# 摘 要

論文名稱：設計與實作工廠即時監控資訊系統

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關鍵詞：工業4.0、智慧化工廠、工具機、感應模組、即時監控

　　近年來工業4.0技術發展越趨成熟，生產模式從以前的大量生產、代工製造方式轉變為以即時需求、彈性調整及客製化生產模式的智慧化工廠概念邁進。為達到智慧化工廠的目標，首先須整合工廠內工具機的資訊，從而快速了解工廠內的運作情形。然而傳統工廠可能由於工具機機型老舊不具備資料傳輸的能力造成監控困難或是依靠人工方式記錄工廠的運作資料，成為智慧化工廠的瓶頸。

　　本論文實作一套「工廠即時監控資訊系統」提出無須仰賴工具機本身的傳輸方式，利用在工具機旁安裝感應模組並藉由微電腦控制器控制用以讀取工具機上的各項資訊並傳送到系統內記錄下來。工廠管理人員可以透過電腦或是智慧型裝置即時監控工廠內的運作情形，並可利用報表來了解歷史資料，為達到智慧化工廠建立夯實的基礎。

# ABSTRACT

Thesis Title：Design and Development of the Factory Real-Time Information Monitoring System

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Keywords：Industry 4.0、Smart Factory Model、Machine、Sensor、Real-Time

In the past few years, the development of Industry 4.0 technology has become more and more mature, and the mode of production has changed from mass production and OEM manufacturing to the smart factory model which is based on instant demand, flexible adjustment and customized production. In order to achieve the goal of smart factory, first of all, it is necessary to integrate the information gathered from machines in the factory to quickly understand its operational status. However, traditional factories may be difficult to monitor as machine models are too antiquated to transmit data, or rely on manual input of factory operation data, which becomes a bottleneck for smart factories.

This paper implements a "Factory Real-Time Information Monitoring System" and proposes a method which does not need to rely on data transmission by the machine tool itself. We place a sensor on the machine and use the micro controller of the sensor to read various information from the machine and send it our system. Factory managers can use computers or smart devices to monitor the operating status from the factory in real time, and record all the information as reports. This allows them to understand historical data and establish a solid foundation for realizing the smart factory model.