

附件一、技術推廣表



遠端場域感測器模組暨雲端監測系統

發明人：陳世芳 助理教授

單位：生物機電工程學系

簡歷：

現職

國立臺灣大學 生物機電工程學系助理教授
生物資源暨農學院 智慧農業教學與
研究發展中心研究組組長

社團法人台灣農業資訊科技發展協會 秘書長

研究專長：影像處理、農產品光譜分析、機器學習於
感官風味應用

實驗室網站：<https://ntubimessl.wixsite.com/ntussl>



市場及需求：

使用物聯網技術進行即時田間資訊紀錄，可協助農務從事者及時調整田間管理及經營策略。透過長時數據收集，後續更可結合人工智慧演算，建立關鍵性的監測指標參數，將人工的經驗轉化為預測模式，達成智能監測與管理的省工效果，推進田間之自動化及智慧化作業。

技術摘要：

主要分為兩部分，一為場域端感測模組，二為雲端感測平台。感測模組：透過單晶片微電腦搭配感測器及網路攝影機等，可記錄田間作物生長狀態，以及相關環境資訊。雲端感測平台：紀錄所蒐集之感測數據及反饋運算後重要指標因子，並提供農民線上觀看及下載。

優勢：

感測模組搭配雲端平台，可實現即時監測之功能，方便農民透過行動裝置或電腦，於網頁上觀看場域狀態、作物影像及相關環境資訊。

競爭產品：

阿龜微氣候 - 提供之服務為田間氣候裝置、農務紀錄 APP，以及數據分析應用模組，然其服務中未包括影像資訊分析。

專利簡述：

本研究團隊開發之感測模組，可實現即時監測作物生長狀態之功能，亦可將環境資訊及影像記錄於雲端資料庫，提供歷史資料查詢及圖表顯示。經由共同傳輸格式而收集與儲存的感測數據，將有利於後續不同進階分析計算及應用。分析人員可透過共通資料庫取得數據，開發業者所需進行監測之指標因子。

聯絡方式：臺大產學合作總中心，Tel: 02-3366-9945，E-mail: ordiac@ntu.edu.tw



Remote Field Sensor Modules and Cloud Monitoring System

PI : Shih-Fang Chen, Assistant Professor
Department of Biomechatronics Engineering,
National Taiwan University (NTU).

Experience:

Current Position

Assistant Professor (2015-current)

Department of Biomechatronics Engineering, NTU

Research Section Leader (2018-current)

Center for Intelligent Agriculture Education and Research,
College of Bioresources and Agriculture, NTU

Secretary (2019-current)

Taiwan Agricultural Information Technology Association

Research Expertise

Image Processing, spectral analysis for agricultural products, machine learning methods on flavor prediction

Laboratory website: <http://ntubimessl.wixsite.com/ntussl>



Market Needs:

The technology of internet of things (IoT) facilitate collecting and recording real-time field information. The information could assist farmers to adjust their management strategies in time. Through long-term data collection, further calculation using artificial intelligence algorithms can be applied to find crucial factors or develop predictive models based on the expert experience. That provides potential solutions for smart sensing and labor saving. It advances the automation and intellectualization in agricultural.

Our Technology:

On-field sensing module and cloud sensing platform are two main features of the technology. Sensing module: a single-chip microcomputer, sensors and web cameras are used to record the growth status of crops and the environmental information on field.

Cloud sensing platform: on-field data from sensors is recorded; crucial factors are calculated to provide information to farmers for on-line monitoring and downloading.

Strength:

Real-time monitoring is achieved though the integration of field sensor module and the cloud platform. Users are able to check field condition, crop images and related environmental information on the webpage through mobile devices or computers.

Competing Products:

AgriWeather- It provides three main categories of services, including microclimate sensing

devices, AgriNote APP for recording farming activities, and data analysis module. To be noted, image data analysis is not incorporated in the product.

Intellectual Properties:

The sensing module developed by our team can monitor crop growth status in real time, record environmental information and images on the cloud database, and provide historical data query and graphical presentation. Sensing data are collected and saved by the designed communication format. The common format is conducive to various analysis and application. It enables data analysts to obtain data through a common database, and can provide crucial factors that the industry needs to monitor.

Contact:

Center for Industry-Academia Cooperation, NTU E-mail: ordiac@ntu.edu.tw