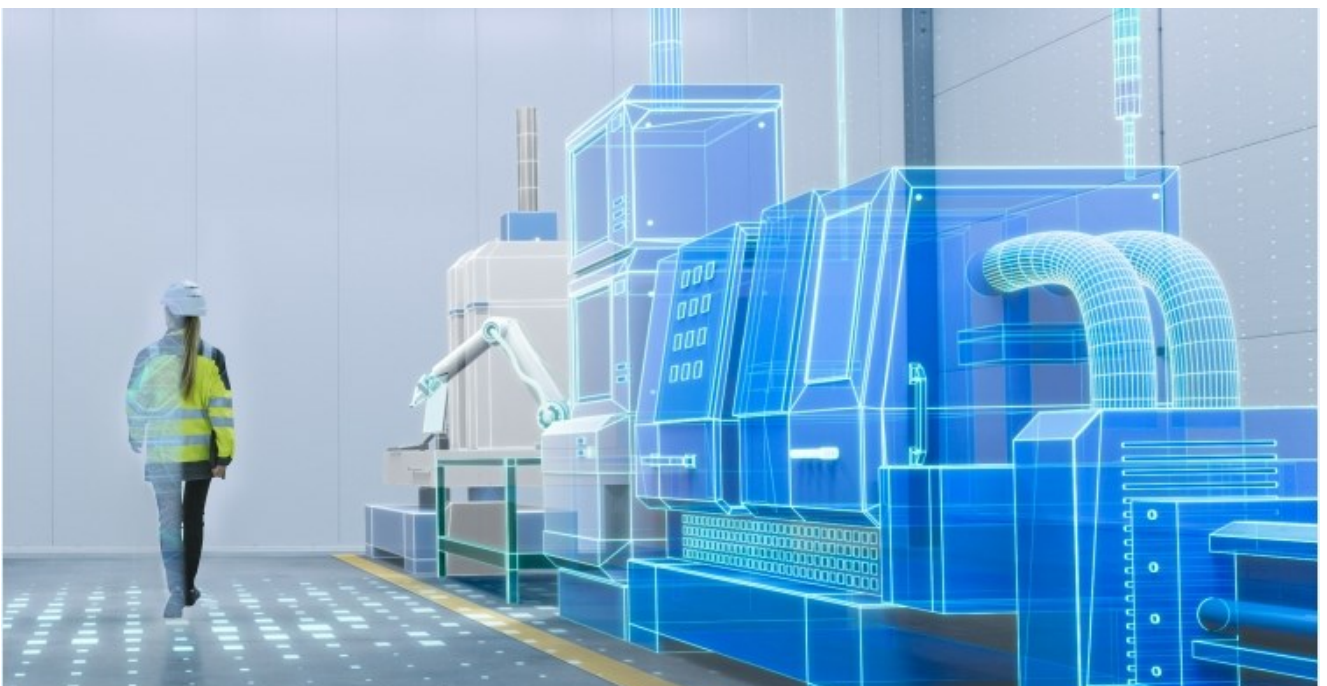


應用案例

導入回焊爐溫度曲線機器學習 新漢生產製程與管理AI化



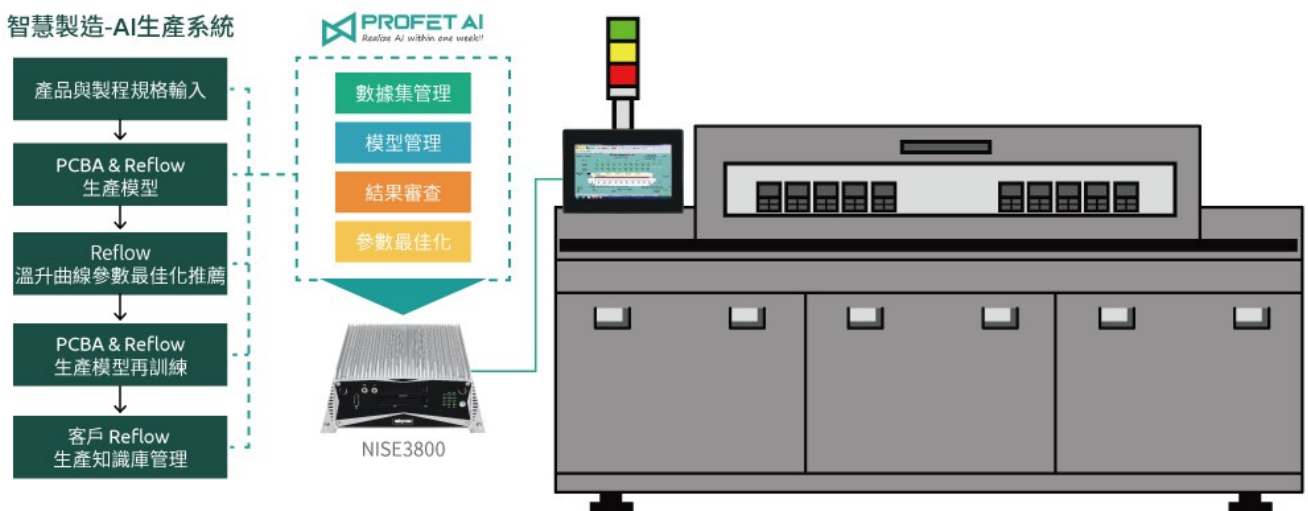
背景說明

新漢股份有限公司為全球知名工業電腦製造商，市場涵蓋工業電腦、網通電腦、數位監控、車載電腦、數位多媒體等相關產業。順應工業4.0的趨勢，新漢於2017年導入企業數位轉型計劃，規劃將企業總部、三民製造廠與華亞新廠OT/IT資訊整合，建構工業4.0之物聯網架構與企業戰情室。並於2018年在台灣新設華亞二廠，工廠面積達8000平方公尺，具有2條SMT產線、DIP線和系統組裝線，提供高度自動化的網通與網安設備代工生產。

挑戰

電子產業之所以能夠蓬勃發展，表面貼焊技術(SMT, Surface Mount Technology)的發明及精進佔有極大程度的貢獻。而回錫(Reflow)又是表面貼焊技術中最重要技術之一。PCB板在回錫爐中的溫升曲線會大幅影響產出良率，而目前現場的設備資訊取得方式偏向以人工查檔及Key-In，不僅人力成本較高，也耗費許多調教參數時間，並會有人員管理問題，而人工抄寫亦容易失真，造成後續生產管理、生產履歷、數據分析與生產洞見等智慧製造應用難以實現。

解決方案系統架構



解決方案

- Edge Server : NISE3800
- PROFET AI機器學習自動化解決方案

以NISE3800 作為Edge Server並導入Profet AI機器學習自動化解決方案後，首先將產品規格輸入(板材尺寸/厚度、產線別、BOM...等)系統，並將回焊爐溫升曲線等相關特性及歷史大數據資料匯入，即可建立PCBA & Reflow生產模型。爾後進行新產品投片，只需將新產品規格輸入後，就能經由AI機器學習自動得到Reflow參數最佳化推薦。

成果及效益

1. PROFET AI簡易且直覺的自動機器學習平台不僅可一天上手、一周落地，更將以往人為設定Reflow溫升曲線，轉換為由透過過往成功溫升曲線資料來做學習，減少人員Reflow調教參數時間，也大幅提升Reflow產出良率。
2. PCBA & Reflow生產模型再訓練、客戶 Reflow 生產知識庫管理，將生產製程與管理AI化，省去老師傅調參經驗傳承問題，以資訊系統累積與保存生產工藝。
3. 無需進入門檻高的AI代碼和高深的分析技術，人人皆可無痛上手，企業可輕鬆升級組織及進行人才再造，將數據科學應用於日常業務決策、解決生產問題，並提升營運績效。



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