

二、研究計畫中英文摘要：請就本研究計畫要點作一概述，並依本研究計畫性質自訂關鍵詞。

(一) 計畫中文摘要。(5 百字以內)

隨著資通訊科技的進步，工業生產模式逐漸從大量生產、代工製造方式轉變為以最大客製化為生產模式的智慧工廠概念邁進。而為實現此目的必須先整合現行工具機的資訊。然而目前許多傳統工具機因機型老舊缺乏資料傳輸的能力，並且工廠管理人員只能夠過工具機上的面板得知當下工具機的訊息而沒有遠端監控的能力。另外由於工具機的製造商不同其所使用的通訊標準也不盡相同，造成通訊標準無法統一，使得資料收集非常困難，成為智慧工廠的瓶頸。

本研究提出建置一套「**智慧型工廠即時資訊監控系統**」，以開源標準的工業自動化通訊協定 OPC UA 協定，採用統一的通訊標準並在工具機上安裝感測裝置以透過低成本的微電腦來控制裝置擷取感應裝置上的資訊。將其透過無線網路進行資料共享，為傳統工具機提供資料傳輸的能力從而突破了有限的工廠空間。工廠管理人員與現場操作人員可以使用智慧型行動裝置或是網頁即時監控相關資訊。另外透過將過往資料的收集也能夠快速的了解工具機過往的相關資訊並進行分析，以達到智慧工廠的目的。

關鍵詞:智慧工廠、工具機、OPC UA、即時監控、感應裝置

(二) 計畫英文摘要。(5 百字以內)

The industrial production model has been gradually changing from mass production and foundry manufacturing to the smart factory, which produces maximum customizations as a concept through the advancement of technologies nowadays. To achieve this purpose, integrating the information from current devices or machines are necessary. However, those current machines or devices lacked the ability to transmit the data because the models were old. On the other hand, the managers in factories were only able to receive the information from the panels of the devices or machines when they were in operation. There was no way to obtain the information remotely and those devices or machines were manufactured by different manufacturers as they might be implemented different communication standards. That was the reason why collecting the data has become a difficult issue and bottleneck for the smart factory.

This research proposes a real-time information monitoring system, which is based on an industrial communication standard: OPC UA protocol. Placing a sensor on the machines or devices managed by a low-cost microcomputer to load the data from the old machine, shared via the wireless network. Hence, the proposed system breaks through the limited space of factories because the traditional devices or machines are now capable of transmitting the information. In order to become a smart factory, managers and operators can use smart mobile devices or webpages to monitor the information of machines in real-time, and they can analyze the incoming data immediately to achieve the purpose.

Keywords: Smart Factory、Machine、OPC UA、Real-Time、Sensor

請概述執行本計畫可能產生對社會、經濟、產業發展等面向的預期影響性(一百五十字內)。

本計畫將與群亞電子合作協助研發改善產品，其原先是協助傳統工廠將工具機的資訊透過擷取訊號源的方式顯示於 LED 看板上，但時常面臨無足夠資訊可呈現及機型過於老舊而無法擷取的窘境，本次將透過不須汰換工具機的方式，利用感應器搭配無線網路將資訊即時於網頁或是智慧型手機上顯示，提升其產品競爭力。