車載電信服務整合技術
Telecom Service Integration for Intelligent Transport System

Chiang, Wei-Kuo (江為國)
Assistant Professor
Department of CSIE
National Chung Cheng University
Office : EA 311
Phone : 05-2720411~33126
Email : wkchiang@cs.ccu.edu.tw
URL : http://www.cs.ccu.edu.tw/~wkchiang/
IMS + ITS (1/2)

WLAN, WiMAX, GSM, GPRS, 3G & B3G

Radio Access Network

Internet

Context-Aware Service Provisioning

Presence
PoC
eCall
IPTV

Home Network

Access Point

Car to Car

Car to Road

Roadside Assistance Service Provider

Sensor

Sensor

Sensor

Sensor
IMS + ITS (2/2)

Radio Access Network

- WLAN
- WiMAX
- UMTS
- GPRS
- GSM

IMS Core Network

- eCall
- IPTV
- Presence
- PoC

Context-Aware Service Provisioning

Telecom Service Integration for ITS Syllabus
Contents

- **Introduction to services of ITS**
  - Introduction

- **Network architecture of Vehicle Communication**
  - intra-vehicle, vehicle-to-vehicle, vehicle-to-roadside

- **Heterogeneous Radio Access Networks**
  - WLAN, WiMAX, GSM, GPRS

- **IP Multimedia Subsystem (IMS)**
  - SIP, CSCF

- **IP Multimedia Services**
  - IM Call Model, Presence, PoC

- **Vehicular Communication Gateway (VCG)**
  - OSGi

- **Telecom Service Integration for ITS**
  - eCall
Lecture Plan (1/2)

Telecom Service Integration for ITS

Syllabus
Lecture Plan (2/2)

- **Cellular Networks**
  - GSM, GPRS, IN/CAMEL

- **IP Multimedia Subsystem (IMS)**
  - SIP, All IP Network, IMS, CSCF, IM Call Model

- **IP Multimedia Services**
  - Presence, PoC

- **Vehicular Communication Gateway (VCG)**
  - OSGi, SIP-UPnP Mapping

- **Introduction to services of ITS**
  - Related Standards & Specs

- **Network architecture of Vehicle Communication**
  - intra-vehicle, vehicle-to-vehicle, vehicle-to-roadside

- **Telecom Service Integration for ITS**
  - Emergence Call (eCall)
Lab Plan (1/2)

- Car wireless environment setup and multimedia application experience
  Bluetooth technology application with Zigbee technology application example

- Vehicle telecommunication service eCall development experiment

- Network and mobile hotspot construction (802.11 + 802.16)

- Car network setup and efficiency experiment
  802.11p vehicle network environment setup and efficiency measurement
  802.16 vehicle network environment setup and GPS global positioning system

- SIP-OSGi Gateway development experiment

- IMS system simulation environment setup experiment

Telecom Service Integration for ITS  Syllabus
Lab Plan (2/2)

- IMS 系統模擬環境架設實驗
- SIP-UPnP Mapping 開發實驗
- 車載電信服務開發實驗
- 車間網路架設與效能實驗一
- 車間網路架設與效能實驗二
- 異質網路環境架設與應用
- 車內無線環境架設與應用實驗
Course Materials

- Next Generation Intelligent Networks
  - *2002 by Johan Zuidweg (Artech House)*
  - GSM, GPRS, CAMEL

- IETF RFCs
  - RFC 3261 - SIP

- 3GPP Specifications
  - TS 23.228, TS 23.218 - IMS
Grading

- **Midterm Exam** 35%
- **Final Exam** 25%
- **Projects** 40%
  - 車間網路架設與效能實驗一 5
  - 車間網路架設與效能實驗二 5
  - 異質網路環境架設與應用實驗 5 (2選1)
  - 車內無線環境架設與應用實驗 5 (2選1)
  - IMS系統模擬環境架設實驗 5
  - SIP-UPnP Mapping開發實驗 10
  - 車載電信服務開發實驗 10
Any Question?

Mobile All-IP Networking Laboratory
Department of Computer Science & Information Engineering