6LoWPAN Applications and Internet of Things

Reza Khoshdelniat
MIMOS Bhd, Malaysia
30th APAN Meeting
Hanoi, Vietnam
Outline

- Internet of things
- 6LoWPAN
- MIMOS activities
- Q&A
The Internet of Things

- Smart Home
- Power Company
- Smart Grid
- Vehicle Monitoring
- Traffic Monitoring
- Tele health
- Hospital
- Student Monitoring
- Child Monitoring
- Personnel Monitoring
- Smart Office
- Asset Monitoring
- Car Park Management
- Power Company
- Hospital
- Student Monitoring
- Child Monitoring
- Personnel Monitoring
- Smart Office
- Asset Monitoring
- Car Park Management
What do we need for the internet of things?

- Wireless Sensor Nodes
- IP based communication stack
- IP address on the wireless sensor nodes
- Network infrastructure within the city

6LoWPAN (IPv6 over Low power Wireless Personal Area Networks)
6LoWPAN

- 6LoWPAN is an adaptation header format
  - Enables the use of IPv6 over low power wireless links
  - IPv6 header compression
  - UDP header compression

- Format initially defined in RFC4944
Comparison between 6LoWPAN, WiFi Tag, and Zigbee

- **2-way communication**
- **Multi-hop Mesh routing**
- **Mobility**
- **Multicast**
- **Scalability**
- **Low Power**
- **Low Price**

- **6LoWPAN**
- **WiFi Tag**
- **Zigbee**
MIMOS projects for 6LoWPAN

Products:
- 6LoWPAN Sensors
- 6LoWPAN Gateway
- 6LoWPAN Communicator

Security:
- Sensor to Gateway Security
- End to End Security

Mobility:
- Single PAN Routing
- Inter PAN Mobility
- NEMO

Others:
- SNMP
- Multi Address Binding
Publications: 4  
Patents: 5 filed  
- 5 in filing process  
- Low Power Personal Area Network IPv6 Communicator  
- 6LoWPAN Short Address Translation Method within Dual Stack Home Gateway  
- Method of direct communication between 6LoWPAN communicator and 6LoWPAN sensor node  
- Method of secure direct communication between 6LoWPAN communicator and 6LoWPAN sensor node  
- Method of communicating signal in 6LoWPAN network to IPv6 network
Areas of work

Use Cases

- Logistics
  - Transportation Monitoring
  - Car Park Management
  - Traffic Management
- Health
  - Hospital
  - Tele Health Monitoring
  - Animal Health
- Military
  - Soldier Monitoring
  - Vehicle Monitoring
  - Battle Management
- Environment
  - Forest Monitoring
  - Sea Monitoring
  - Smart Home & Office
- Security & Management
  - Personnel Tracking
  - Asset Tracking
  - Child Monitoring
Applications and projects

Live stock monitoring

- Live Stock Monitoring Application
- Health Analysis Diagrams
- Twitter Notifications
Applications and projects

6LoWPAN communicator

• 6LoWPAN Communicator Interface

• 6LoWPAN communicator
direct communication with
the 6LoWPAN sensors
Applications and projects
6LoWPAN gateway

WIWI 1.8

• 6LoWPAN Gateway
• Wi-Fi Access Point
• Application ID : 10-00437-0101
THANK YOU

Q&A