Artificial Intelligence Industrial Internet of Things based Robotic Warehouse Management System
人工智能工業物聯網機械人倉庫管理系統

Dr. LEE Ka Man, Assistant Professor, Department of Industrial and Systems Engineering
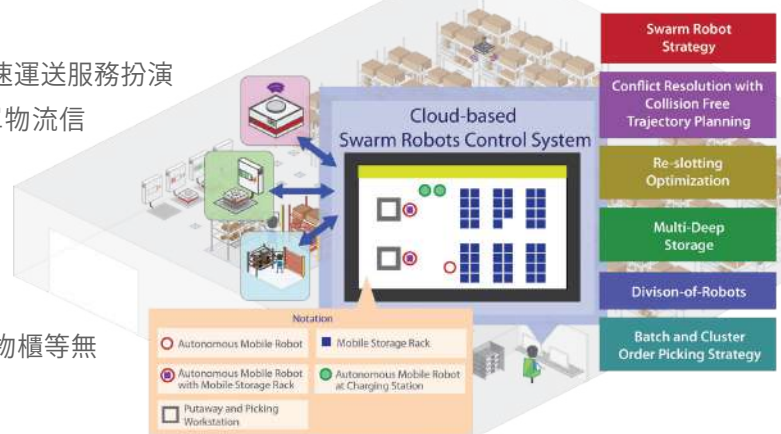
> **Special features** 技術特點
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> ▶ *Can achieve better cycle time of order fulfillment* 優化訂單狀態的反饋週期
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> ▶ *Fully visible over real-time demand and demand driven re-slotting technology* 按實時需求自動部署機械人

Streamlining the efficiency, transparency and cost consideration on inbound logistics are critical factors for seamless delivery experience. It is always a challenge for supply chain to match real-time order with its order fulfillment. The cyber-physical solution that is fully visible over the inbound logistics by analyzing the real-time demand and improving racks allocation via collaborative swarm robots is developed.

The synergy between cyber-physical decisions and demand-responsive design can deal with the lack of agility in inbound logistics. Without sacrificing the capacity of order fulfillment performance, the demand-driven re-slotting and order fulfillment is performed simultaneously by the swarm mobile robots. Regarding the discrepancy between order fulfillment demand and predicting of rack re-slotting requirements, mobile robots with swarm intelligence is assigned with different role of tasks. With aids of the cyber-physical warehouse systems, order fulfillment status in actual operations and demand for e-Commerce products are synchronized and connected with "Digital Twin" to cope with the e-Commerce-level. dynamics.

The potential applications of predictive rearrangement racks in robo ic warehouse are using as express smart E-commerce electronic computerized parcel locker and withsmart locker function.

隨著電子商務消費模式興起，物流業在優化網購體驗和快速運送服務扮演著十分重要的角色。現時物流過程最大的挑戰是實時下單物流信息和貨物分配系統信息不完整以至耽誤整個流程。 理大團隊研發了可持續把訂單狀態反饋到「數字雙胞胎」的虛擬空間，然後透過群體智能算法推動機械人以實時重新部署貨架擺放。此技術提升了機械人貨倉、物流需求和最後一哩運送服務的效益。另外也適用於自助快遞存取與智能儲物櫃等無人自助應用。

THE HONG KONG POLYTECHNIC UNIVERSITY 香港理工大學

iTDO Innovation and Technology Development Office 創新及科技發展處

PolyU ITDO
PolyU ITDO
Food Safety Consortium
itdo@polyu.edu.hk

Contact Us
Ir Steven Lam, Manager
Innovation and Technology Development Office
T (852) 3400 2864
E steven.tf.lam@polyu.edu.hk

www.polyu.edu.hk/itdo