

# 無線通訊技術聯盟研究計畫報導

無線通訊技術聯盟在企業界支持下於一年前成立，年屆週年，聯盟完成無線區域網路關鍵技術開發，相關研究成果已集結成八冊教材（含高頻、中頻、基頻、系統、軟體設計原理及實驗），並於1998年4月至6月針對聯盟企業開辦培訓課程共計54小時，參與人數計247人。

藉由種子計畫之進行，有數十位同學參與，同時，計畫初步成果獲得各界肯定，聯盟逐步爭取政府經費，建構“無線通訊產學合作研究實驗室”，期望參照國際間知名研究中心產學合作模式，促成學界業界資源交流，共創新紀元。

目前完成之相關機制計有：

1. 元件開發及資源共享實驗室 (Prototyping Open Lab.)
2. 認證測試實驗室 (Measurement & Testing Supporting Lab.)
3. 整合設計顧問諮詢實驗室 (Design Methodology Solution Center)
4. 人材培訓及訓練教室 (Continuing ED. Program & Training Lab.)

實驗室面積共三百坪，軟硬體設備總值上億，於六月十九日舉辦無線通訊技術聯盟年會，聯盟第二年將以GSM作為設計目標並尋求國外著名廠商合作，敬請惠賜指教，提供未來合作建議，共同開創產學合作雙贏模式。

## 無線通訊產學合作研究實驗室

### Wireless Communication Laboratory

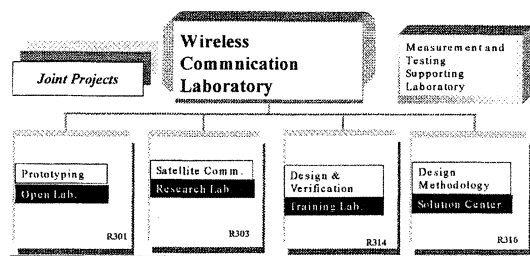
(A Partnership of NCTU and Industry to Explore New Technologies for Wireless Systems)

研究領域包括：

- System:
  - GSM900/DCS1800
  - IS-95, PACS
  - IEEE 802.11

- Software:
  - Mobile Computing
  - Protocol Design
  - Application Software
- Circuit Development:
  - RF/IF Circuit Design
  - DSP Algorithm and Implementations
  - Controller      Algorithm      and Implementations
  - Circuit System Design

初期規劃如下：



#### ■ Prototyping Open Laboratory

Seed fund are raised from industrial consortium members for non-commercial R&D projects. The design achievement will then be the base for applying government funding to build up sufficient equipment and human resources for advance research. Industrial affiliation program will be specified to provide technology promotion for industrial members.

#### ■ Design and Verification Training Laboratory

A 200 Yd2 training space equipped with 30 Ultra5 workstations are setup by NCTU and vendors to provide continuing normal education. Course contents and lectures are provided by professors and students of the

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research team. Long distance learning environment of NCTU will also be applied for technique promotion.

Design Verification Environment for GSM was first established with fully support of Synopsys, Acer, Deftel, and Mixer. DVE for WCDMA or advanced systems will be established thereafter.

## ■ Design Methodology Solution Center

Design Automation environment for wireless communications was established with fully support of EDA vendors. Integrated design from RF, IF, baseband to protocol are being constructed to support co-simulation and thus effective design can be provided.

## ■ Satellite Communication Research Laboratory.

Specific equipment and researches for satellite communications are being developed.

## ■ Measurement and Testing Laboratory

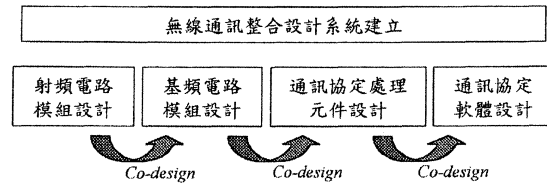
Testing and measurement environment for circuit design, especially for RF design was constructed in cooperation with National Nano Device Laboratory located on the same building. Industrial as well as academic services are both provided to support related circuit measurement and testing.

## Tentative R&D Project for 1988

無線通訊乃下一代技術發展應用指標，唯其技術涵蓋面極廣，需要高度技術整合；本研究群集合校內電信、電子與資訊相關領域教授，擬從事無線通訊電路元件設計，計畫內容包括整合設計系統建立、高頻中頻及基頻晶片組及通訊協定軟體處理元件設計；計畫將分為五部分進行分工如次：

- (1) 無線通訊整合設計系統建立 (子計畫一)
- (2) 射頻電路模組設計 (子計畫一)
- (3) 基頻電路模組設計 (子計畫二)

- (4) 通訊協定處理元件設計 (子計畫三)
- (5) 通訊協定軟體設計 (子計畫四)



研究群分工架構如下：

設計目標將以研究群原有之WLAN 設計經驗，及業界贊助設置之GSM 設計環境，首先以GSM Chip Set Design 作為第一階段設計目標；並將以 CDMA 為第二階段設計目標。期待於IMT-2000 規格確定時，相關之設計環境及經驗可即時針對該系統從事電路設計。無線通訊電路元件設計關鍵在於符合通道規範需求 ( Channel Model & Regulations )，且基頻、射頻、與協定元件之間在設計規格 (Design Specification ) 界定上亦有相互影響，因此，本計畫 將著重各分項間整合設計環境之建立，研究成果將提供會員企業參考。

## 捐款徵信 (87.5.5~87.8.25)

87.05.12	湯國基	100,000
87.05.13	飛瑞(股)公司	300,000
87.05.13	魏坤雄	1,000
87.05.18	張寶心	2,000
87.05.18	安崧豪	2,080
87.05.19	蔡宗哲	100,000
87.05.27	陳盛炎	100,000
87.07.14	聯華電子文教基金會	1,000,000
87.07.20	葉橫耀	1,300
87.07.22	湯錦泓	20,000
87.07.22	張維仲	30,000
87.07.24	談雲生	20,000
87.07.28	黃文遠	100,000
87.08.07	陳頌名	100,000
87.08.19	魏坤雄	1,000
87.08.24	友訊科技股份有限公司	500,000