

# 可置換式低碳排智慧綠建築之系統整合開發技術及運行評估研究

執行單位

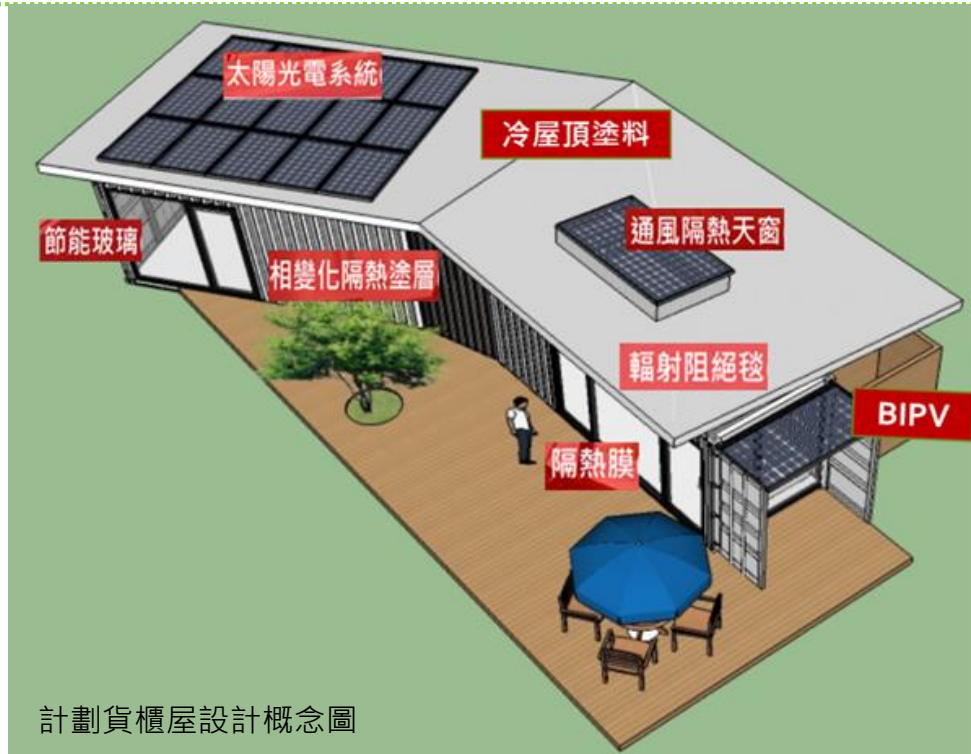
國立中央大學機械工程學系

計畫主持人

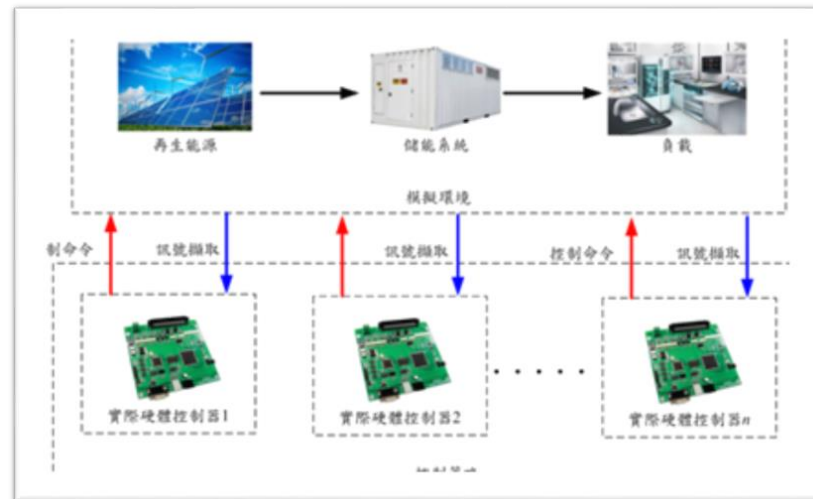
曾重仁

- 整合高效能建材、建築微電網、能源監控系統、智慧空調及智慧照明系統之關鍵技術，建立一具備可獨立評估創能、儲能、節能及系統整合功能之示範場域，並開放參觀以提高民眾對於低碳排智慧建築之認識，未來可把此技術應用於一般住家，提高國內住宅之節能效率。

1. 預計申請專利：隔熱、防火與空氣清淨整合之窗戶構件設計
2. 研發專利申請中：雲端管理橋接器及雲端管理系統
3. 研發專利申請中：攜帶型空調衣



本計畫為跨主軸整合計畫，主要為配合政府之減碳政策與跨領域整合「創能」、「儲能」與「節能」三大國家型能源計畫主軸，進行低碳排智慧建築之系統評估與實地建置，整合高效能建材、建築微電網、能源監控系統、智慧空調及智慧照明系統等關鍵技術，同時導入一創新想法「可置換式」：示範場域中主要設備皆有隨插即用(Plug-and-play)之特性，具備可獨立評估創能(太陽能)、儲能(鋰離子電池等)、節能(高效能建材)、節能空調、先進照明及系統整合(能源資通訊、智慧電網)之功能，最終建立一示範場域將最新研發產品提供給產、學、研界進行實例驗證並開放參觀以提高民眾對最新低碳排智慧建築之認識。



# System development and operation evaluation for plug-in, replaceable, low-carbon, smart green buildings

Execution Unit

Dept. Mech. Eng., National Central University

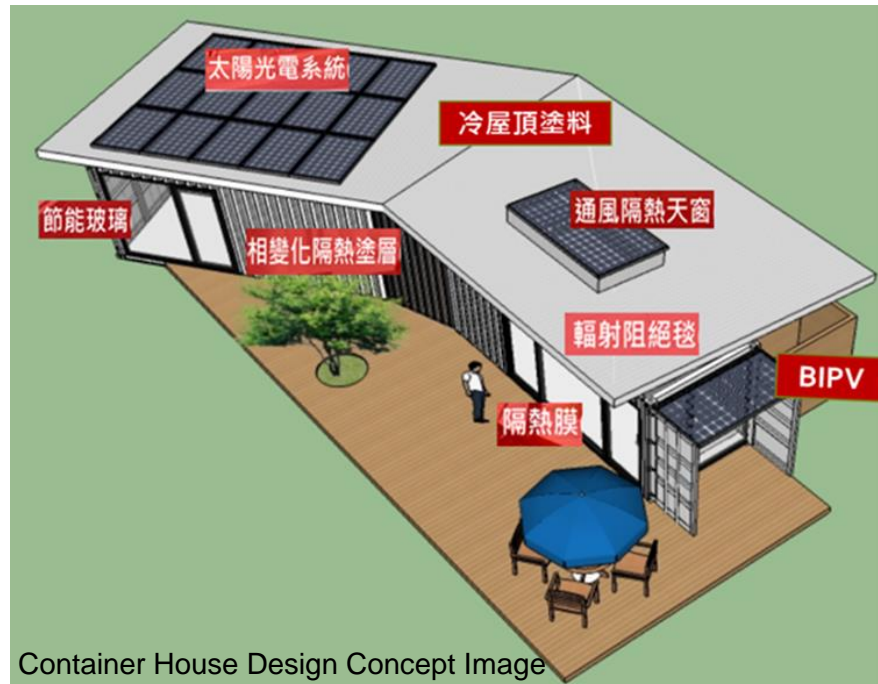
Project Director

Chung-Jen Tseng

- The aim is to integrate several key technologies, such as high performance building materials, micro-grid, energy monitoring system, intelligent air-conditioning and the advanced lighting systems into a residential housing. A demonstration site capable of independently analyzing and assessing single component will be built. The building will be open to the public for promoting the awareness of the latest low-carbon and smart building technologies.

The expected patent:

1. Fireproof curtain with heat resistant and air cleaning performance
2. Cloud management bridge and cloud management system
3. Portable air-conditioned clothing



Container House Design Concept Image

This project integrates several key technologies, such as high performance building materials, micro-grid, energy monitoring system, intelligent air-conditioning and an advanced lighting system, to construct a low-carbon and smart building for system development and operation evaluation.

Major devices in this building is plug-and-play ready, so that the system is able to independently analyze and assess the energy production (solar energy), energy storage (Li-ion battery, etc.), energy conservation (high performance building materials), high efficiency air-conditioning, advanced lighting and system integration (energy information and communication technology, smart micro grid).

In addition to being the verification place for innovative products from the industry, academia and research institutes, this demonstration site will also be open to the public for promoting the awareness of the latest low-carbon and smart building technologies.

