time.

Smart Shelf should be a solution for these problems. It could observe the amount of items in itself, help people to find products and also order supplies if the amount of items is low. Furthermore, if you have a shelf with sensitive items or secret documents, one can think about to restrict the access to some drawers. Drawers could be locked and only with scanning the appropriate QR-code on the drawer the drawer opens if the user is trustful.

MOTIVATION

RELATED WORK

There are several development work happened last few year in human computer interaction(HCI), home automation and embedded technology. A big set of these work is giving intelligence to rigid objects and allow human to communicate with them and vice-versa by applying noble HCI techniques. Moreover, post-WIMP devices also offer some features that can be integrate with the modern computer technology development(Ubiquitous computing). However, this post-WIMP GUI concept only applicable if there is a metaphor available in digital or analogue world. For example, searching the meaning of a word in digital dictionary(e.g:Smart phone dictionary). We want explain decent amount of successful research work that overlap at least in certain area with our Digital Shelves framework; However, there is no implementation or ground work fully overlap with our concept. A technical definition of our project is "Combining different interaction technique to innovate a device that follow the guideline of ubiquitous computing".The most related topic that already are known by HCI community are: QR code for presenting information, Automatic amount calculation, Smart Phone application for device control

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QR code for presenting information

Automatic amount calculation

APPROACH

Inputs

Outputs

User Interaction

EXPECTED RESULTS

Time Plan

CONCLUSION

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