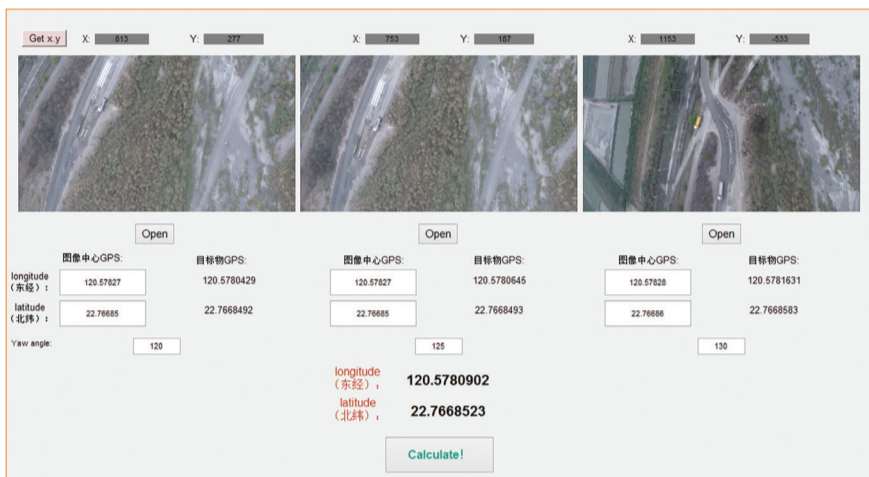


應用於災難搜救及偵察的小型無人飛機

Small Unmanned Aerial Vehicle (UAV) for Search, Rescue and Surveillance in Disasters

可完全自動執行目標搜索和地形測量任務的無人飛機
A fully autonomous UAV for target identification and mapping

這款新型無人機乃專為災難ISR(情報、監視和偵察)任務而設計。新的推進系統顯著提高了無人機的續航能力(飛行40公里/40分鐘)，而且，無人機的數據擷取系統可以連接各種傳感器，在同一次飛行任務中可同時進行搜索和地理測量。無人機可減少大規模搜索行動的人力物力，加快搜救，提高效率，故這款新型無人機在搜救任務方面極具潛力。



可精確計算目標物定位的程式
GPS programme for precise target identification



以手擲方式即可起飛，故對起飛場地有較少要求
The fact that the UAV can be launched by hand offers more flexibility in selecting the take-off field.



自動目標搜索及救援定位
Automatic target identification and positioning

This new UAV is specially designed for ISR (Intelligence, surveillance and reconnaissance) missions in disasters. The new propulsion system significantly improves the UAV's endurance (40km / 40min in the air). The UAV's data acquisition system can control various sensors to carry out search and geo-information acquisition in a single flight. The application of UAV reduces the costs, time and workloads of large scale search. This new UAV demonstrated its possibility in assisting search and rescue missions.

Principal Investigator

Prof. Chih-Yung WEN

Department of Mechanical Engineering

Contact Details

Institute for Entrepreneurship

Tel: (852) 3400 2929 Fax: (852) 2333 2410 Email: pdadmin@polyu.edu.hk

特色與優點

- 操作簡易
- 能全自動執行任務，包括自動起飛和自動降落
- 長航程(40公里)，長航時(40分鐘)
- 使用TECS系統控制航程中的動能和位能轉換，提高導航性能和能效
- 可利用功能強大的地面控制站全程監視無人機的飛行狀態及變更任務內容
- 具完善的失控保護措施
- 能即時傳輸高清航拍影像至地面控制站
- 能處理即時機載影像及全球定位系統資訊，以完成偵察及目標搜索任務
- 可於進行監測後編繪任務範圍的區域地形

應用

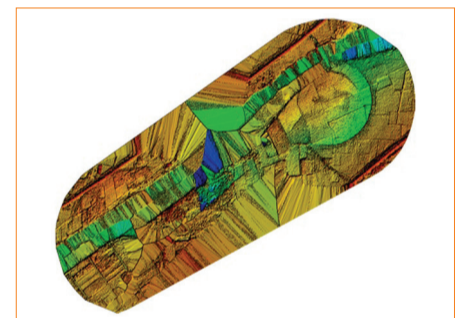
- 土地/建築測繪
- 貨物運輸
- 交通、森林和土地監管
- 災後搜救

獎項

- 2016台灣無人飛機設計創意設計邀請賽自動導航組冠軍



測繪搜索範圍的地圖
Mapping of the searched area



搜索範圍的DSM數碼表面模型預覽
Digital Surface Model (DSM) preview of a searched area

Special Features and Advantages

- Easy to use
- Capable of conducting fully autonomous missions (include auto take-off and auto landing)
- Long range (40 km) and long endurance (40 min)
- The TECS (Total Energy Control System) controls the transition between kinetic energy and potential energy during flight to improve navigation and energy efficiency
- The Powerful Ground Control System can monitor the UAV and change its tasks during the mission
- With fail-safe function
- Real-time video link transmits high resolution camera images to the ground control system
- Capable of processing real-time images and GPS information to carry out onboard target search and identification
- Capable of mapping the mission district

Applications

- Land/Building surveying
- Delivery of goods
- Transportation, forest and land control
- Post-disaster search and rescue

Award

- Taiwan Innovative Unmanned Aircraft Design Competition 2016 – Champion of Automatic Navigation

