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Control Menu based Spatial Awareness

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Abstract Today,people's life cannot leave the electronic equipments,such as mobile phones,ipad and other equipments that need people to control .There have been so much inputs,such as mouses,styluses and figures.Traditional ways of interection mainly provide x-y position to allow users to control the menu,with providing z position rarely.Most of inputs are based on the touch screens on the equipment or buttons on the control tables.The spatial awareness has been always ignored.We will discuss a new different input technique based on the spatial awareness.We divide the space in front of users into some small cube space (SCS).People can click the shortcut key on the contral menu throuh selecting the the specific SCS in the front of them using their hands, with full or partial visual feedback.In this paper,we design the experiments to invest human's ability to select a SCS exactly using this spatial sense. And the experiment also considers two selection methods to allow the users to confirm their selection once the the SCS acquired by their hand,we also give some questionnaires to participations to collect user feedback informations.

Keywords

Perception of space Control menus Human computer interection

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1 Introduction

Traditional HCI has been designed to two degree-of-freedom mapping the x-y position that mouse, styluse or figure always provide.In addation to these inputs, there also have rockers and wheels provide x-y position similarly.So much papers discuss these inputs and provide much improvement programs based on these inpus.These inputs has been widespred used in our daily life. But in some situtions, no mater how to improve these inputs,they have limitations,for example, when you use AR device, it's very inconvenient to use traditional inputs,expecially to use immersing AR device which user can hardly get the outside informations but easily get the space information.Expecialy with the virtual visual feedback in the AR device,this Menu Contral Function can perform better.And in the file of large screen contral,using human's spatial awareness can assist the visual impairment peopel to make contral the device easily,like large screen.

If we want to use the human spatial awareness to make menu contral like click the shortcut key by select SCS,we should know how much can human know about the space around themself.In this paper, we design a experiment to invest users' spatial awareness.Question that need to be answered include:how much discrete layers the space in front of user can be divided in to SCS in vertical and horizontal directions, what mechanisms can be used to confirm the users' selection, and what is the impact of visual feedback, how much difference between right-handed and left-handed when they are supposed to select a SCS.

Table 1 Please write your table caption here

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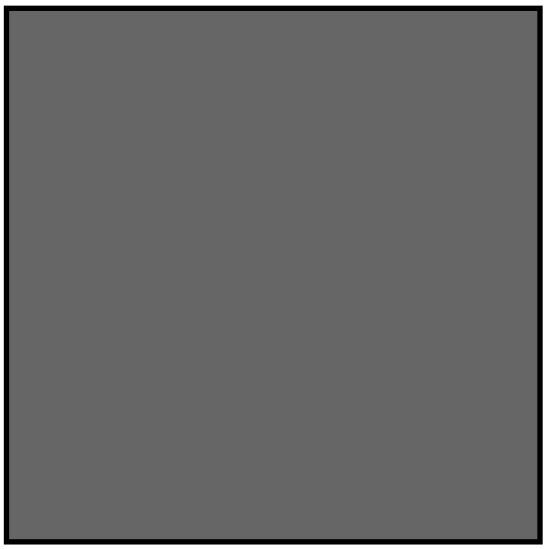

Fig. 1 Please write your figure caption here

2 Preview Work

First of all,we review some relevant reserachers' works.Then we'll present our experiment to invest humans' ability to select the the specific SCS in the front of them using their hands, with full or partial visual feedback,and eventually get to know the space should be divided into how much SCS reasonably.Our experiment also conside different techniques for confirming users' selection once the SCS is acquired.

In this paper, we design a experiment to invest users' perception of space.Question that need to be answered include:how much discrete layers the space in front of user can be divided in vertical and horizontal directions, what mechanisms can be used to confirm the users' selection, and what is the impact of visual feedback, how much difference between right-handed and left-handed when they are supposed to touch a particular region of space.we discuss

Frank Chun Yat Li et al explore the kinesthetic memory and spatial awareness used in the spatial awareness mobile device,and make a virtual shelves that users can quickly get a shortcut key.they can use their hand slip a horizonal and vertical angels to select the shortcut key.But their virtual shelve has limited numbers of shortcut,they do not full use of the sapce.

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Paragraph headings Use paragraph headings as needed.

$$a^2 + b^2 = c^2 \tag{1}$$

References

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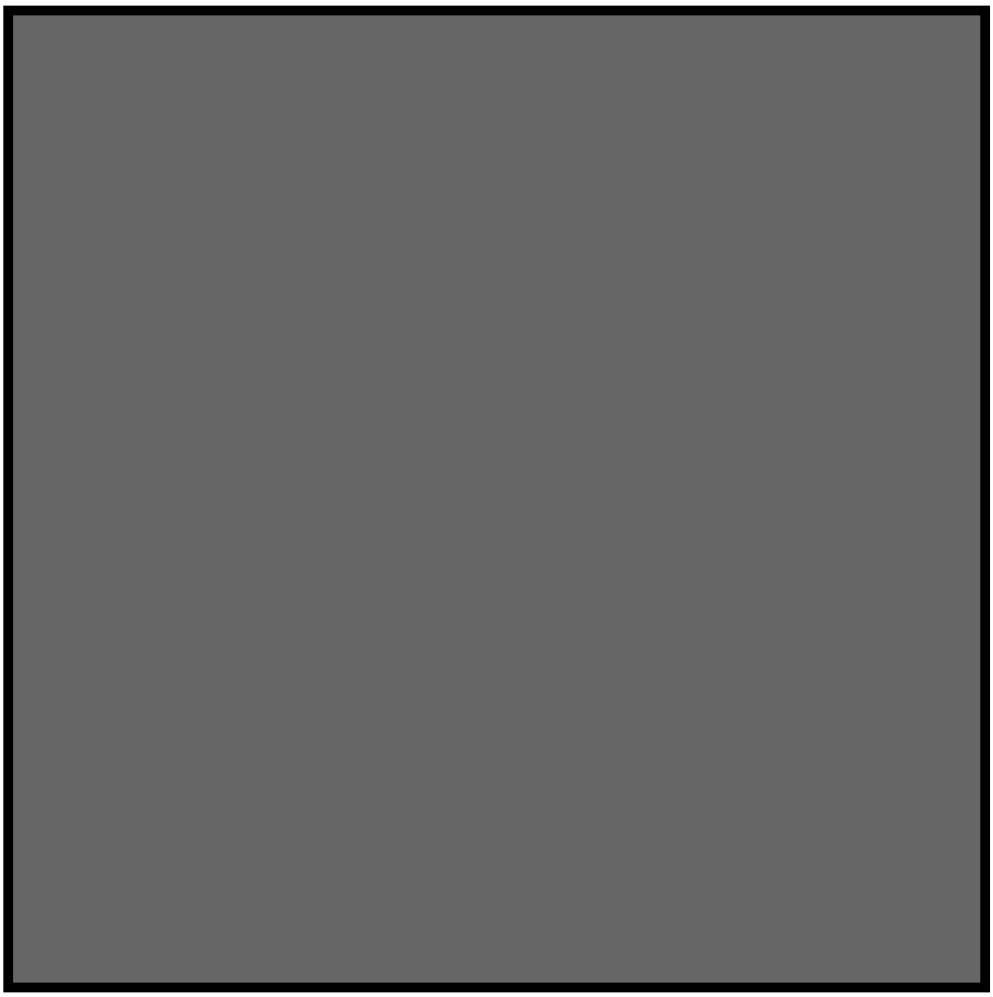

Fig. 2 Please write your figure caption here