

Introduction of I-O DATA DEVICE, INC.

I-O DATA DEVICE, INC.

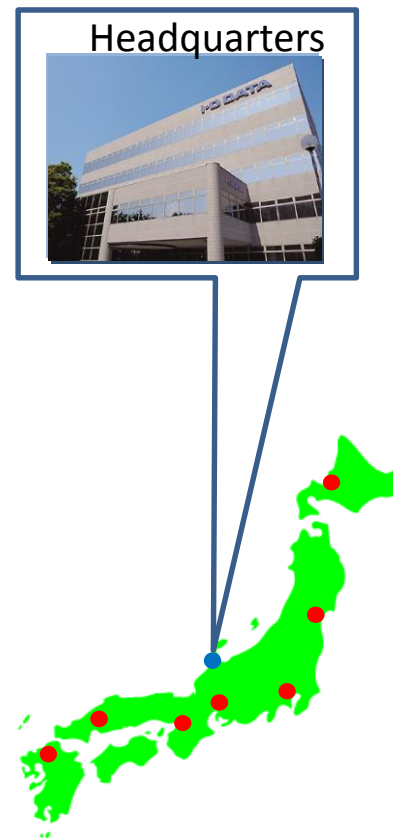
Akira Hirabayashi

2018.12.05

Corporate Profile

Corporate Profile

Company Name	I-O DATA DEVICE, INC.
Head Office	3-10, Sakurada-machi, Kanazawa, Ishikawa, 920-8512, JAPAN
Established	January 10, 1976
Chairman	Akio Hosono
President	Naonori Hamada
Revenue	44,946 million yen (Consolidated) - As of June 30, 2016
Paid-in Capital	3,588 million yen
Fiscal Year	July 1 – June 30
Employees	489 (Consolidated) - As of June 30, 2016 449 (Non-Consolidated) - As of June 30, 2016
Subsidiary Companies	TAIWAN I-O DATA DEVICE, INC. I-O DATA Hong Kong Ltd. I-O DATA America, Inc. ITG Marketing, Inc.
Affiliated Companies	I-O & YT Pte. Ltd. DigiOn, Inc. Creative Media K.K.



Overseas Base

I-O DATA Hong Kong Ltd.
(Established in 2002)



Head Quarters
Ishikawa prefecture, JAPAN
(Established in 1976)



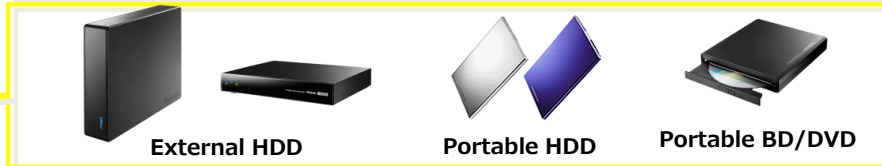
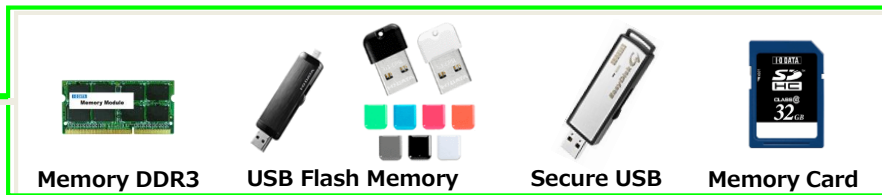
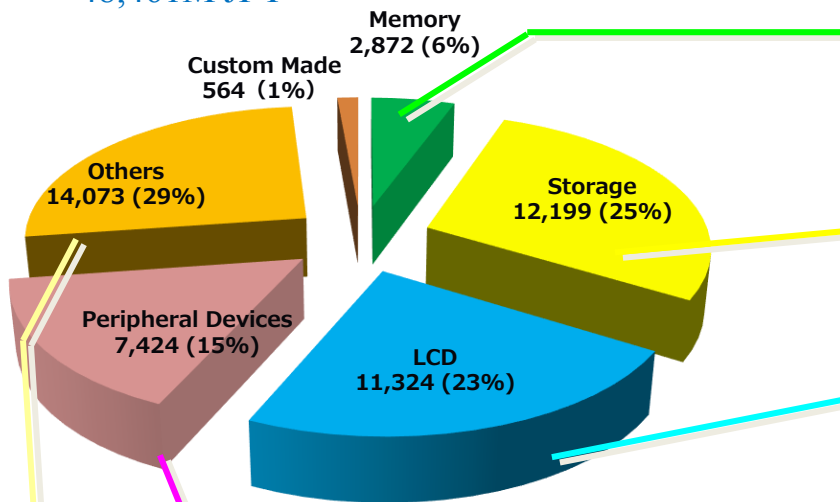
I-O & YT Pte. Ltd (Singapore)
(Established in 1998)



TAIWAN I-O DATA DEVICE, INC.
(Established in 1996)

Ratio of each product in sales

Sales Amount (July 2016~June 2017)
48,461M JPY



IoT's approach direction



Collection and processing of large amounts of data
Service provider

Value of service provider
Collect and process large
amounts of data,
Creating new value

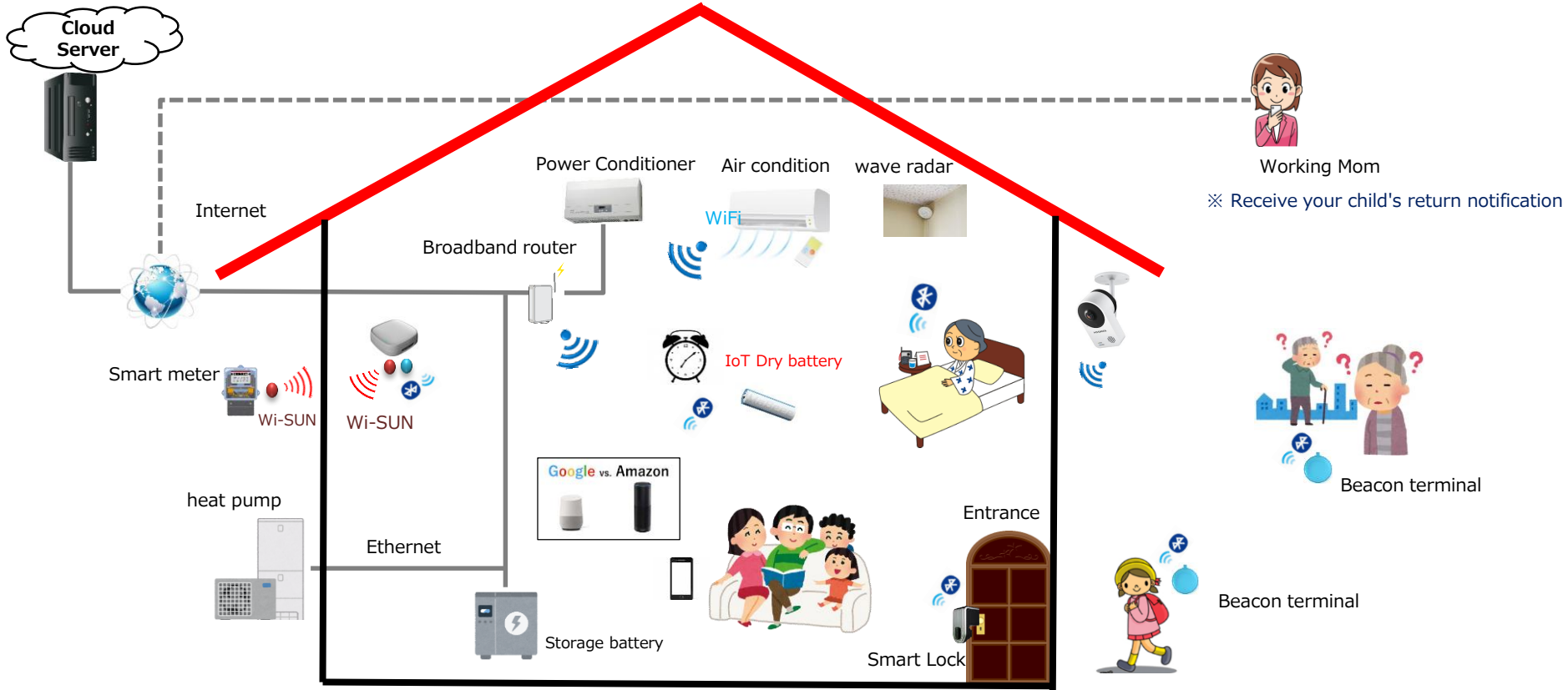
I-O DATA

Device vendor value
With device shape and sensor
performance,
Creating new value



Manufacture of devices and sensors
Device vendor

Construction of Smart Home platform



Construction of Smart Home platform

■ Build a device with IO (2019/3 ~)

- IR remote control
- Cooperation with module adoption vendors

- Collaboration with service company (ongoing ~)
We aim for collaboration with housing manufacturers and electric / gas companies

Built with I-O DATA

Smart LED bulb



IR remote control



Doorbell camera



Simple camera



Switch



Door, Temperature
Human Sensor



Collaboration with
home electronics
manufacturers



Smart Lock

Air condition



Deployment of network camera platform

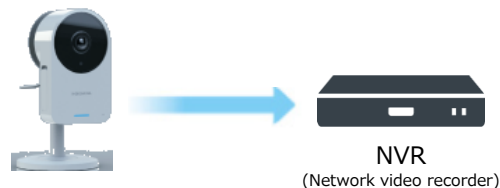
Camera API (Cloud mode)



Camera API (Local mode)



Camera API (ONVIF)



Case study



安心を見守る

Peace Eye™

ピースアイ



ペットみるん

TEPCO Energy Partner

Application embedded gateway

It is a gateway that allows customers to develop and incorporate their own applications.

- Based on standard GW, service based on required specification is installed
- "Customers can develop applications"
- Deployed at mass merchandising stores etc. as a commercial product of eye, I-O data
- "Reduce inventory risk and HW support of service companies"
- Share of services, collaboration with service companies



Door , Temperature Human Sensor



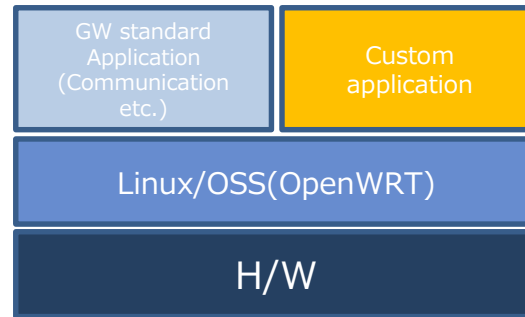
Smart Lock



Beacon Tag



Provide ToolChain / development document (library list)



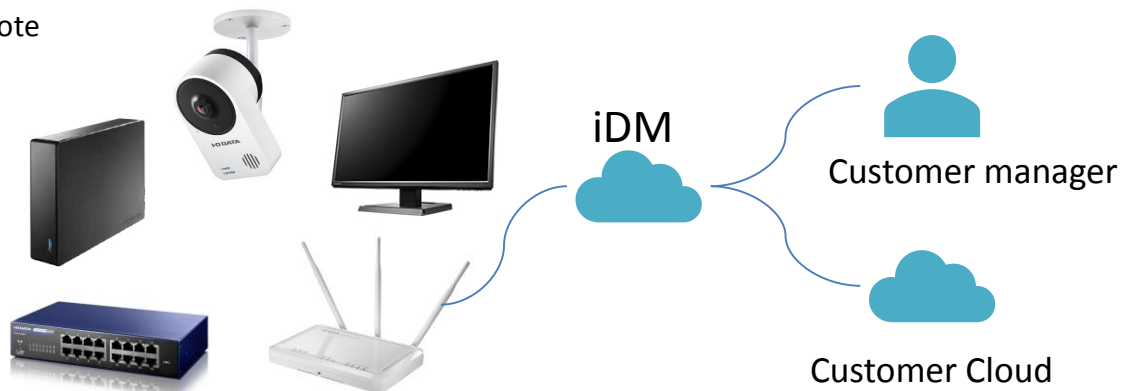
A vertical list of service providers and their offerings, enclosed in a rounded rectangle. From top to bottom: "maxell" in red, "Hemlia(HEMS)" in black; "DigiOn®" in red and black; "otta®" in black, with "Watching over service" below it; an orange box with "Lost article"; and another orange box with "Smart Lock".

Deploy remote device management function "iDM"

You can use "iDM" which manages devices at remote locations from API and Web console.

Offer function

- Device list / status display
- FW update
- Restart the device



Example of display on Web console

モデル名	MACアドレス	シリアル	FW	更新日時	オペレーション	ステータス
TS-WRLP	34:76:C5:7F:9C:EF		v1.12.01	2018/10/16 17:59:39	-	-
TS-WRLP	34:76:C5:61:9A:24		v1.12.01	2018/10/16 16:50:28	-	-
TS-WRLP	34:76:C5:61:A7:1D		v1.12.01	2018/10/16 10:32:44	-	-

LPWA comparison

	Name	NB-IoT	LTE-M	LoRaWAN	SIGFOX	ELTRES	Private LoRa	ZETA
Business	Promotion/ Companies	3 GPP	3 GPP	LoRa Alliance	SIGFOX	Sony	-	ZiFiSense
	Domestic Operations Company	Carrier Companies	Carrier Companies	Sense Way SORACOM NTT West	KCCS	Sony Network Com.	Companies	Texel, Toppan printing, etc.
	Commercial Area	coverage ratio of 95%	coverage ratio of 95%	coverage 60%	coverage 85%	User Area + Wide Area	User Area	User Area
	Low population area	△	△	△	△	○	○	○
	Domestic commercial	2019年～	2018年～	2017年～	2017年～	2018年～	2017年～	2018年～
Performance	Max. distance	20km	20km	10-20km	30-50km	100km～	10-20km	10-20km
	Communication speed	63kbps	300k～ 1Mbps	250bps～ 50kbps	100bps	80bps	100～10 kbps	300～ 2400bps
	Both sides of the sexual	Up/Down			Up/ Down (limit)	Up	Up/Down	
	Incoming Call	○			x		○	
	Multi hop	-	-	-	-	-	○	
	Repeater	-	-	-	-	-	-	Battery powered
	Power consumption	○	△	○	○	△	○	○
Mobility	10-20km/h	50km/h	10-20km/h	10-20km/h	100km/h～	10-20km/h		
Economy	Module Price							
	contract	Have to					No	No
	Server usage Fee						No (User Ready)	Necessary (User-owned)



Weak point



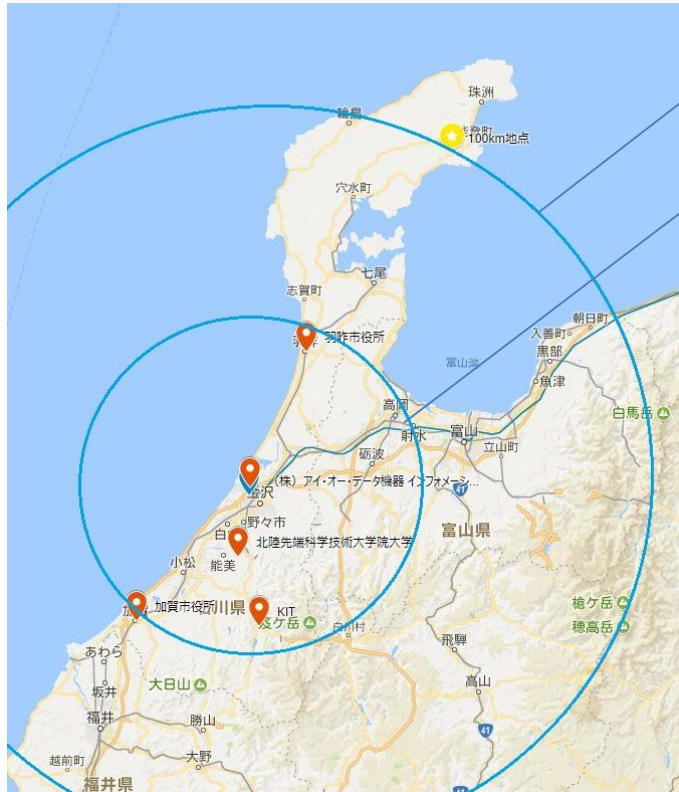
Outstanding merit

Private receiving base station location

* Installed on the roof of our 2 buildings
Measurement within 25 km range is possible
if there is a prospect

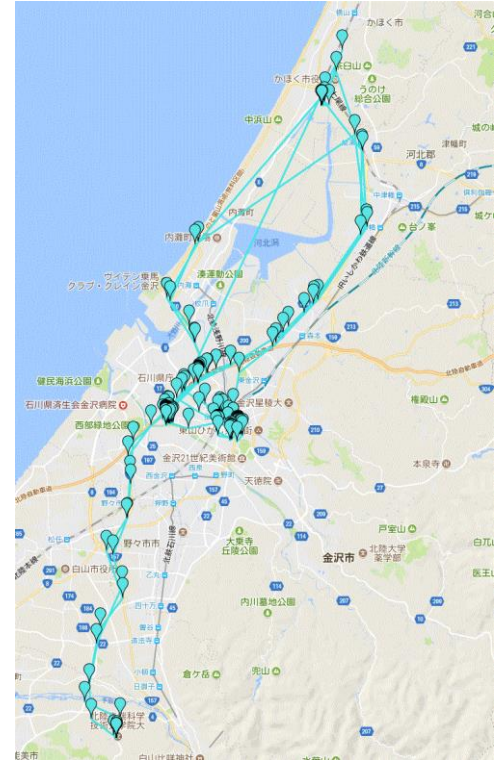


Proposal for considering LPWA in prefecture



Within 100 km

Within 50 km



Approach to various LPWA sensors / trackers

■ Sensor node

Medium size model: communication 3 minutes 1 time / life 1 year / single 1 alkali
(28 mm × 60 mm × 20 mm)

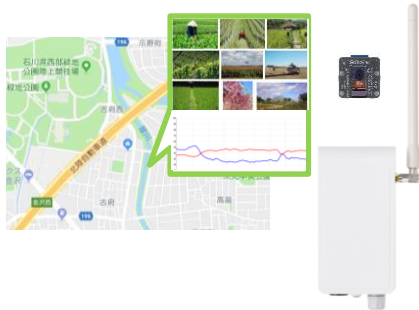
IO standard tracker under review (2019/6 -)

In case

Usage: Water level (river, paddy field, sluice gate, agricultural water, sewage, manholes)

Sensor: camera, temperature, humidity, atmospheric pressure, illuminance, GPS, water level (ultrasonic type * external pressure type)

Display graph in WebUI, notification by threshold



■ Sensor / GPS Tracker

Small model: communication once a day / lifetime
3 years / 2 AA alkali 2 pieces
(25 mm × 48 mm × 10 mm)

Watching over , animal behavior monitoring
Forgotten items, theft tracking, vehicle position
during assembly, vehicle management
(Truck, heavy equipment, motorcycle)



Development of LPWA business

■ LPWA project (transmission side terminal adopts communication method suitable for the right material)

- Device business
- Network communication fee
- Cloud service business to specific markets
- Providing services to service companies

Tracking / Insurance
· Bicycle / climber
· Bus / track / fishing boat

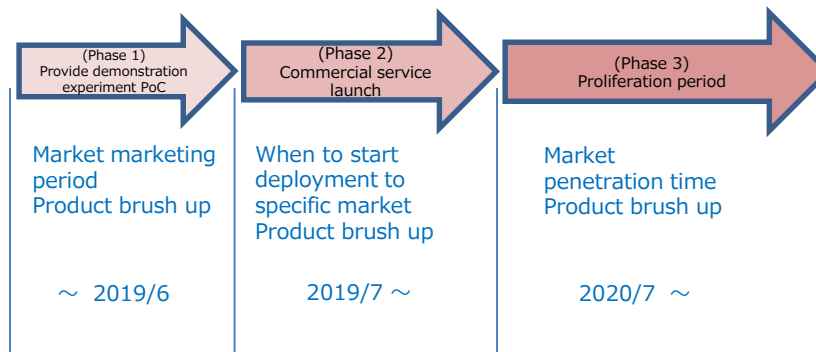
Agriculture, Forestry and Fisheries
· Rice

Office / Warehouse
· Environmental Monitor
· Security

Home / EMS
· HEMS
· Watch over service

Circulation
· Delivery BOX

Electric power and infrastructure
Aircraft fault lamp





Thank you very much.