100 學年度大四工工專題摘要

第　組	大尺寸觸控面板操作手勢之最佳化與點擊校正
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摘　要

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觸控面板有別於傳統的鍵盤操作，少了觸覺感應，無法用觸覺來區隔不同按鈕，在這種情況下往往會按錯按鈕而不自知，特別是本次研究的題材設定為核電廠工作人員操作的十九吋大型觸控螢幕，與日常生活中較常被使用的中小型觸控螢幕(例:智慧型手機、I-Pad)不同，有著工安上的顧慮，而在本次研究中將探討點擊校正是否可以降低點擊錯誤的發生，以及尋找操作者在操作觸控螢幕時的最佳手勢。

本研究分成三個部分進行，第一部分是手勢調查問卷，找出大部分人常用的手勢；第二部分實驗是點擊校正，以圖檔記錄受測者點擊的偏移，以統計分析出普遍的點擊偏移量;第三部分實驗是手勢任務，將受測者實驗狀況進行錄影，以觀察受測者所造成的失誤，同時記錄使用者操作時間，以分析各種手勢進行任務時的效率及準確率，並且藉由問卷來了解受測者對於各種手勢實驗前後的看法。

本次研究的結果分為兩個部分，第一部分為點擊校正，而第二部分為尋找最佳手勢。從點擊校正的實驗結果得知，經過校正的過程，能提高使用者的準確度，而第二部分，則以食指握拳為最佳手勢，在舒適度及點擊錯誤的次數上都有最佳表現。

關鍵字：觸控、校正、操作手勢

Abstract

Using touch panel is different from using traditional keyboard. It does not have sense of touch. We can't use sense of touch to distinguish button, in this case, we usually press the wrong button without notice. Especially in our research, we focus on the 19 inch touch panel which is used in nuclear power plants. It is different to small size touch panel (ex. Smartphone、I-Pad) or other big size touch panel (ex. i-bon). Nuclear power plant's touch panel is more complex than them. In this study, we will research if clicking adjustment can reduce mistakes. And we will analyze the data to find some common behaviors to reduce mistakes.

This study is divided into three parts. First part is a questionnaire that is to find out which gestures are commonly used by most people. The second part is the experiment about clicking adjustment. We use image files to record the displacement of clicks, then we do the statistical analysis to get the general displacement. The last part is an experiment that make testees do three tasks with four gestures. We use videos to record the period of these tasks, then record the mistakes and operating time in order to analyze the operating efficiency and accuracy of each gesture. We use the questionnaire to know how testees feel about using each gesture before the experiment and after the experiment.

The outcome of the study is divided into two parts, the first part is clicking adjustment, and the second part is to find out the best gesture. According to the experiment outcome, it can increase the users' accuracy after the process of adjustment. In the second part, it shows that forefinger with the palm spreading is the best gesture, because it gets the best performance in the mistakes and comfort.

Keywords：touch panel, adjustment, operating gesture