Yano Research Institute

July 15, 2016

RESEARCH SUMMARY

Yano Research Institute Ltd.
2-46-2 Honcho, Nakano-ku,
Tokyo 164-8620, Japan

Forecast Number of Wireless Sensor Network Systems in Japan: Key Research Findings 2016

◆ Research Outline

Yano Research Institute has conducted a study on the domestic sensor network with the following conditions:

1. Research period: September 2015 to June 2016
2. Research target: IT businesses/Siers, common carriers, device manufacturers, public research institutes
3. Research methodologies: Face-to-face interviews by expert researchers, surveys via telephone/email, and literature research

<What is wireless sensor network (WSN)?>

The sensor network in this research indicates a network system consisted of multiple sensor nodes spaciously distributed, each of which connected wirelessly or with wire to a central node where a gateway is. The data from multiple sensor nodes are collected and sent directly or through gateway to servers, PCs, and etc. The sensor nodes are usually consisted of one or more sensors, CPUs, communication devices, power sources (including AC power sources, or batteries), embedded software and etc. A central node and the each of sensor nodes are connected either wireless or with wire. Note that this research only targets those WSN systems consisted of only sensors and data loggers, so that any of the following devices are not included: Devices that are used standalone; smart devices including smartphones; and RFID (Radio Frequency Identification) systems.

Note also that this research targets the following nine categories where WSN systems are used: 1) Energy management, 2) Infrastructure/streets, 3) Factories/manufacturing, 4) Security, 5) Agriculture/farming, 6) Healthcare, 7) Logistics/distribution, 8) Nature/environment monitoring, 9) automobiles.

◆ Key Findings

■ Domestic Wireless Sensor Network Systems in FY2015 Rose to 593 Thousand Systems, Expected to Reach 1,364 Thousand by FY2020

The domestic wireless sensor network system market in FY2015 grew steadily by 6.8% from the previous fiscal year to attain 593 thousand systems, based on the number of systems installed at end users. Those systems used for energy management, such as HEMS, and for card-key systems have grown favorably, as well as those sensor-types used for automobile burglar-proof devises. Usage of the domestic wireless sensor network systems is likely to expand to the area of watch services at elderly long-term care facilities or for home nursery care during FY2017 and FY2018. The domestic number of sensor network systems installed at end users is expected to rise to 1,364 thousand by FY2020.

■ **56.5% of Domestic Wireless Sensor Network Systems Installed for Card-Key Systems, and 17.7% for Sensor-Type Automobile Burglar-Proof Devises in FY2015**

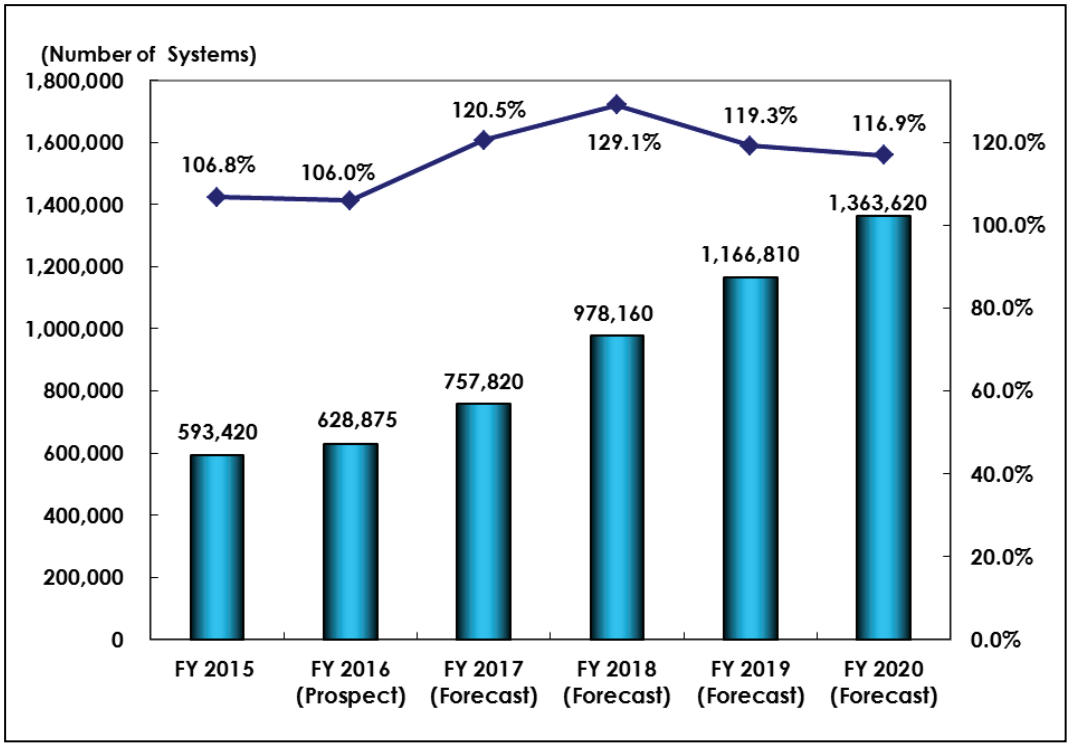
When looking at the component ratio of FY2015 domestic wireless sensor network systems installed at end users by purpose, card-key systems for residence and non-residence dominated at 56.5%, followed by sensor-type automobile burglar-proof devices to account for 17.7%, and HEMS to hold 17.4%, totaling 91.6% for just the three purposes. Because the wireless sensor network system market is yet to expand being still at the dawn, the current market is occupied by the limited aims.

◆ Report format:

Published report: "IoT-Driven Sensor Network Market 2016"
Issued in: June 30, 2016
Language: Japanese
Format: 146 pages in A4 format
Price: 180,000 yen (The consumption tax shall additionally be charged for the sales in Japan.)

Contacts: Public Relations
Yano Research Institute Ltd. (URL: http://www.yanoresearch.com)
Phone: +81-3-5371-6912 E-mail: press@yano.co.jp

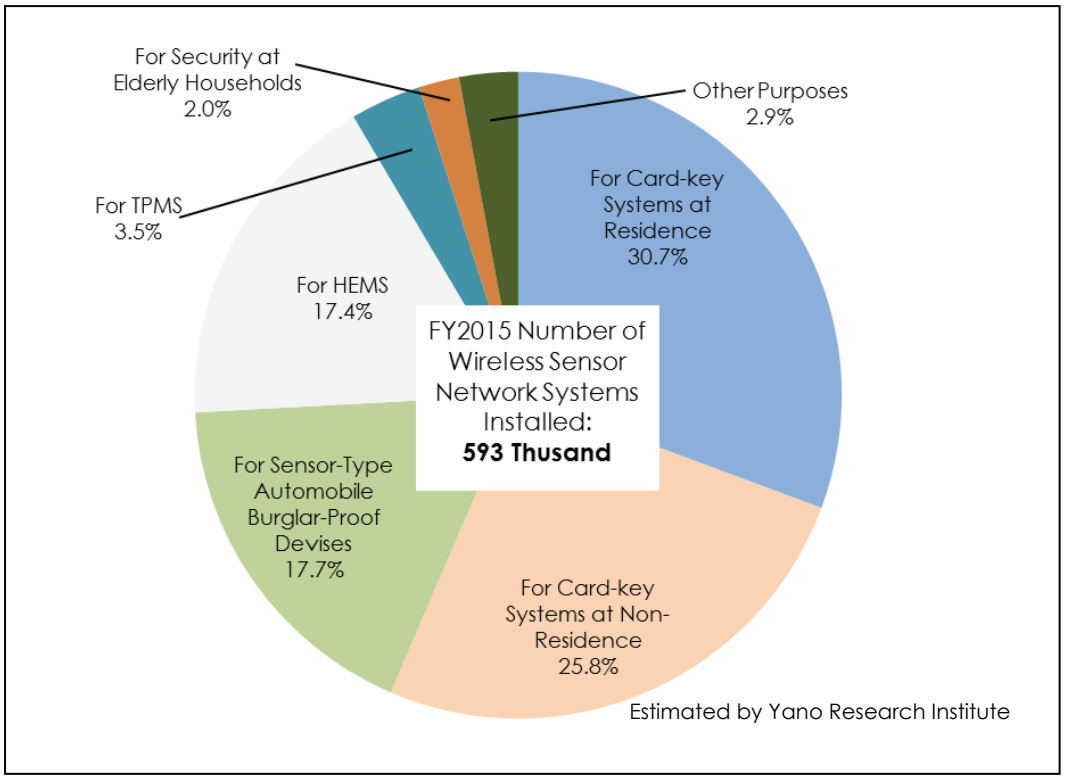
■ **Figure 1 :Forecast of Domestic Wireless Sensor Network System Market**



Estimated by Yano Research Institute

Note:
1. The sensor network in this research indicates a network system consisted of multiple sensor nodes spaciously distributed, each of which connected with a central node where a gateway is. Note that this research only targets those WSN systems consisted of only sensors and data loggers, so that any of the following devices are not included: Devices that are used standalone; smart devices including smartphones; and RFID (Radio Frequency Identification) systems.
2. The market size is based on the number of sensor network systems installed at end users.
3. The value of FY2016 is prospect, and of FY2017 is forecast.

■ **Figure 2: Component Ratio of FY2015 Domestic Number of Wireless Sensor Network Systems Installed by Use**



Note:

4. The market size is based on number of sensor network systems installed at end users.
5. The sensor network in this research indicates a network system consisted of multiple sensor nodes spaciously distributed, each of which connected with a main location or a central node where a gateway is. This research targets the following nine categories where WSN systems are used:
   1) Energy management: HEMS (Home Energy Management System), BEMS (Building Energy Management System), other energy management systems for CVS, drugstores and other stores.
   2) Infrastructure/streets: Systems to monitor and data collecting of endangered locations for instance, bridges, tunnels or those where walls of roads carved out from a mountain can be collapsed.
   3) Factories/manufacturing: Systems for maintenance and support of devices and facilities (CBM), for FA/smart factories, for quality management, and for process management.
   4) Security: Card-key systems for residence and non-residence, security systems for elderly households.
   5) Agriculture/farming: Systems used for protected horticulture, plant factories, cultivated fields, beef farms, milk farms, pig farms, etc.
   6) Healthcare: Watch services at elderly long-term care facilities and for long-term care at home, systems for monitoring patients at home, monitoring obesities/metabolic syndrome, and PHR systems.
   7) Logistics/distribution: Tracking/Traceability systems used in the industries of distribution and logistics, and such systems used for home delivery businesses.
   8) Nature/environment monitoring: Systems for weather observation, monitoring air pollution/pollen/radiation and volcano/seismic monitoring, and disaster monitoring, etc.
   9) Automobiles: TMPS (Tire Pressure Monitoring Systems), Sensor-Type Automobile Burglar-Proof Devises.