Real-Time Information Monitoring System In Smart Factory

（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，或是由於工具機的製造商不同其所使用的通訊標準不相同缺乏統一的通訊標準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~~並~~透過低成本的微電腦來控制~~裝置~~並擷取感應裝置上~~讀取~~的資訊。並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，並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）

With the advances of the information and communication technology, the pattern of the industrial production has been gradually transformed from the mass production and foundry manufacturing to the smart factory which possesses the ability of maximum customization. In order to achieve this purpose, the data on a machine must be integrated. However, there are many traditional machines lack the ability to transmit data due to the outdated models. Furthermore, the factory managers can only read machines’ information on the panel rather than monitor it on the remote. Besides, the machines made by different manufacturers may implement different communication standards. The lack of a unified communication standard makes data collection very difficult, which becomes a bottleneck in the development of smart factories.

This paper proposed a real-time information monitoring system, which based on an industrial communication standard: OPC UA protocol. By integrating the current machine with a sensor, the proposed system is able to control the sensor and read the collected data using the low-cost microcomputer. The data can then be shared via the wireless network. In this way, the proposed system breaks through the limited space of factories because the traditional machines are capable of transmitting data now.

Factory managers and field operators can use smart mobile devices or webpages to monitor the machine information in real-time. Moreover, collecting and analyzing the historical data on the machines are useful to quickly understand the related information of the machine tools to achieve the purpose of a smart factory.