



作品名稱	架構於ZigBee無線網路之家庭燈光系統 Home Lighting System based on ZigBee Wireless Network
隊伍名稱	隨手關燈 Turn off the light
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### 作品摘要

中文作品摘要 節能省碳，從隨手關燈做起，這是未來智慧家庭的基本概念；當離開臥室忘記關燈，或不確定臥室的燈關了沒，要怎辦?走回臥室關燈或檢查又嫌麻煩，沒關係!未來智慧家庭無線燈光系統讓您不必麻煩就可節能省碳。

本系統在燈光的開關板及燈具上各別配置ZigBee無線模組，並且為達到隨手關燈的效果，希望在每個開關板上知道本身與其他房間的燈光是否點亮，而且希望能進一步將燈光關閉。因此，除了在設計上考慮到實用，以備萬一無線網路停擺時，讓使用者仍然可以手動操作燈光之外，本專題的特點可以摘要整理如下：

- 控制面板預覽家中所有燈光狀態。
- 任何房間操控其他房間的燈光。
- 使用ZigBee通訊協定，標準界面有利於將來的擴充。
- 使用2.4 GHz無線傳輸控制可穿越樓層、隔間，遙控範圍更廣。

### Abstract

Turning off the lights when not in use is an important issue in energy saving and carbon reduction. It is the basic concept in the present research of the future digital-home life. Unfortunately it is very hard work for the occupants to always remember checking and turning off the lights every time before leaving the room. Hence this project tries to offer a wireless home-lighting system which makes the occupants turn off the lights very conveniently at any room of the house.

The wireless-lighting system consists of several switches and lights which are all equipped with a ZigBee module in order to form a wireless network. The switch modules are designed to display the statuses of all the lights in the house and further turn on or off the lights. A manual switch is also equipped in the switch module to keep the light system work normally under the condition that wireless network breaks down. The features of the project can be summarized as follows:

- All lights in the house can be accessed and their statuses are also displayed at any switch module.
- 2.4 GHz ZigBee protocol is employed in the system to extend the control range. Lighting control across different rooms becomes possible.