

MDK-Shiba Product overview

(M2M System Development Kit)

- Real Time Java prototyping, evaluation, & more -

November, 2014

Valley Campus Japan, Inc.



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- ❑ **Founded in 2002**
- ❑ **VCI (Valley Campus, Inc.) in Silicon Valley**
- ❑ **VCJ (Valley Campus Japan, Inc.) in Fujisawa, Japan**
- ❑ **Mission:**
 - **Contribution to Society Through
Leading Edge Technology & International Collaboration**
- ❑ **Product:**
 - **M2M Components**
 - **M2M Development Kit**
 - **M2M Platform Solution**
 - **M2M System Solution**
- ❑ **Community/Partner**
 - **M2M Study Consortium**
 - **University/Junior College**
 - **SI/IHV/ISV : Japan, USA, EU, Asia**

Our Focus on Technology Trend

M2M Technologies

(Machine to machine)

A M2M device captures various data such as temperature, power consumption, smoke or motion detection, etc. and transmits data to application software through a network. Application software analyzes, processes the data for monitoring, reporting and/or control.

Wireless sensor network

A wireless sensor network consists of many distributed sensors to monitor environmental conditions and to transmit the data to application software through the network. ZigBee is a low-cost, low-power de facto standard in sensing network technology, and in short-range wireless transmission.

Ubiquitous environment

Flexible network accessibility by various client terminals and application programs is crucial in M2M environment. Cloud computing service accessible by anybody at anytime from anywhere is required. REST/XML is best fit technology for such system requirement.

M2M Application Examples

M2M Application: Monitoring & Control (Wired or Wireless)

- Smart Home/Smart Office/Smart Hotel (Energy Saving)
- Smart Factory/Smart Hospital/Smart Station (Energy Saving)
- Smart City (Energy Saving)
- Smart Energy (Energy Saving)
- Medical Instrument Monitoring (Health Care)
- Device Remote Monitoring (Factory Automation)
- Stock management and tracking (Supply Chain Management)
(Vending Machine, Warehouse, Shop)
- ITS (Intelligent Transport System)
- Environment Remote Monitoring: Forest, Farm, Park, Ocean etc:
Draught, Earthquake, Tsunami, Flood,
- Animal/Fish Remote Monitoring

M2M: Machine to Machine/Management/Mobile through Network

M2M System Development Kit

MDK-Shiba from Japan & Silicon Valley

MDK-Shiba impact

A single MDK brings you a fully functional M2M system!

- M2M Technology (machine to machine): Global trend
 - A M2M device captures various data such as temperature, power consumption, smoke or motion detection, etc. and transmits data to application software through a network node.
 - Smart phones, mobile phones, PC, etc. can access data through the network.
 - MDK-Shiba is a network node totally based on M2M global standard.
- ZigBee Wireless sensor network: Global standard
 - ZigBee is a low-cost, low-power de facto standard in sensing network and short-range wireless transmission.
 - MDK-Shiba can be a powerful ZigBee gateway for various wireless sensors.
- MDK-Shiba + various optional sensors realizes various kinds of M2M systems.
- And yet, MDK-Shiba is easy to use even for beginners.

Sample coding is available on the VCJ Web for reference.

MDK-Shiba Is the best choice, if you are a

- New business developer
- M2M researcher
- Smart phone app. developer for business/consumer market
- M2M educational staff
- early adopter trying to start brand new project with M2M

M2M System Development Kit

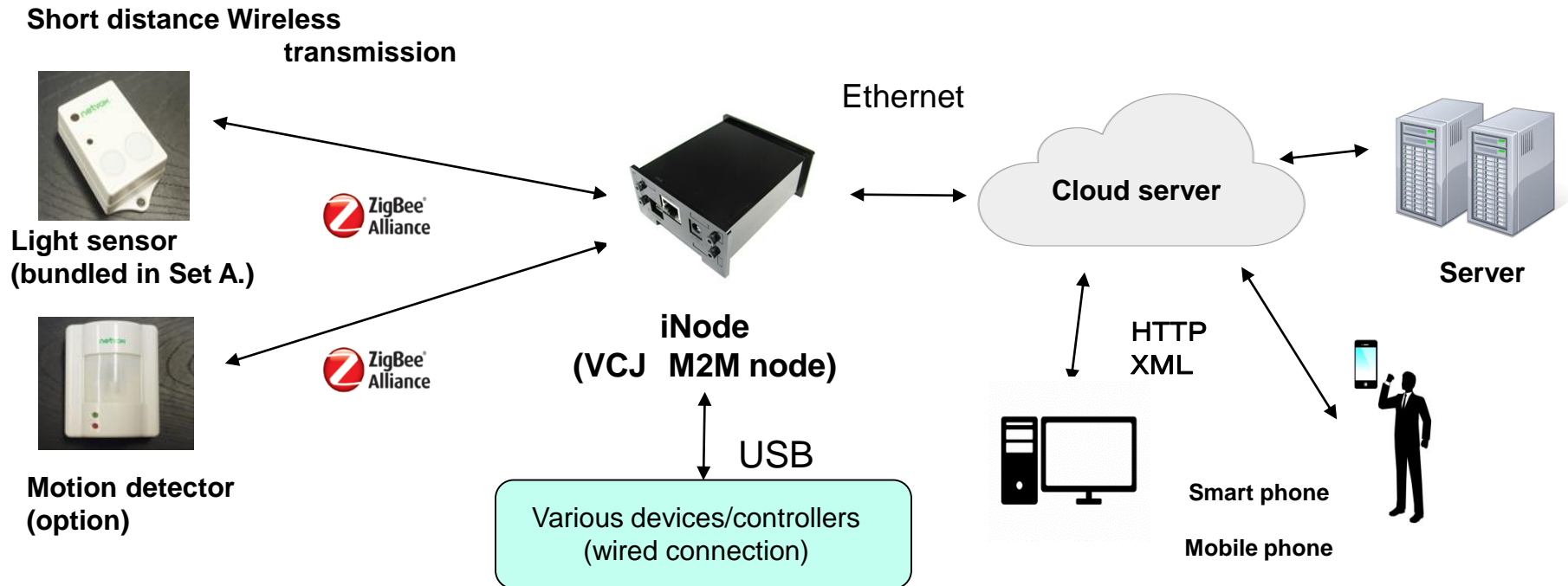
MDK-Shiba from Japan & Silicon Valley

Features

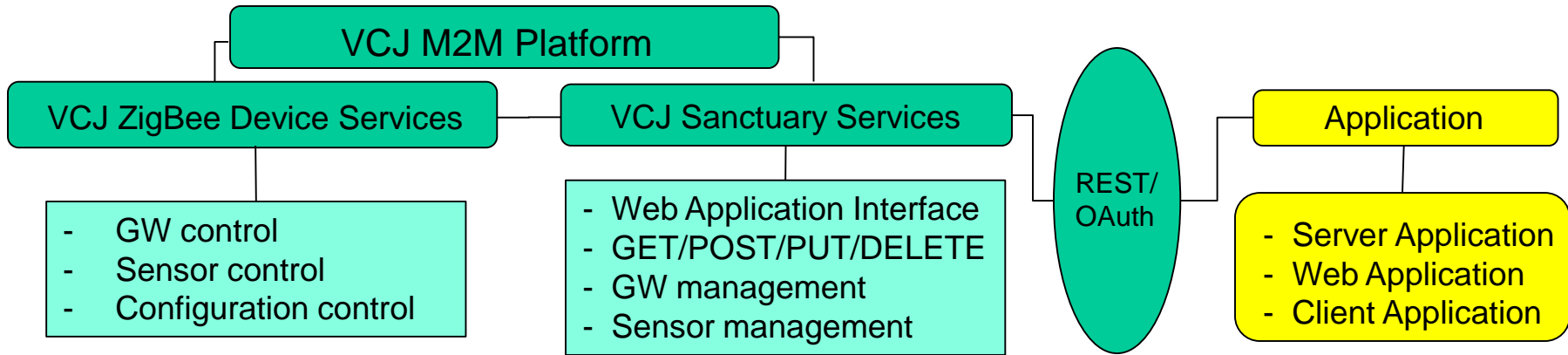
- Windows PC & Java
 - M2M software is mostly developed on PC.
 - Application SW is developed in Java, industry standard programming language.
- The best choice for researchers and development engineers:
 - MDK-Shiba offers leading edge M2M application platform.
 - Combination of MDK-Shiba & wide range of optional sensors will open up brand new, powerful application world, otherwise not feasible.
- Satisfies wide range of development needs:
 - One platform from prototyping to full deployment.
 - MDK-Shiba is compatible with production model (iNode+) with increased reliability.
 - Migration from prototyping phase to production phase is quick & smooth.
- Global Standard Platform:
 - MDK-Shiba is compliant with global technology standard.
 - MDK-Shiba based M2M system is immediately salable not only to domestic market but also to global market.
- Compact palm top size with Linux & ZigBee functionality
 - iNode box
 - Linux board + ZigBee board

MDK-Shiba Basic Product Offering (Deliverables)

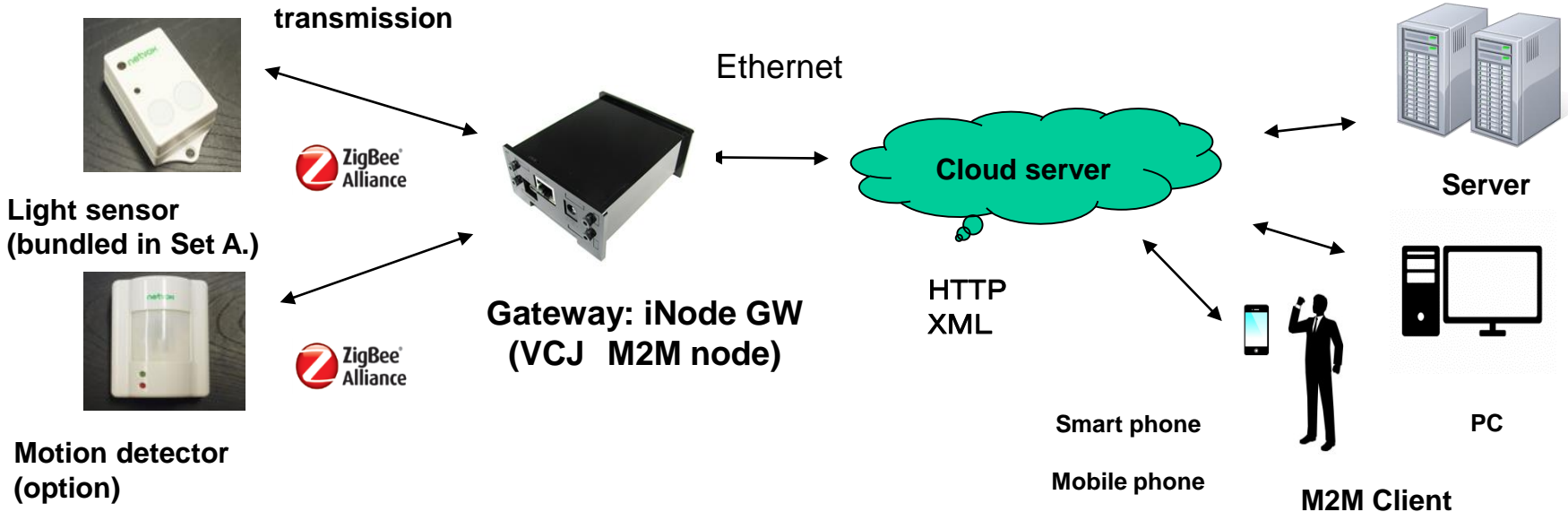
- Zigbee light sensor: 1 unit
- Zigbee iNode (Main board (CPU, memory, Jtag, etc))+ Daughter board (Zigbee)) : 1 unit
- S/W : Linux (SD card), M2M control SW, Zigbee control SW : 1 unit
- Development Tool S/W (Web download) : Open JDK, Net Beans, etc.
- Sample coding (Smart phone & Server) for reference (Web)
- M2M application (Smart phone & Server) development support environment
- M2M application (Smart phone & Server) development user guide



MDK-Shiba Sanctuary API



Short distance Wireless transmission



i Node Specification



- Compact palm-top size box
- Linux board + ZigBee board
- High performance (CPU ARM CORTEX A8 1GHz)
- Big main memory: 512MB DDR3 RAM, 2GB 8bit eMMC On-board Flash Storage
- Big auxiliary memory: 4GB Micro SD card with card connector

- Std. OS: Angstrom Linux (M2M all-purpose Linux distribution)
- Std. Connector: Ethernet RJ45 connector (on chip Ethernet)
- Std. Connector: HS USB 2.0 Host and Client Port USB Type A socket
- Std. I/O: ZigBee Short distance wireless transmission
- App. Dev. : Industry Std. HTTP development tool for smart-phone/Cloud app.
(No iNode built in SW Dev. Is required for M2M app. development.)
- : Open JDK (FTDI based serial/JTAG via mini USB) for
iNode built in SW development only



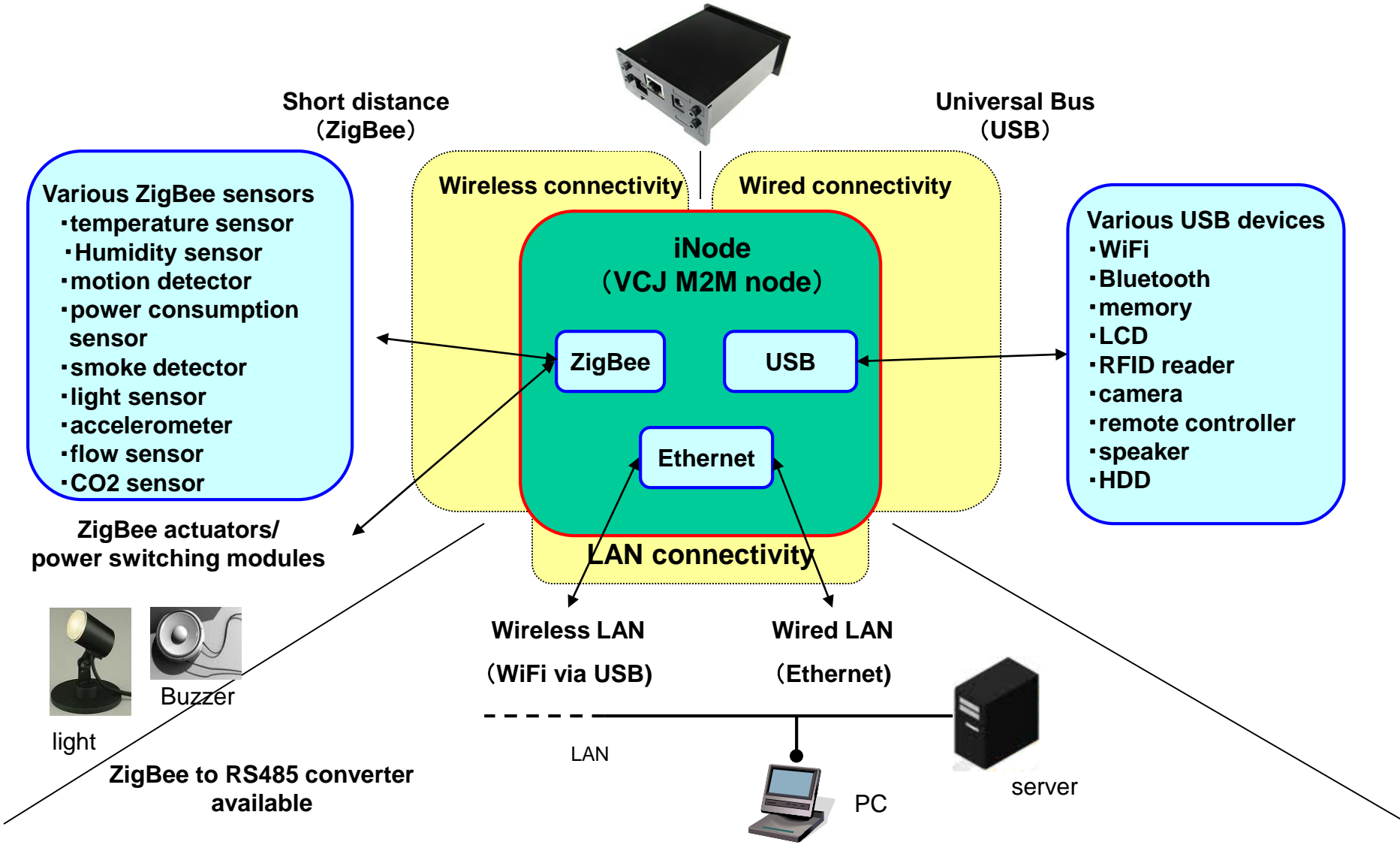
- Expansion connector: Industrial Standard connector 3.3V IO, 0.1 inch pitch
- Power (5V DC up to 2A) adapter: Plug type: 5.5mm OD/2.1mm ID
- Low power consumption, energy saving design
- Failure resistant design: Simple, fan less
- Operational in 0~53°C (incl. AC adapter)

<Notice on LAN setup : Port forwarding>

- The Sanctuary cloud server uses a designated port address for GW & sensor control.
- Local port forwarding is required for the communication between the Sanctuary cloud server and the iNode connected to the local PC.

* The specification might be changed without prior notice.

MDK-Shiba connectivity





MDK Shiba is a key to your success

— Thank you for your kind attention —

Valley Campus Japan, Inc.