Cloud-based Green IoT Solution

http://www.insnergy.com

財團法人資訊工業策進會
INSTITUTE FOR INFORMATION INDUSTRY

Needs

- What to do if price of energy is rising, such as Electricity, Oil, Gas…etc.
- Do you know the power consumption of your consumer electronics or machines.
- How to save your money
- How to management the power consumption.

Intelligent Energy Management

In-Snergy = Internet Smart energy

2011 R&D 100 Awards

Cloud-Based

Green Iot Platform

Green Solutions for …

Green Solutions

iFamily

Applicable for household, B&B and Hotel

Your Smart Energy InSnergy

Stratus

Exclusive solutions to minimize difficulties in integrating various software and hardware systems

Ectuary

For large areas such as commercial and office buildings, factories and shopping malls

In-Light

For lighting of large areas such as streets, parking lots, campuses or parks

LIZA

For medical care facilities, fire protection, schools and households

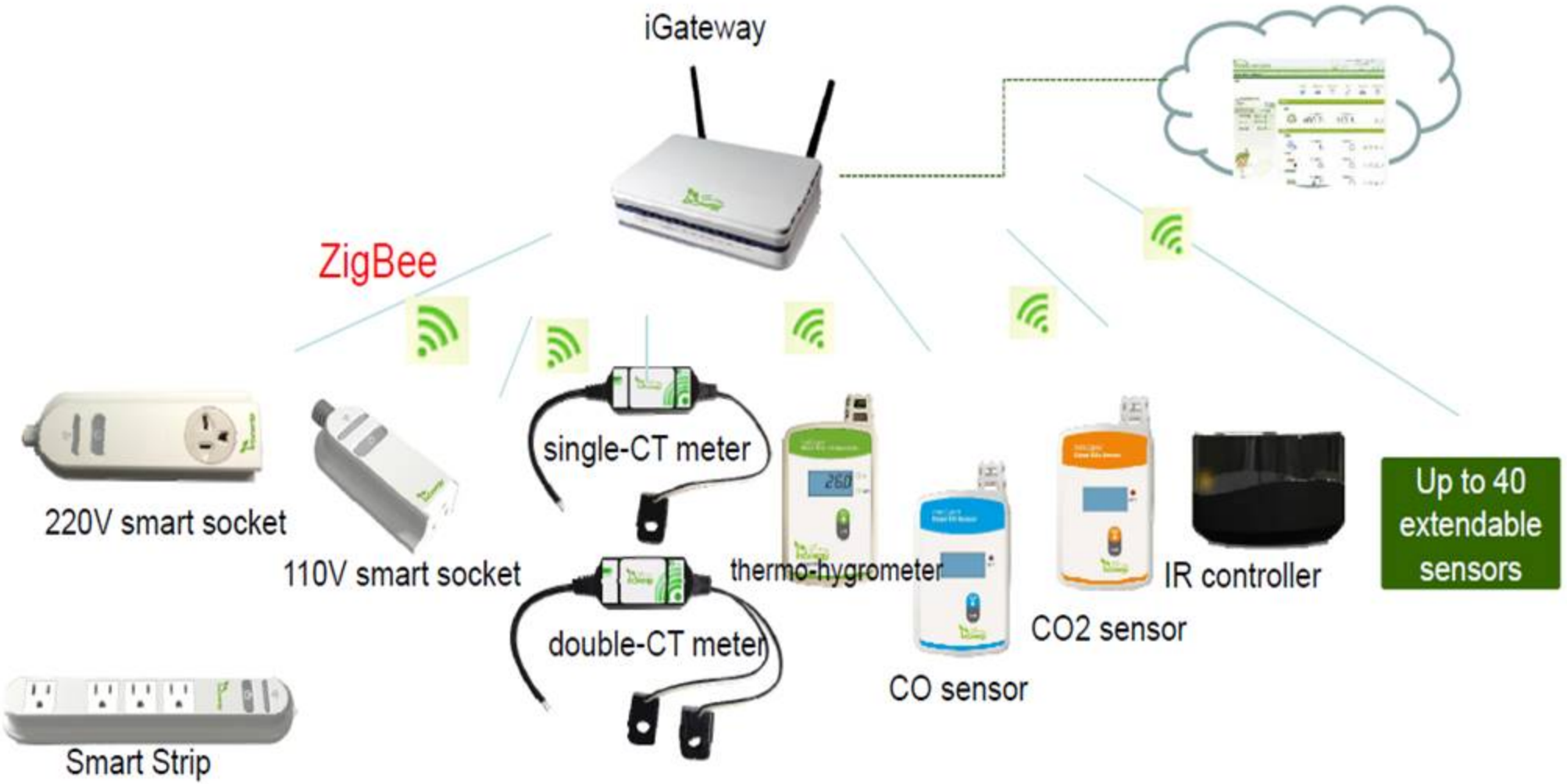
智慧家庭

Smart Home Energy Management Solution

iFamily Smart Home Management

Applications

Comprehensive Smart Cloud Package



iFamily產品 - 無線迷你閘道器

iFamily產品 - 紅外線控制器

Use ases

System Functions

Real-time power Monitor and Analysis

Provides power consumption (kW) and historical data and statistical monthly report for power rate.

Control the power via Internet or App

Offers the usage status of appliances, such as current power consumption, on/off status, and monitors for power overload, User can turn on/off the appliance via mobile phones.

System Functions

Control the power by Scheduling

Provide flexible scheduling, e.g., once, daily, weekly and times of turn on/off.

Equipment error – Alert and inform

Detect if the loading of power usage and sensor exceed the threshold limit value, and informs the user immediately via mail.

Enterprise Energy Management (Energy Actuary)

Ectuary Solution

The Ultimate Solution for Power Management Systems

- Centralized Management
- Device Monitoring
- Comprehensive Professional Reports
- Optimal Electricity Price
- Expert Diagnosis
- Linked Alarms

Ectuary Framework

Application Services

ESCO Operators
- Demand supervision
- Smart-linked control
- Avoid exceedance fines

Group Enterprises
- Large-scale energy management
- Lower operating costs
- Implement sustainable management

Equipment Manufacturers
- Service bonuses
- Product integration interfacing

Cloud

Ectuary | Services | Analysis | Diagnosis | Storage

Analysis Diagnosis

Current Side

Atlas Energy Solutions | Atlas Air compressor Solutions | Atlas Lighting Solutions | ...

Stable Control

Equipment Support

System Benefit

- To monitor appliances ' energy consumption status.

- To locate low-efficiency operational appliances.

- To Find the appliances with abnormal energy consumption.

- To reduce peak-hour power use.

Case Sharing

Guo-Mei Times Plaza

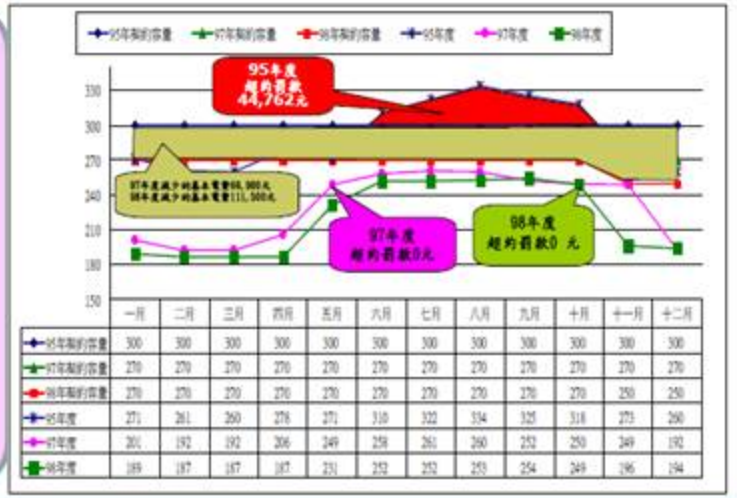
- **Lower the contract capacity 200KW**
- **Power bill saving USD 14,864 /year**
- **Issues**
  1) Lack of centralized energy management
  2) No demand exceed management
  3) No environmental monitor
- **Actions**
  1) Demand management
  2) Monitor the circuit power consumption
  3) Environmental detection

Case Sharing

Guo-Mei Times Plaza

- Building : 10 floors above ground and 5 floors under.
- Low-voltage electric demand with 300KW contract capacity.
- 5 months a year over the contract capacity and got 1,492 USD penalty in total.
- Average power factor 83%.
- Difficult to understand the reason and time of over power consumption.

- Set up intelligent power management system to monitor real-time power consumption.
- Monitor the air conditioning and control power demand based on forecast.
- Improvement of power factor: 83%→100%.
- Optimize the consumption and structure of power rate.
- Saving 3,716 USD / year.

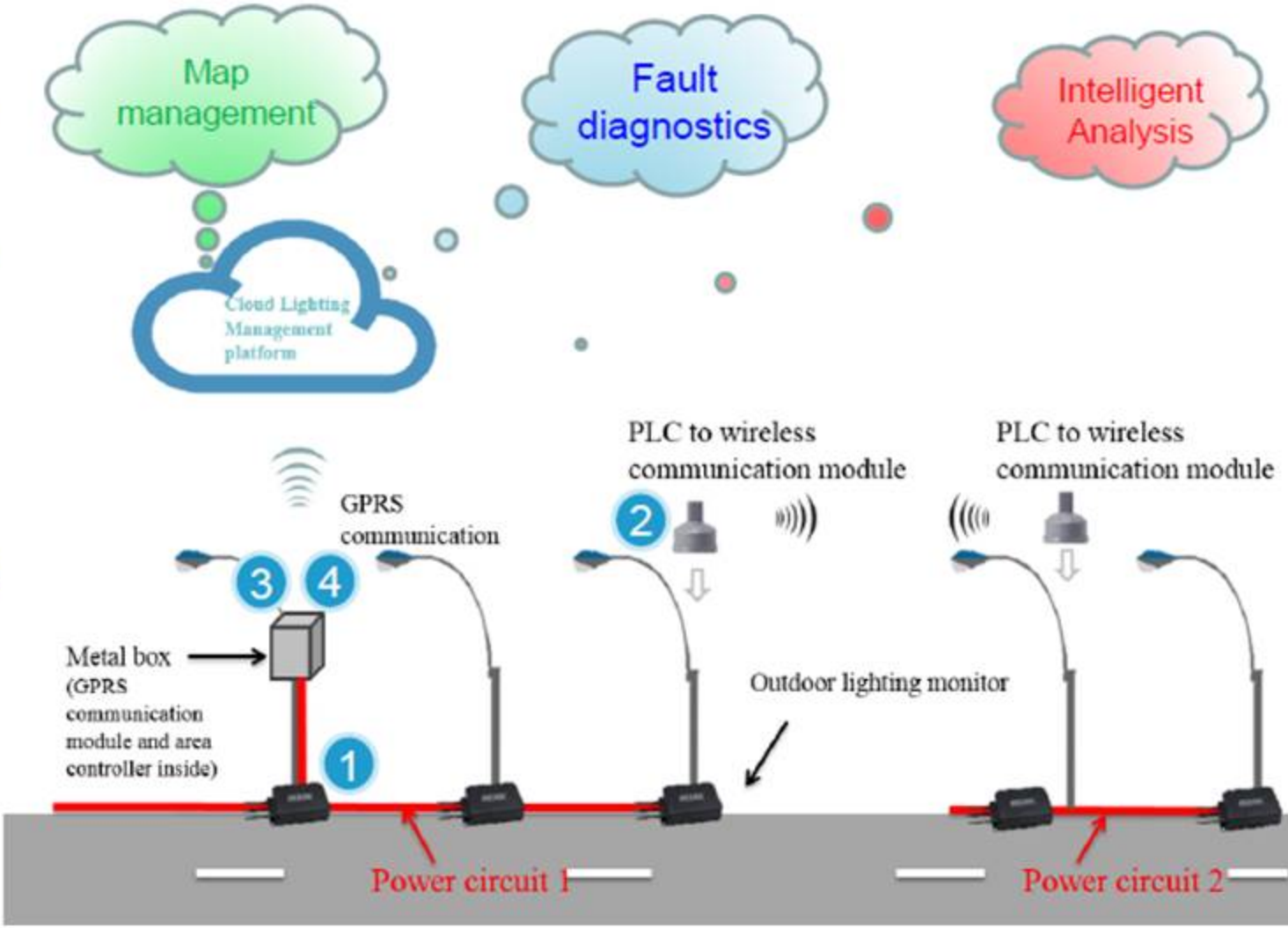


	一月	二月	三月	四月	五月	六月	七月	八月	九月	十月	十一月	十二月
95年契約容量	300	300	300	300	300	300	300	300	300	300	300	300
97年契約容量	270	270	270	270	270	270	270	270	270	270	270	270
98年契約容量	270	270	270	270	270	270	270	270	270	270	250	250
95年度	271	261	260	278	271	310	322	334	325	318	273	260
97年度	201	192	192	206	249	258	261	260	252	250	249	192
98年度	189	187	187	187	231	252	252	253	254	249	196	194

Intelligent Lighting Management

IN-LIGHT Solutions

1. **Lighting controller:**
   Control & monitor the power consumption of street lights
2. **PLC to wireless module:**
   Transform PLC signal to wireless communication
3. **Communication module:**
   Providing GPRS communication to cloud lighting management platform
4. **Local gateway:**
   Managing outdoor lighting monitor, include connection and control



IN-LIGHT Solutions

In-Light

Single Control

- Real-time monitoring & control & Dimming
- Street light curriculum vitae
- Detail map information

Circuit Monitoring

- Low-cost deployment
- High capacity of various lamps
- Street Circuit Fail Detection

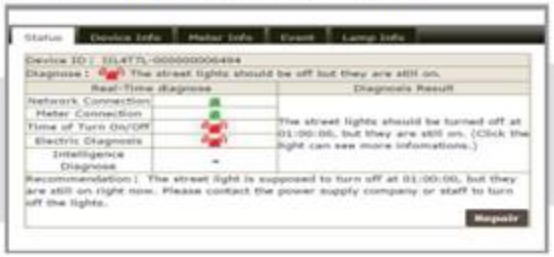
Circuit Control

- Real-time monitoring & control
- High capacity of various lamps
- Street Circuit Fail Detection

IN-LIGHT Feature

Light Health Status

Upon receiving the street lighting inspection reports, the administrator may realize the abnormality status and cause analysis of the street light.

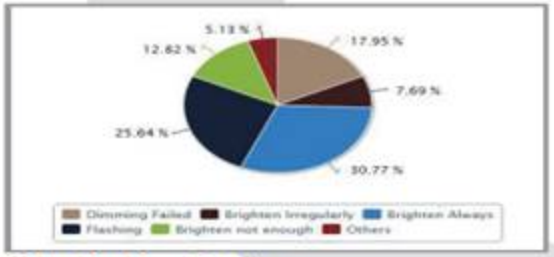


Map Style Management

Monitoring interface supports more than 3 map databases such as Google Map, Bing Map, Open Street Map.

Intelligent Diagnosis

Different from any ordinary settings, In-Light provides a variety of smart diagnosis based on the historical statistic data for detection of any abnormalities that may not be usually discovered.



Statistic Data

Statistic power consumption, usage hours and factor of disorders is available for identifying the most plausible devices, fields of the disorders and energy saving index.

Repair Management

The repair and notification integration mechanism accelerates the repairs and maintenances.

Mobile App

A mobile value-added app provides functionality and locations for rapid street light management and repair.

IN-LIGHT Case Sharing

Monitor and control 60 lights in the TUT university in South Africa.

South – TUT University

- It's difficult for staff to check the status of every street lights in wide area. Besides, the broken light can not be noticed immediately which may cause accident in school. Install the intelligent system in TUT lighting is not only promote the technology of this platform, but also prove the reliability of this technology.
- Four circuit with 60 lights.

Renewable Energy Management

LIZA Solutions

Generation effectiveness

Monitor generation and consumption status	• Monitoring solar panel power generation 24/7 • Comparison of sunlight intensity and power generation • Monitoring back-end consumption load and power sale
Generation efficiency statistical analysis	• Analyzing whether the solar panels are generating up to standard (PR and RA values) • Calculating overall generation effectiveness
Generation abnormalities detection and reporting	• Detecting generation abnormalities and reporting via web system and e-mail • Detecting inverter functionality

Note: PR-performance ratio / RA- array ratio

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LIZA Features

- **Cloud-based cross-platform service framework**
  By logging into the account, the user can remotely access power generation information, achieving real-time cloud monitoring across facilities and countries without support from additional equipment.

- **Single-interface management**
  Enables multiple-facility management without switching accounts - easy access to generation information in multiple regions and monitoring of any equipment.

- **Easy operation**
  The graphic interface with the functions clearly accessible allows for quick learning and easy management.

- **Comprehensive graphic analysis**
  Clear graphics allow for a comprehensive presentation of generation analytical reports, including generation information, electricity costs, carbon dioxide emissions, and equipment connection.

- **Suitable for large and small facilities**
  Various renewable energy monitoring components are available for any scale of power generation. Installation is simple. Enables large-scale or multiple-facility management and 24/7 real-time monitoring.

LIZA Benefits

Power generation information made transparent.
Power generation information is monitored in real time. Data collection and analysis makes the information transparent.

Optimize power generation capacity.
The system sends immediate notifications on abnormal events, shortening the repair time and reducing declines in power generating capacity caused by malfunctions, thus ensuring solar power generation systems are always at optimum power generation capacity.

Intelligent power management.
Users can conduct remote monitoring via the internet, with no on-site management and maintenance needed.

Comprehensive analysis.
Comprehensive analyses generated by the system assists administrator in adjusting management strategies, improving significantly the management efficiency.

LIZA Case Sharing

Nigeria 2013 Sep.

Location: Government Secondary School Garki

Solar panels on the roof of a classroom

Solar power control box installation

Solar power monitoring system installation

Stratus Web API

Stratus Web API

3rd Party Developer

Web API

iFamily

Ectuary

InLight

Core Server

DB

Gateway (GW)

Sensor/Meter/Controller

Model of Collaboration

Business

➢ Technology Authorization

- Technology
- Software purchase
- API offer

➢ Project Collaboration

- Projects Collaborating domestically or internationally
- Co-bidding or Project implementation

➢ Co-Development

- Technical support or consultation for their own products
- Collaboration in new product development.

➢ Distribution Collaboration

- Selling Insnergy i-Family products domestically or internationally.

➢ User

- Purchase Products Directly from Internet or local Dealer

THANK YOU