

100 學年度大四工工專題摘要

第 3 組	觸控面板目視檢測之專家系統雛型建立 The Prototype of Expert System of Touch Panel Visual Inspection
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摘 要	
隨著「觸控」功能開始掀起下一波 3C 潮流，各類顯示器相關產業對於觸控面板的需求也相應地上升。而即使目前許多工廠推行自動化，但因觸控面板所要求的合格標準無法完全使用儀器檢測，尚須由人來檢測判斷瑕疵，其中卻會因主觀認知不同而產生過篩或漏檢。因此，如何在這種限制中取得一個較為良好且符合企業利益的方式，是本研究之目的所在。 本研究藉由分析現有問題改良查詢程序，並輔以文獻探討，透過「蒐集資料」→「建立知識庫」→「設計系統」→「進行實驗」→「確認改善績效評估」的流程，建立一個目測檢視專家系統的雛形，希望能夠幫助往後目視檢查人員間的有效學習及經驗傳承。並於實驗後分析各項數據，驗證確認知識庫的建立對於無經驗的人員具有相對優異的目測檢驗正確度及操作時間，同時經由問卷回饋修正改良系統的設計及介面舒適度，思量其日後在其他領域的可行性。 至於未來的研究方向，我們希望能發展更完善的擴充功能及更加簡潔俐落的介面，能提供品管或偵錯方面更有效的回饋。也希望此概念能應用在其他相關領域，以提升人員檢測績效。 關鍵字：目視檢測、專家系統、知識庫	

Abstract

Since the "touch" feature has started off the current trend of 3C, all kinds of display-related industries' demand for touch panel also increased. Despite the current implementation of automation in many factories, The defect of touch panel appearance can't totally be inspected by machines, we still need human visual inspection to determine the defeats subjectively. In the period, the operators might over detect or miss some defeats due to their own determination. Therefore, how to find out a way that suits the business interests under these limitations is the purpose of our study.

This research try to improve the inquiry process by analyzing the existing problems, which assisted by literature. Through the "Collect Information" → "Knowledge Base established" → "System Designed" → "Experiment" → "Performance Confirm" process to create the prototype of expert system of visual inspection, hoping to help visual inspection personnel with effective learning and experience heritage. After the experiment, we also verify to confirm the establishment of knowledge base can make inexperienced staff with superior visual inspection accuracy and operating time test, correction the system via questionnaire feedback, and consider its feasibility in other areas in the future.

Future research directions, we hope can develop more simple and neat extension interface, which can provide more effective quality control or debug feedback. We also hope that this concept can be applied in other related areas to enhance personnel detection performance.

Key words : visual inspection, expert system, knowledge base