MyAdvantech

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ICT and Smart Modules Drive Global Medical Market

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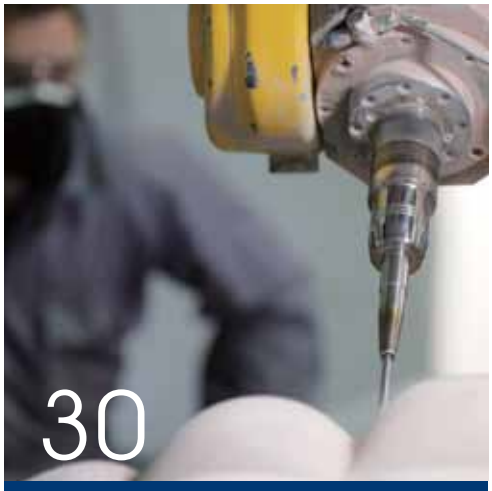

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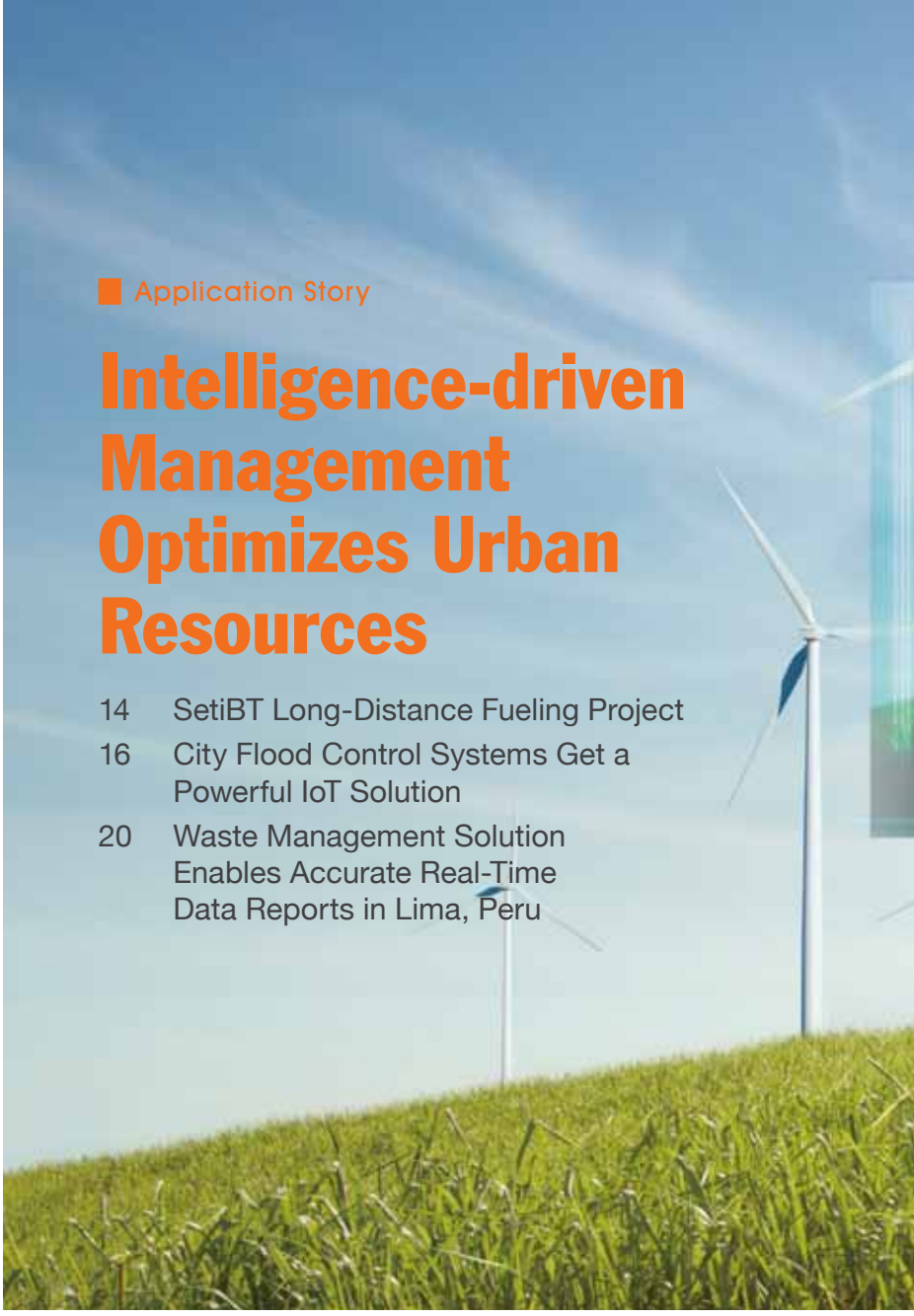

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Protect the Earth with Appropriate Use of Existing Resources

During the summer months, electricity use in Taiwan reaches its highest level, and plans for regular increases in electricity costs are set to be implemented in the near future. To mitigate the impact of these cost increases, the Taiwan government is actively promoting energy conservation, carbon reduction, and renewable energy. According to the new "Benchmarking Smart City Energy Savings" program, for example, the government plans to allocate NT$3 billion to 19 cities and counties for improving civil and institutional electricity use. Lead by the public sector, the government aims to encourage the cultivation of energy-saving habits and promote the development of smart energy-saving industries in Taiwan.

With rapid global economic development and urbanization, countries like Taiwan are becoming increasingly developed. Higher numbers of people are relocating to cities, increasing the consumption of public resources and energy, as well as the emission of serious pollutants. Because every country faces similar challenges related to rapidly increasing urban populations and insufficient resources, the ideal solution is the development of smart cities. Supported by governments and suppliers worldwide, various smart city applications, such as for environmental protection, vehicle parking, smart power generation, and food regulations, have been strongly promoted.

Take iParking for example, Advantech combines WISE-PaaS, an IoT smart cloud platform, with iParking devices to provide an efficient indoor parking management system for addressing street parking issues, thereby effectively improving parking management in cities.

A fuel oil tanker fleet management system from Brazil and a smart solar panel remote monitoring system in southern Taiwan provide specific examples of smart management fulfilment by enhancing the efficiency of existing equipment to maximize energy savings without incurring additional costs.

In the last edition of MyAdvantech magazine's Power Insight column, Taipei City Mayor, Ko Wen-Je, shared his vision for Taipei to become a smart city, eliciting many responses. In that same edition, Advantech invited the superintendent of Changhua Christian Hospital, Kuo Shou-Jen, to analyze how Taiwan combines and exploits ICT advantages to enter the global market via smart medical modules.

In accordance with its business philosophy of innovation and its beautiful life/work balance, Advantech has recently established some interesting initiatives. One the one hand, they encourage employees to actively participate in environmental protection with events and activities, and on the other they've promoted a "walking 10,000 steps daily" project and have organized a sports day called "Advantech Walking Carnival" to be held this year, and will promote it worldwide over the next 3 years.

What's more, Advantech has collaborated with the National Chiao Tung University to build an IoT Intelligent System Research Center. This is the first industrial and academic platform aimed at industrial IoT, accumulating research and innovation capabilities from industries, academia, and research institutes, and jointly creating intelligent solutions that accelerate industrial IoT development and more effectively utilize the earth's natural resources. ■

ICT and Smart Modules Drive the Global Medical Market

By Miles Donna with images provided by Advantech
Interview with President Guo Shou-Ren from Changhua Christian Hospital

The medical industry is a global business. With social and economic progress, people increase their expectations for the quality and safety of their medical services, so gradually medical industries have begun to introduce automation, and information and communication technology (ICT) to provide smart medical services. This is not only a global trend but an opportunity for medical industries in Taiwan to enter the global marketplace.

The competitive advantages Taiwan's medical industries offer involve not only medical technologies but long term industrial experience in ICT, clinical care, and the presentation of smart and premium medical care modules. Asia represents a vast market, with a population of billions, and giving people living in these areas the same smart medical care that is available in Taiwan is a worthwhile goal that should be achievable.

Taiwan's Smart Healthcare Extends Its Reach

Before exploring how Taiwan exports its smart medical modules, let's look at the current situation of smart healthcare in Taiwan. When we say smart healthcare, we mean applications that include applied ICT and the use of robots, which due to rising labor costs and human issues caused by emotion or fatigue, means the use of machine labor to replace manpower helps improve cost and efficiency in the medical industry. In particular, since long-term care and rehabilitation require a lot of manpower, robots can help patients obtain the best medical care, and last month we introduced rehabilitation robots that assist patients with their treatment. In terms of ICT, this also makes an important contribution to healthcare through accurate patient tracking, prevention of medication errors, remote treatment, and smart logistics management, such as wheelchair rental and return in different locations; medication delivery; and automatic transmission of patient medical information, among others.

The Taiwan medical industry started developing intelligent systems a long time ago, but it only worked on certain aspects, such as electronic medical records, smart logistics, and smart care. Few aspects have achieved full comprehensive intelligence, and this is due mainly to two factors. Firstly, becoming intelligent requires investment. Secondly, while comprehensive intelligence is not hard to implement in a new hospital, (most hospital buildings in Taiwan have been in existence for many years), in older hospitals, intelligent systems sometimes require the installation of pipelines and other costly infrastructure. Thus, the introduction of intelligence in old buildings is not so easy, and forces the medical industry to upgrade to intelligent systems one by one. However, as time goes by, everyone will gradually be aware of the benefits of smart healthcare and move toward comprehensive intelligence.

Taking Changhua Christian Hospital for example, in addition to the comprehensive intelligent design in the Yuanlin branch, other branches are introducing intelligence in phases. Currently, outpatient service, consultation service, and logistical management have been set up with intelligent systems, and patient wards are now in the process of upgrading. In the future, we will see these intelligent phases combine to become a complete smart hospital.

Building Smart Medical Service Modules

From this perspective, smart medical development in Taiwan has built on a solid foundation because ICT and clinical care in Taiwan both have the advantages of modern development and long-term experience and this can only help Taiwan export to the global market. With a complete supply chain, the industry has changed from being an OEM subcontractor to the establishment of its own brands in recent years. As with other industrial computer products manufactured by Advantech, consumers can see them everywhere in different industries. In addition, clinical care in Taiwan is at a world-class level and Western medicine started developing there 120 years ago, earlier than in Mainland China and Southeast Asia as a whole.

Of course, some people may doubt Taiwan's capacity since ICT and medical technology are also well advanced in many countries. And in fact, the close integration of clinical medicine and ICT is not as simple as imagined. The strength of western hospitals is in medical research, so most of them still use a traditional approach when it comes to clinical care. Few countries have such closely integrated ICT technology as Taiwan does, and this is the reason why the 41st World Hospital Congress will be held in Taiwan in 2017.

In the past, World Hospital Congresses were always held in Western countries. This will be the first time for the Congress to be held in Taiwan, because the organizer –International hospital Federation (IHF), understands the strength of application of ICT to clinical care in Taiwan. Participants will discuss and share opinions relating to the stated theme of Hospital & Patient Care.

Since the development of smart medicine in Taiwan has been recognized globally, turning this experience into modules and exporting to markets in Mainland China and Southeast Asia is not a difficult thing.

The population in Mainland China and Southeast Asia is at least two billion. Combined with the population in the Middle East or other regions, the total population may push three billion. Assuming that the medical industry enters this market alone, it is bound to have difficulty in dealing with the entire market. The only way is to allow the entire medical industry to work together and enter the global market and create a viable export model, so that smart healthcare in Taiwan can be one of the best in the world.

These days, smart healthcare is much more patient-oriented, which is not only a global trend but also an opportunity for the medical industry in Taiwan to go international. Since Taiwan has its own unique advantages, medical businesses can be turned into an industry that can be exported to Southeast Asia and even the world. ■

Diversification Provides the Opportunity for Growth – Changes in Perspective are Key to Success

By Pearl Wright with images provided by Advantech
Interview with Professor Hsiao Ruey-Lin from the Graduate Institute of Technology, Innovation and Intellectual Property Management, Chengchi University

Since its establishment in 1983, Advantech has developed into a global leader of the industrial computer industry. Over more than 30 years of operation, Advantech has overcome challenges through technological innovation and flexibility. In the future, Advantech expects to continue seizing opportunities for substantial growth.

Growth bottlenecks tend to emerge every 10 to 15 years mainly because existing markets cannot be expanded further. This is known as limited growth. In this phase, the growth rate declines to just 10%. When faced with this situation, enterprises may choose diversification as a strategy to boost the growth rate up to 15% or 20%, in some cases even 30%.

Delving Deep to Reach Growth Potential

Through diversification, Advantech has acquired additional operational synergies and better integrates internal technologies. Advantech has also gained resources through merging and creating new business models, developing vertical markets thoroughly, and expanding operational scales. In fact, Advantech has consistently merged and acquired enterprises, strengthening every aspect of the company and extending business markets, thereby recovering its growth potential.

Recently, Advantech acquired DLoG, Germany's largest in-vehicle computer brand; Innocore Gaming, a gaming

software and hardware designer and manufacturer; ACA Digital Corporation, a portable industrial computer manufacturer; AdvanPOS Technology Co., Ltd., a point-of-sale (POS) service and solutions provider; LNC, an automatic controller manufacturer; and GPEG, a British intelligent display developer.

In the last decade, Advantech has also formed joint ventures and merged various technology companies to amass resources and accelerate growth. However, despite several acquisitions, specific mechanisms were not established and the merger and acquisition experience was not effectively disseminated to every department. Consequently, Advantech has since established a Business Investment Department for devising specific merger and acquisition procedures for every division.

Merger and Acquisition Intentions

Advantech seeks appropriate targets for investment and mergers among its global distribution partners, particularly those involved in investment software and key IoT technologies. Advantech is continuously expanding its product portfolio and exerting synergies through its strong manufacturing capacity and global marketing capability. Advantech aims to initiate a vast growth momentum based on smart city, IoT, and Industry 4.0 technologies.

Advantech aims to initiate a vast growth momentum based on Smart City, IoT, and Industry 4.0 technologies.

Regarding diversification and mergers and acquisitions, the first stage involves understanding the enterprise. This means that Advantech should first assess and integrate its internal resources to eliminate wastage before adopting unique resources from other companies. After diversification, Advantech should conduct horizontal management to resolve conflicts resulting from resource competition among divisions.

Advantech's IMAX structure is an excellent tool for this purpose. This structure is divided into Incubation (I), Mergers (M), Alliances and Outsourcing (A), and X Product (X). Advantech division heads set annual strategies according to competitive situations and establish an innovation guideline based on the IMAX structure.

Altering the Corporate Mindset

The key to implementing enterprise diversification is the transformation of employee mindsets. This is because diversification diverts resources to other fields, which can increase internal competition and impede the progress of certain divisions.

Consider Kodak for example, although the company recognized that digital technology would replace film negatives and cell phones would replace cameras, Kodak did not promote diversification and ultimately went bankrupt. Companies that do not safeguard their future during periods of success face risks rather than opportunities when subsequent trends emerge. Establishing early strategies to respond to potential market disruptions is an essential forward-thinking behavior for visionary enterprises.

Besides the enterprise mindset, cultural integration is another key factor for successful diversification. Advantech has developed its own unique corporate cultures, giving rise to a number of questions related to diversification. For example, "When implementing operational strategies for diversification, will the established corporate cultures remain consistent? Or will every department adopt a different corporate culture? Or, if Advantech must achieve diversification through mergers and acquisitions, can the corporate cultures of merged enterprises be integrated with Advantech's existing corporate cultures, or should new corporate cultures be developed?"

These are just some of the challenges Advantech will face when implementing diversification.

Finally, and perhaps most importantly, corporate culture is closely aligned with talent. If diversification and mergers and acquisitions are likely to continue, external talents will be introduced by default, and all newly integrated employees will need to adapt to existing corporate cultures. To eliminate any potential issues, the company should emphasize the transformation of employee mindsets. Specifically, to embrace the upcoming Industry 4.0 trend, employees cannot adhere to the traditional strategy of industry competition. Instead, companies should encourage cooperation rather than competition, both internally and externally, and together with their employees strive for survival and success. ■

Advancing the Industrial Automation Market through Mutually Beneficial Partnerships

By Pearl Wright with images provided by Isotron Systems B.V.
Interview with Mike Lusthof, Product Manager of Isotron Systems B.V.

The integration of smart mechanical systems with IT technology has driven the industrial controls and factory automation markets to new heights. Industrial automation systems are being increasingly employed in manufacturing to standardize and accelerate production, reduce costs, and ease monitoring and management. Specialized cutting-edge technologies and systems are required to satisfy demands for high reliability and flexibility in harsh industrial environments, resulting in greater adoption of complex systems that comprise programmable logic controllers, industrial computers, human-machine interfaces, and factory communication peripherals. Amidst this landscape of innovation and evolution, the partnership between Advantech and Isotron fulfils a crucial role in providing all-in-one solutions customized according to customers' specific requirements.

Established in 1975, Isotron Systems BV and BVBA is a value-added reseller (VAR) of high-quality electronic automation components and systems to end users, OEMs, and system integrators in the Netherlands, Belgium, and Luxembourg. With 40 years of field experience and an extensive product portfolio including microcontrollers, ARM -based microprocessors, power management integrated circuits, data converters, interfaces, wireless transceivers, amplifiers, and industrial drivers, Isotron covers the entire solution spectrum. This allows Isotron to customize complete solutions from the sensor to control level, providing the organization, engineering, assistance, documentation, and complete system construction services to support even the most complex automation requirements.

Custom Systems from Concept to Completion

As a single-brand distributor for nearly all its product lines, Isotron has established a reputation for delivering specialized and high-quality products. Consequently, Isotron invests substantial resources into product marketing, sales, and management in an effort to establish long-term relationships with manufacturers.

Since partnering with Advantech more than 15 years ago, Isotron Systems has experienced steady growth by designing-in Advantech products with OEMs and large-scale end users. Depending on the product, design-in solutions typically have an operational longevity of approximately 3 to 5 years, or until another innovation reaches the market. By offering tailored solutions, a rich ecosystem of products, software tools, reference designs

and support, Isotron ensures its solutions are future proof. Furthermore, with this partnership, customers benefit from Advantech's global support and Isotron's local support and application knowledge.

Consider the following case of a biomedical OEM that, for several years, Isotron had been supplying with barcode scanners connected to dell PCs. This customer was looking for a more reliable hardware platform with long-term support. Specifically, they wanted a fanless Intel® Core™ i3-based solution with PCI and PCIe x8 expansion, as well as advanced external power and reset functions.

To fulfil their specifications, Isotron recommended Advantech's UNO-3083G automation computer equipped with an Intel Core i7/Celeron 800 series processor, 8 USB ports, 2 mini PCIe sockets, 2 CFast sockets, and up to 5 expansion slots. This system is not only reliable and extremely durable, but also capable of delivering a CPU performance that exceeds the customer's requirements. Additionally, in cooperation with Advantech's regional UNO/HMI product sales manager for Europe, Marco Zampolli, a unique power and reset bracket was developed for the system.

Partnering for Mutual Benefits and Sustained Growth

Isotron was initially part of the European organization Geveke Industrial, with 8 locations around Europe. However, following the takeover and dissolution of Geveke Industrial in 2013, Isotron Systems became completely independent.

In 2000, Isotron partnered with the well-known and globally established industrial automation and embedded systems brand Advantech. Isotron sought to benefit from the singular solutions designed for specific vertical markets, as well as the combination of quick technical support, openness to OEM projects, and innovative marketing provided by Advantech. This marked the start of a long-term partnership that would see both companies experience mutual success as the industry underwent several drastic shifts with the emergence of smart mobile devices, cloud computing, and the IoT.

Through this partnership, Advantech and Isotron gain mutual benefits that increase business support and market penetration, resulting in greater revenue. For Isotron, these benefits include access to product and marketing training, discounts, technical support, and early product releases. For Advantech, these benefits include greater product distribution and implementation, complementary services and expertise, as well as a presence in the Benelux geographical region.

Every installation of Advantech products share common traits. First, the hardware is longer lasting and can withstand harsh industrial environments due to high thermal and vibration tolerance. Second, applications run efficiently and reliably with support from high-end technology. Finally, the hardware and system architecture is easy to maintain and replace in the unlikely event of failure.

According to Mike Lusthof, product manager for Isotron, "the biggest benefit of working with Advantech is being able to combine our market and application knowledge with local support provided by Advantech. We regularly hold joint meetings between our product sales managers, key account managers, and Advantech's channel manager."

Lusthof also added, "Comparing Advantech to its market competitors, I believe there is a significant difference. We are able to conduct joint visits with local people, while speaking the same language. This is a significant benefit. Additionally, Advantech has a warehouse located in the Netherlands. Many other brands do not have this. Furthermore, Advantech's product portfolio is extremely extensive, enabling us to easily build application-appropriate solutions. If their product portfolio continues to be well managed, the wide variety offered will remain a strongpoint."

Collaborating for Continued Market Growth

Looking to the future, and considering trends such as the IoT and Industry 4.0, there remains a substantial demand for companies like Isotron. Within the industrial and factory automation market, many companies are still reticent to adopt new technologies. Because of the wide range of automation products Isotron promotes, they are best positioned to encourage companies to adopt new technologies by explaining the benefits and predicting market developments.

Innovation on the factory floor equates to greater productivity and market opportunities, and in today's competitive world, the ability to anticipate and respond to the ever-changing market is what makes or breaks businesses. Thus, great partnerships, like the one between Isotron and Advantech, will continue to advance the industrial automation market by collaboratively providing proven innovations, customized design solutions, and exceptional customer service. ■

Application Story

Intelligence-driven Management Optimizes Urban Resources

Currently, the 20 most populous cities worldwide represent 75% of total world energy consumption and emit 80% of the total, human-emitted greenhouse gas. According to statistics from the UN, more than 50% of people now live in cities. By 2030, the number will increase to 70%. As populations concentrate, cities encounter many challenges and business opportunities. Environmentally sustainable distribution and application of earth resources are two of those challenges.

Fast urbanization drives, and accelerates, the development of smart cities! And one purpose of smart cities is to optimize resource usage. With the rapid development of Information and Communication Technology (ICT) and IoT, many applications which were previously considered impossible are current realities. For some examples, a user can touch the screen of a smart transport system to select their destination, and the system will automatically select a route that bypasses congested roads; a smart parking system will automatically find a parking space. Smart management applications not only give direct benefits to daily life, but also allow urban resources to be used more effectively. ■

SetiBT Long-Distance Fueling Project

SetiBT solution consisted of an Advantech TREK-723 RISC-based mobile data terminal equipped with software designed specifically for managing the fuel flow and delivery process. Additionally, the solution hardware needed to be extremely robust and reliable. Advantech successfully fulfilled their request and expectation as well.

By Martin Marshall with images provided by Advantech
Interview with Vinicius Oliverio, Software Development Manager of SETI Business Technology

To date, sugarcane ethanol is considered the most successful alternative fuel, with Brazil ranking among the world's largest producers and exporters. By leveraging the most efficient agricultural technology for sugarcane cultivation, Brazil successfully established the world's first sustainable biofuel economy. The sustainability of Brazil's ethanol biofuel industry is attributable to its advanced agro-industrial technology and massive amounts of arable land. However, because biofuel plants are typically situated in remote areas, fuel tanker trucks are necessary for supplying the fuel and lubricants required to maintain operations.

Besides sugarcane processing plants, many other industries, such as construction and mining, also operate in remote locations, and rely on diesel-powered equipment. Because of their distance from fuel stations, equipment refueling onsite is substantially more efficient and economical. To facilitate this, fuel trucks are required to carry diesel and lubricants to each site. And a specialist fuel delivery fleet solution was required to carefully manage fuel loading and increase delivery efficiency. However, because of the numerous options available, choosing the most appropriate solution provider proved challenging.

SetiBT is a specialist IT services provider based in Brazil. Established in 2002, the company has recently focused on developing in-vehicle solutions for fleet management in an effort to provide customers with cost-effective, reliable, and adaptable IT solutions. Recently, a large, well-established bulk fuel and lubricant transportation company with a substantial fleet of tankers approached SetiBT for an in-vehicle fuel transportation solution specifically targeted to managing the fuel loading processes for specialist equipment in the field. The system requirements were to inhibit fraud and fuel theft as well as to increase the accuracy of data acquisition in order to better control costs. In order to minimize errors by reducing manual operations, the system also needed to be capable of automatically identifying the equipment being fueled, including tank size and type of fuel required, as well as synchronizing with the vehicle's horometer, odometer, and GPS. These functions would offer a clear breakdown of each vehicle's productivity, status, and risk, thereby providing customers with accurate data to increase efficiency and reduce costs.

The SetiBT solution consisted of an Advantech TREK-723 RISC-based mobile data terminal equipped with software designed specifically for managing the fuel flow and delivery process. Additionally, because of Brazil's tremendous size and the vast distances between remote sugarcane processing plants, the solution hardware needed to be extremely robust and reliable.

Regarding the actual refueling operation, upon reaching a delivery destination, the driver attaches a hose from the tanker truck to the equipment needing to be refueled. The system automatically recognizes the equipment and authorizes the transfer of a specific amount of fuel according to pre-established equipment requirements. This not only saves unnecessary wastage, but also reduces pilferage by preventing unauthorized fuel transfers.

The flow control meter affixed to each truck records the volume of fuel transferred, enabling the operator to review the exact quantities and types of fuel and lubricant delivered. The fuel flow meter communicates directly with the Advantech TREK-723 in-vehicle terminal, using on-board RFID technology to identify the category of equipment being refueled, and the type and volume of fuel dispensed. Through communication with the back-office server, fuel transfers are successfully restricted to sanctioned equipment only.

SetiBT designed the user interface and management software to be integrated with TREK-723 and the end-customer's own ERP software to ensure accurate enterprise asset management, business intelligence, and data reporting. Regarding the delicate integration of SetiBT's software and Advantech's hardware, General Manager Vinicius Olivero of SetiBT Brazil stated, "Because this was the first time we had worked with Advantech, appropriate support was crucial in helping us integrate our custom UI with the OS on their hardware. They supported us all the way, which was very important. Our fuel transportation solution allows customers to effectively save up to 2% of the millions of liters of fuel typically used per year. This means that the system pays for itself in a in a fairly short amount of time—something customers really appreciate."

Because large fleets require solutions that address several areas of need, such solutions must comprise robust systems that can be configured in multiple ways. SetiBT's fuel flow management system is built around an Advantech TREK-722/723 all-in-one RISC-based mobile data terminal with 5"/7" display. TREK-722/723 is designed to operate on vehicle power that complies with ISO7637-2 and SAE J1113 specifications, ensuring system stability despite power fluctuations. With digital input, periodic, and WWAN suspend/wakeup features, TREK-722/723 supports 24/7 monitoring. This, combined with radio frequency options and programmable function keys, make TREK-722/723 a particularly ideal platform for SetiBT's fuel transportation solution. ■

Application Story

City Flood Control Systems Get a Powerful IoT Solution

City flood prevention measures are essential these days due to increasingly erratic weather patterns and rising sea levels; they help reduce the problems of heavy rain and flooding. Water pumping station systems need to be combined with accurate water forecasting systems for scheduling preventative tasks. Even in arid countries in the Middle East, storm water management is essential, and local authorities in Al Ain, in the UAE, started installing advanced storm water management systems in 2012.

By Advantech Industrial Automation Group with images provided by Advantech
Interview with Eyad Al Hanafi, CEO of ETEK

The scope of this project was to improve and upgrade the operation and maintenance of storm water networks and pumping stations in the UAE. It was designed as a two-phase project, the first of which was completed in 2012, and was followed by an evaluation. The conclusion was that phase one left certain problems unresolved, and in March 2014 ETEK won the contract to build stage two. ETEK is a UAE based technology and integrated solutions provider that delivers a full range of products, services, and support to clients within the Gulf Cooperation Council (GCC) and Levant regions. They provide industrial automation and applications, and business application solutions that focus on the Water, Utilities & IFMS, and MES/MIS infrastructure markets.

Remaining phase one problems included too many integration points that made troubleshooting, maintenance, and installation expensive, especially since they could only be carried out from a single location, and the overall lack of coordination meant administrators found the system difficult to manage.

Phase two of the project included thirteen Storm Water Pumping Stations, each of which required controllers, gateways with 3G/4G modems, and SCADA node gateways with 3G/4G modems. It was also essential that these thirteen pumping stations could be managed centrally from a single web-based SCADA system via a 3G/4G data network that would include existing and newly installed alarms, a detailed reporting system, a configurable dashboard, and integration with third party CCTV systems.

The following solution was proposed for each pumping station:

An APAX-5522 PE 32-bit CPU Remote Terminal Unit (RTU) with APAX-5045 12-ch DI/DO; an APAX-5040PE

24-ch DI; and APAX-5017PE 12-ch AI modules would manage the pump and collect information. This data would then be collected by a compact UNO-2272G Embedded Automation Computer with iDoor technology for 3G/4G modules, and then sent wirelessly to the control center. Each site would have a third-party CCTV camera installed and video information, especially useful in emergencies or in cases of unauthorized access, would be sent to a UNO-2184 embedded automation computer via high speed Ethernet.

The proposal was accepted with minor adjustments. Advantech WebAccess SCADA System 5000 I/O tags were installed on each gateway to manage the flow of data, monitor the CCTV camera feeds in real time, and make pumping stations manageable from anywhere. There are many advantages of WebAccess over the existing SCADA systems. By having a centralized system that can view, configure, and control any pump remotely from any Internet web-browser and mobile operating system, maintenance costs are significantly reduced. By providing for an unlimited number of clients, there is no restriction on the amount of users or devices that can access the system, making it easy for new users to access the system without the need for additional purchases. To watch for trends in the operation of the pumps and to deal with wear-and-tear on components, WebAccess stores the data on a SQL Database, which can be used to produce reports from the pre-installed software, or can be utilized by the system integrator to meet specific needs.

Since these thirteen sites were spread over a wide area it was especially useful that engineers in the central control room could see exactly where the pumps are located. Fortunately the latest version of WebAccess included access to Google Maps, which pinpointed their exact locations. The operating status of each pump could clearly be seen and if more precision was required, engineers could drill down further into the software for details.

By using Advantech's cost effective solution, ETEK was able to provide a system that was easier to engineer and develop, and at a much more efficient level, than during the first phase. With considerably reduced operating and maintenance costs, this total solution enabled engineers to access all of the system's pumps from any location. Not only was Advantech's hardware easy to install and maintain, but Advantech's WebAccess SCADA made it fully manageable, from anywhere. With hundreds of pre-installed drivers available for third party devices, the ability of WebAccess to manage legacy systems is unparalleled, and makes future expansion considerably less expensive. ETEK's success on this project and their satisfaction with Advantech's solution mean it's a win-win solution for all concerned parties, and successful bidding on future projects is virtually assured. ■

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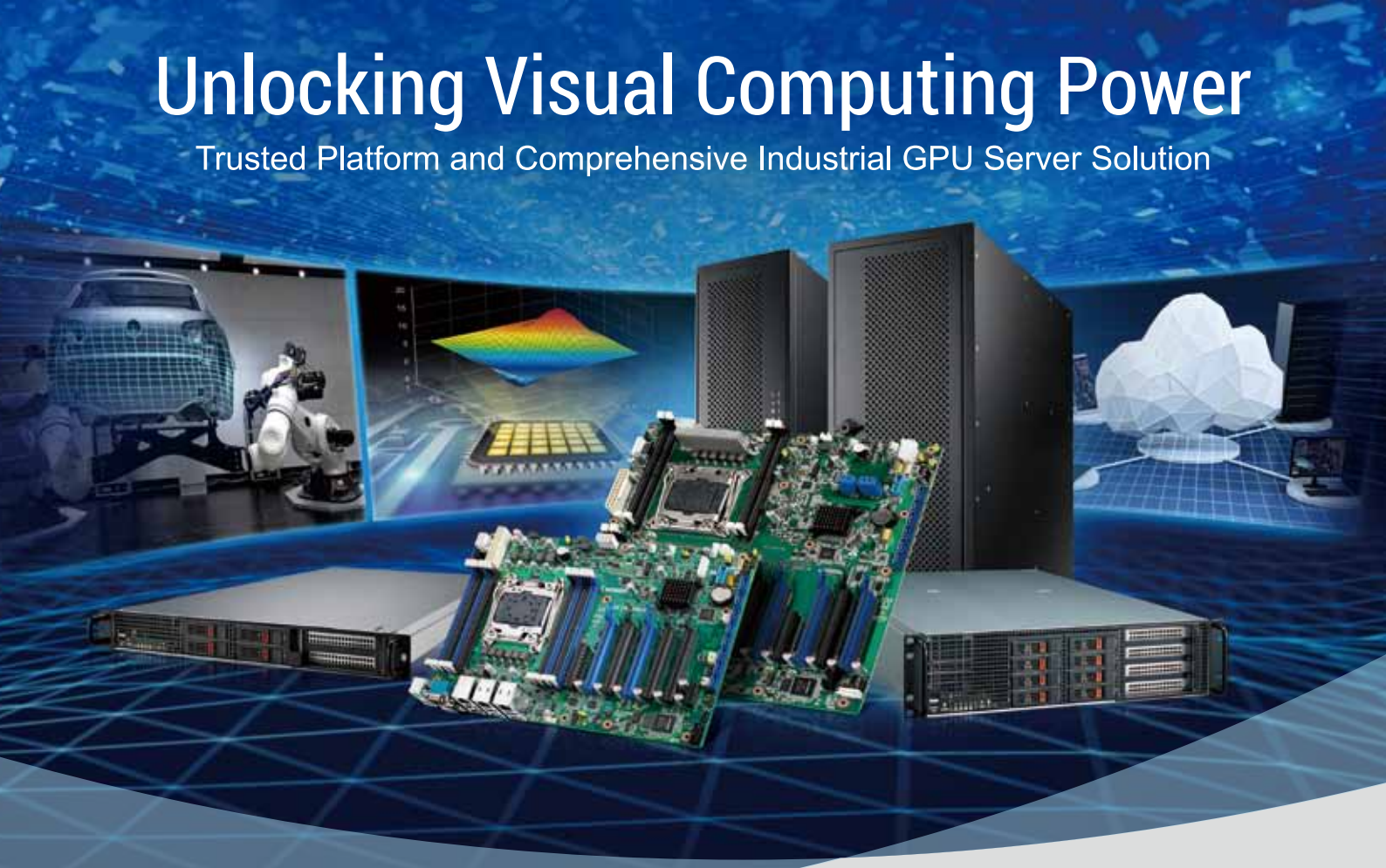

ADVANTECH

Enabling an Intelligent Planet

Advantech's comprehensive GPU server solutions for accelerating industrial applications have a wide 1U to 4U product range, and satisfy all validation requirements. The unique industrial design and industry-leading 3-5-7 service guarantee make these GPU servers ideal solutions for accelerating business growth.

Allianced with diverse GPU and DSP processor providers

Supports GPU/DSP card brands including

- NVIDIA® Tesla®, GRID™, Quadro®
- AMD FirePro™
- Intel® Xeon Phi™
- Advantech-designed DSP cards

Ultimate Industrial-Grade Design

- Front and internal USB ports enhance usability
- Exclusive anti-vibration mechanism
- Cable-less design increases thermal efficiency
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3-5-7 Service Guarantee

- 3 service levels in design customization and development
- 5 years extended warranty
- 7 years product longevity

AGS-913

1U rackmount Intel® Xeon® E5-2600 v3 GPU server that supports 3 x PCIe x16 double-depth cards and 1 x PCIe x8 single-depth FH/HL card

AGS-923

2U rackmount Intel® Xeon® E5-2600 v3 GPU server that supports 4 x PCIe x16 double-depth cards and 1 x PCIe x8 single-depth FH/HL card

ASMB-813 with HPC-7320

3U short-depth rackmount/ wallmount/ tower chassis with Intel® Xeon® E5-2600 v3 ATX server board that supports 5 x PCIe x16 double-depth cards

ASMB-923 with HPC-7400

4U compact rackmount/tower chassis with dual Intel® Xeon® E5-2600 v3 EATX server board that supports 4 x PCIe x16 double-depth cards

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Waste Management Solution Enables Accurate Real-Time Data Reports in Lima, Peru

Improving service quality and reducing operating costs are the primary objectives of all waste management service providers. Nowadays, many products and solutions, such as vehicle-mounted computers, GPS, and vehicle diagnostics and monitoring, are used in the management of fleets. Before the emergence of fleet and waste management technology, administrators could not remotely determine the status of vehicles nor reassign tasks until vehicles were returned to the central depot.

By Martin Marshall with images provided by Advantech
Interview with Ricardo G S Aranha, Sales Manager of SGF

Founded in 1988, SGF is based in Peru and serves as a supplier of fleet management systems. At a time when the embedded electronics industry was embryonic, SGF developed the first on-board computer. SGF is now configured as a hardware manufacturer and develops motherboards for transportation and automation applications. A customer in the city of Lima was looking for an SI to implement a fleet management solution that would facilitate the city's garbage truck fleet monitoring and waste management operations. They needed an in-vehicle solution that could monitor vehicle movements, diagnostics, and, crucially, driver behavior. After consulting numerous vendors, they elected to partner with Advantech. This is because Advantech offers a comprehensive range of flexible solutions that can be rapidly customized according to specific needs with support from their team of expert engineers.

Advantech fleet management solutions offer many benefits:

"Reduce Operating Costs": With the TREK-723 MDT installed in every garbage collection truck, administrators can now track the location of multiple vehicles simultaneously. However, more importantly, administrators can now monitor driver behavior, such as speeding or over braking, which can increase costs for fuel, tire replacements, oil consumption, and vehicle damage. The inclusion of tire pressure detection technology means that vehicles can warn drivers before a breakdown occurs, thereby reducing vehicle maintenance costs.

TREK-723 paired with the vehicle data reading module developed by SGF can be used to accurately calculate fuel consumption and scheduled route activity. Drivers can upload all vehicle data to a centralized system immediately after completing their assigned tasks, enabling administrators to accurately control schedules and be accountable to city regulators.

"Real-time Driver Behavior Management": Equipped with built-in GPS and CDMA/GPRS/HSPA+, TREK-723 MDT enables drivers and dispatchers to maintain constant communication, and can be used to monitor data ranging from mileage, routing, speed, and acceleration, to braking, oil pressure, and fuel consumption. An important additional function the customer required was the ability to log driver behavior and routes to ensure compliance with city safety regulations. Advantech's MDT was integrated with a reading device specifically developed by SGF to reduce tedious manual logging and tracking for more informed management that enhances waste management safety and efficiency.

Advantech systems not only eliminate these possibilities with advanced and rugged in-vehicle hardware technologies, but also transform the complex data collected by intelligent software into useful information. For example, all vehicle diagnostics and driver behavior data can be transmitted directly to dispatch headquarters for real-time monitoring and reporting. Furthermore, Advantech's in-vehicle mounted computers make the most of Wi-Fi bandwidth by selecting the cheapest means of transmitting data over long distances, significantly reducing network communication fees for waste management service providers.

SGF adopted Advantech's TREK-723 mobile data terminal (MDT) for managing moving fleet assets and driver behavior. To achieve real-time fleet management, a vehicle-mounted system with several specific features is required. In this case, the required features were WWAN communication, GPS, and a unique SGF-designed CAN bus-based reading module for reading vehicle data. Additionally, the system's power supply, shock resistance, and core temperature range should be suitable for operation in harsh environments. In-vehicle computers should conform to several special requirements. For example, older trucks tend to have an unstable power supply, excessive noise, and insufficient voltage, which hinder system activation. When connected to peripheral devices, a sudden voltage surge can damage the motherboard, and bumpy roads may cause power outages or computer failures. Moreover, systems without a wide operating temperature range cannot perform consistently in extremely hot or cold weather. All these factors can lead to system fails, and, in worse-case scenarios, necessitate sending the system to the factory for repair.

TREK-723 features a 7" TFT LCD screen with a backlight and adjustable brightness. Equipped with a rugged aluminum enclosure, the system is tolerant to vibration, dust, and water, and supports a wide operating temperature range, making it ideal for extreme in-vehicle environments. The DC power input is designed to handle transient voltage and ignition cold cranking, and the power on/off delay functions allow voltage stabilization after the engine is activated. TREK-723 is equipped with many flexible communication technologies, such as IEEE 802.11 a/b/g/n, GPS, Glonass, HSDPA, CDMA, and LTE, enabling real-time voice and data transmissions. The carrier company was extremely satisfied with the implementation of TREK-723 in its fleet vehicles.

SGF Peru and Advantech's TREK-723 in-vehicle computing box satisfied the customer's requirements and provided an additional benefit. Specifically, the new system enabled instant reporting and confirmation, which allowed the sub-contractor for city waste management services to provide regular and accurate reports to the relevant governing authority. ■

Advantech WISE-PaaS Helps Partners Quickly Establish IoT Blueprint

As the Internet of Things (IoT) gains popularity across a wide range of industries, more business owners are seeking IoT solutions to gain a competitive edge. Many of these business owners, however, will face difficult challenges when trying to develop full IoT environments or IoT solutions. To promptly assist customers with building a suitable IoT infrastructure and analyzing huge amounts of data, Advantech has announced the WISE-PaaS platform, based on the concept of "IoT solution building blocks". Through partnerships developed in the WISE-Cloud Alliance program, Advantech can provide companies with customized blueprints for building specialized IoT solutions.

By Advantech Embedded Core Computing Group with images provided by Advantech
Interview with Louis Lu, Senior Manager of Advantech Embedded Core Group.

Framework Makes IoT Possible

"To achieve a comprehensive IoT solution and analyze large amounts of data often turns out to be much more complicated than expected", said Louis Lu, Senior Manager of Advantech Embedded Core Group. In an IoT environment, many end-user devices and pieces of equipment have to be inter-connected. Many data-related things must be considered as well, such as methods for collecting and transmitting large amounts of data, how to analyze data from different sub-systems stored in cloud storage, and determining how the analyzed results will benefit the system integrator.

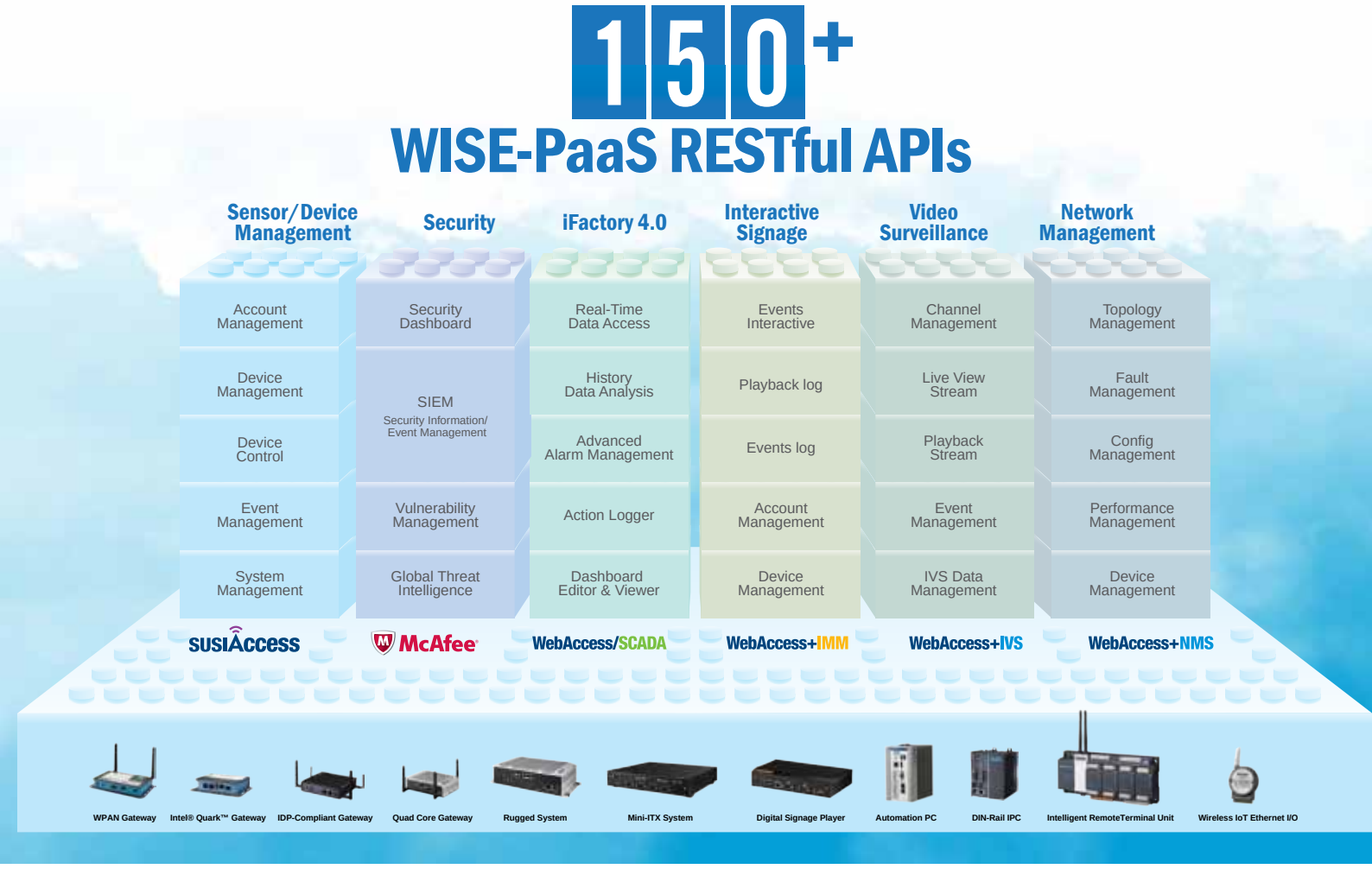
Aside from technical challenges, a comprehensive IoT solution must also include protection for data security and information privacy, as well as provide effective and suitable business models that meet market demands. To satisfy various requirements from system developers in different industries, Advantech developed WISE-PaaS, an integrated platform to fulfill a wide range of such industry requirements.

"Different industries will have different requirements, different protocols, and different ways of communication. As a result, it is crucial during the initial stages of development to take a close look at these requirements and protocols, in order to design the necessary bridging interfaces and flexible modules that are compatible with new, old, or different protocols. WISE-PaaS is based on such a concept and provides an open, integrated and standardized platform for its users and developers", Lu continued.

RESTful APIs for Easy Platform Access

The WISE-PaaS platform uses RESTful APIs web services and MQTT messaging protocol to establish connection and communication among the sub-systems. Advantech cooperates with customers and third-party partners to fulfill a wide variety of IoT project scenarios.

The WISE-PaaS platform software, as well as its system board and wireless sensor drivers, consist of open, standardized APIs and protocols. The flexible and expandable architecture of the platform allows for seamless integration between a diversity of cloud solutions and equipment. The platform plays a key role in the development of IoT environments, analyzing IoT big data, continuing optimized work flow and future expandability of the system.



Open APIs for communicating with the platform are absolutely necessary. The purpose of these APIs is to allow the programmer to make function calls in order to access the system's features without worrying about the underlying source code or understanding how the internal hardware works. By calling the different APIs, the WISE-PaaS platform easily adapts to different working environments, and supports modular functionality according to customer's work flow.

Besides making things simpler for the programmer, improving ease of application development and the development environment are also important. Lu states, "Since web pages are cross-platform, web UI development and management are the main focus. Advantech will continue to improve and create practical web UIs by using the popular RESTful APIs as the basis of development for the WISE-PaaS platform."

Although other web APIs are available, Lu believes RESTful APIs hold several major advantages over the others; they are easy to develop, compliant with existing web services, and have a low learning curve. Since IoT sensor devices have lower bandwidth and smaller packet size requirements, and since RESTful APIs provide cross-platform support among different operating systems, so RESTful APIs are the best choice in the development of WISE-PaaS.

To satisfy different requirements, WISE-PaaS already offers more than 150 RESTful APIs. By the end of 2015, over 200 different APIs should be available. Advantech will collaborate with its alliance partners to further increase the number of APIs as well as enhance existing applications.

Powerful Development Capabilities

"WISE-PaaS modules work like Lego blocks", said Lu, "Consumers can choose from a variety of solution-ready sets, such as castles, aircraft, and ships, or simply purchase a standard set to create a completely unique object, or yet choose to combine standard and theme-based packages; all are workable approaches."

Lu also stated, "Lego also provides standard accessories such as figures and vehicles that that go with the solution ready set. When customers need to create something similar, they'll save a lot of time.

"Each Lego piece is constructed based on the same standard, like how WISE-PaaS uses the same or exchangeable APIs and protocols. Thus, regardless of a block's shape (like the different functions within each WISE-PaaS module), they can always connect with each other. WISE-PaaS is like a Lego set; the user can choose a Solution Ready Packages (SRP) and a standard package (WISE-PaaS Module Open API) from the Market Place in order to fully customize an IoT solution suitable to their individual requirements and working conditions. Moreover, they can package the IoT solution into another SRP and promote it in the market place.

"For even more possibilities and extensibility, the packages will be adapted to use more protocols in the future. The software modules will put on the market and separated into categories for purchase throughout the world."

WISE-Cloud Alliance for Win-Win Scenarios

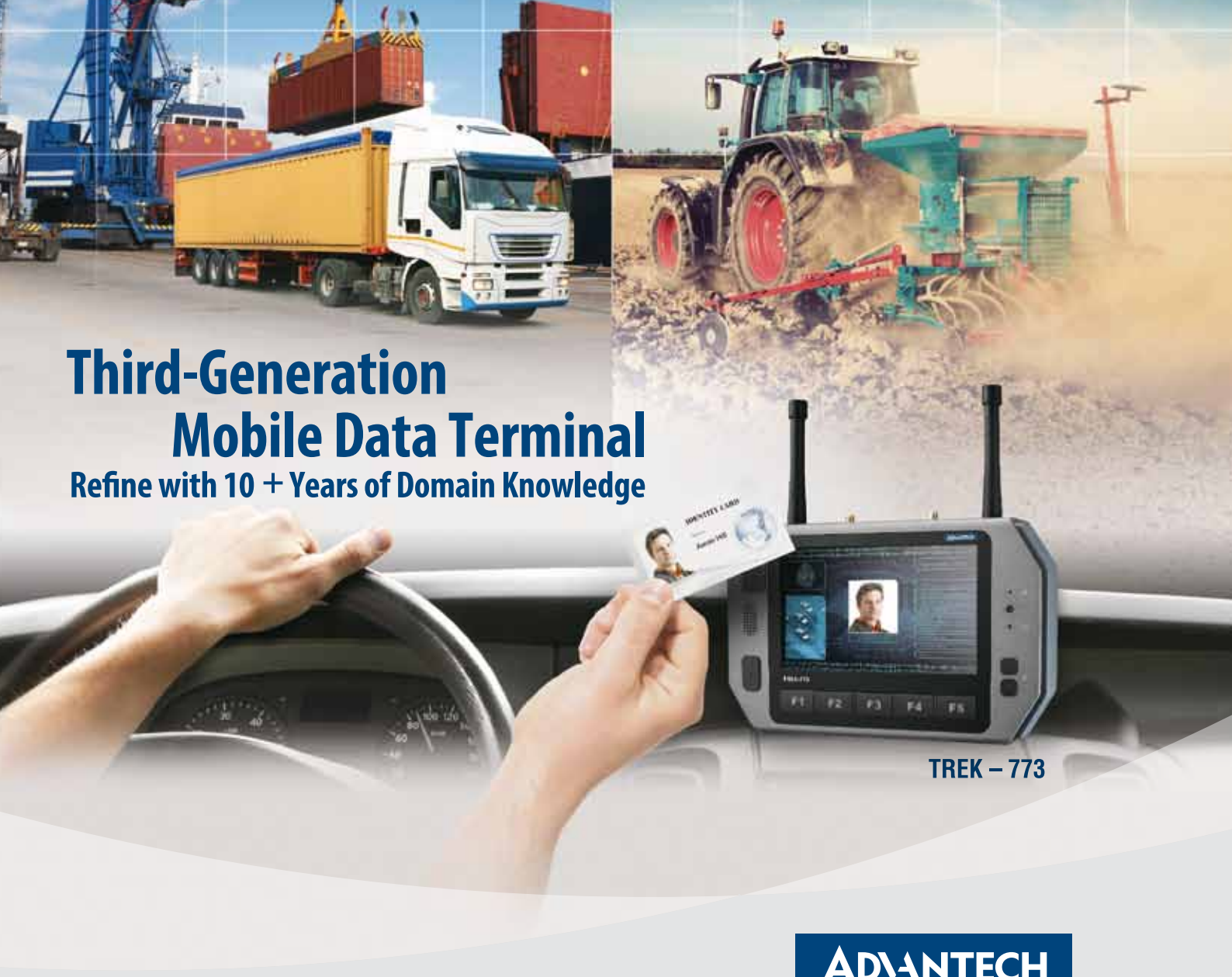
In the age of IoT on the cusp of large data amounts, Lu stressed that WISE-PaaS facilitates different IoT solutions, on the basis of frameworks, for companies in different industries. To this end, Advantech will keep developing and expanding the WISE-PaaS service, and seek to collaborate with important partners like Microsoft, IBM and Cisco in the WISE-Cloud Alliance. In addition, through collaboration of advanced cloud computing technology and data analytics, the market place will offer ever more technical and rich apps for developers. Furthermore, Advantech provides a wide array of software development kits and professional consulting services, while delivering customizable IoT models in harmonious cooperation to the IoT industry. ■

Application Story: UShop+ Powered by WISE-PaaS

Under the big structure of UShop+, three systematic subsidiary structures exist: the IVS system, which analyzes and identifies the people and images inside shops; the WebAccess SCADA system, which collects data and monitors the environment inside shops; and the SUSIAccess system, found in POS and electronic digital signage, which manages, collects and uploads data to the cloud.

These three systematic subsidiary structures function independently, but in mutual support, integrating data through SUSIAccess, and uploading useful data to the cloud for archiving. The joint platform providing these computing and integration functions is known as WISE-PaaS. The data obtained in WISE-PaaS is used for equipment analysis and customer groups as well as for reference with regard to improvements in UShop+ itself. The UShop+ application will be optimized through constant improvement provided by machine learning.

From this case we can see that the heterogeneous cooperation of IoT is an inevitable trend. Thus, an open and standardized platform will become a key factor for clients in the fast realization of IoT solutions. Based on this principle, WISEPaaS gives system developers an advantage as they design, innovate and develop, to fulfill the promises of the IoT.



Third-Generation Mobile Data Terminal

Refine with 10 + Years of Domain Knowledge

TREK – 773

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Mature Innovation Based on Extensive Domain Knowledge

Over the past 10 years direct industry feedback, Advantech continued to refine its design and technologies to better satisfy the needs of vertical industries. Capable of more than fleet management applications, TREK-773 offers industries that utilize off-road vehicles of harsh environments (for example, mining, construction, harbor freight, and agriculture) a high return-on-investment (ROI) solution that is extremely convenient to install, allowing system integrators to easily and rapidly place TREK-773 in service.

TREK-773, Rugged All-In-One Industrial-Grade Solution

- Built-in GNSS, WLAN, Bluetooth, NFC, and LTE WWAN modules
- Certified for shock vibration (MIL-STD-810G and 5M3), IP54-certified I/O cover and, (-30° C ~ 60° C) working temperature
- Intelligent vehicle power management system and Vehicle diagnostics with CAN (J1939, OBD-II), J1708 (J1587) protocols

Vehicle Mount

In-vehicle Camera

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MRM SDK
Mobile Resource Management Software Development Kit

Voice Recognition

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Advantech Helps 4K Drive Sharp, Imaging

In the future, the 4K video standard will become an important imaging technology in broadcasting and many other industries. Advantech combines a deep-rooted technological foundation with long-term professional knowledge to promote an imaging solution with smaller size, better functions, and lower power consumption.

By MD Wang and images provided by Advantech
Interview with Lin, Chun-Chieh, Director of Advantech Networks & Communications Group; Liu, Yung-Ping, Senior Manager of Advantech Networks & Communications Group

On the afternoon of July 13, 2014, the 2014 FIFA World Cup Final football match was in progress. At the same tame as the German striker Mario Götze fired in his shot and scored, 100 million people around the world simultaneously stood up screaming—as did the people watching the game at the Maracanã court at Rio de Janeiro in Brazil. Whether viewing on the big screen, or on a TV anywhere in the world, people could clearly see how the tri-colored football rotated and arced passed the goalkeeper, and flew into the net in slow motion.

The FIFA World Finals in 2014 boasted the highest total viewership in history as well as the highest peak viewing for a HD and Full HD live broadcast in history. But imaging technology never stops. In 2016, the U.S. will formally start broadcasting 4K content via satellite. In 2018, Korea will adopt 4K live broadcasts for the Winter Olympics. And Japan even announced that the 2020 Olympics will be broadcast via 8K. With the "numbers" ramping up in every country, people can see that a higher resolution imaging world is well on its way.

New Image Technology Transforms the Future

From SD (480p) in the past, to HD (720p), and to Full HD (1080p) nowadays, consumers have an endless hunger for quality images. "According to the development through these years, we can see that imaging technology shows several trends: toward being IP-based, toward 4/8K, HEVC, and MEGA-DASH", said Yung-Ping Liu, Senior Manager of Internet & Telecom Business Group, of Advantech. These technologies will transform the imaging world in the future.

From an analytical technology perspective, the main broadcast standard is SDI. Although the image signal produced by SDI is digital, its transmission are still based on coaxial cable, with its poor flexibility. Thus, Sony, JVC, and Canon have started promoting IP-based technology and use standard Ethernet to transmit image signals at the same level as SDI. In the future, an IP-based interface will be integrated into 4K cameras.

In addition to broadcast, security monitoring has also followed the 4K trend in the past two years. Both in the SECURITY Show held in March 2015 in Japan and Secutech held in April in Taiwan, 4K was the key output. However, 4K technology has problems with the appearance of front-end images and with data transmission. In particular, existing image decompression technology is not adequate to handle live broadcast. Liu indicated that the resolution of 4K images is four times that of existing Full HD. Given today's bandwidth limitations, higher image decompression technology is required to transmit four times the amount of data. The timely maturity of HEVC fills the gap.

HEVC, also known as H.265, uses improved coding and decoding technology to reduce data volume. Compared to the previous generation H.264, HEVC reduces overall data volume by another 50%. For example, H.264 output streaming from a Blu-ray disc runs about 25Mbps and the compression rate is about 1:142. However, H.264 compression applied to streaming 4K video, with four times the data, is clearly insufficient, but can be handled by H.265.

In addition to HEVC, MEGA-DASH is another image transmission technology to appear in recent years. Unlike the coding-and-decoding approach of HEVC, MEGA-DASH uses QoS (Quality of Service) to smooth the transmission of video. In the past, due to lack of bandwidth, video streaming was constantly suffering buffer underruns that produced playback gaps, or poor image quality. MEGA-DASH cuts images into several sections, and downloads the files with the most appropriate size section-by-section based on the bandwidth, and combines the images in the terminal to allow the video to play smoothly.

The IP-based, 4K, HEVC, and MEGA-DASH technologies have become common place, and related products have gradually appeared in the market. However, due to the very recent deployment of these technologies, the structure of most of the products has not yet been optimized.

Chun-Chieh Lin, Director of Internet & Telecom Business Group, pointed out that the structure of 4K image solutions currently existing in the market is still based on a PC server with power consumption of more than 3,000 watts. This is far from ideal, both in terms of physical size and power consumption.

Demand for the Application Grows Significantly

Lin further stated that Advantech has been developing solutions in the IoT field for a long time. Along with its solid technology, Advantech also has rich vertical application experience. In the 4K field, Advantech has promoted related products, including HVC-8700 and HVC-8701, which are solutions designed for 4K-HEVC video capture and compression. Advantech designed these products as module cards with PCI-E interfaces. Users simply insert a card and get hardware HEVC coding and decoding. In addition, the power consumption is less than 15 watts; power management in these units functions excellently.

Lin indicated that Advantech supplies HVC-8700 and HVC-8701 solutions not only to broadcast customers but also to the medical field. He pointed out that because medical relates to people's physical safety, so the requirements for the image quality must be high. Take X-ray images for example; if the resolution is insufficient, physicians may have difficulties identifying tissue tumors. Liu further stated that the medical field has recently initiated the use of 4K images. Endoscopy is one area where these images shine. In addition to diagnosis, 4K image technologies are also used in teaching remote surgery.

In terms of applications, Lin thinks that the development of 4K for entertainment purposes, such as movies, TV, and sports broadcasts, is growing fastest because such applications have vast output and high requirements for image quality. So entertainment is the pioneer in imaging technology. High-res medical imagery will also be a fast-growing field. In any case, professional knowledge is crucial regardless of the application. Advantech is able to offer a breadth and depth of product applications that are among the highest in the industry. Lin stated that image solutions require close connections with other equipment in the system in order to deliver the best value. With its comprehensive product lines, Advantech integrates the most appropriate solutions for every vertical market. ■

Win-Win Collaboration for IoT Applications

WISE-Cloud Alliance

IoT Development Suite Design-in Services Marketing Collaboration

ADVANTECH
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The Compass to Steer Through the Internet of Things

Advantech provides WISE-Cloud Alliance program to further cultivate IoT business potential, which will be joined by more and more cooperating partners and the third-party players. Within the Alliance, academia-industry innovation cooperation can also better help existing solutions. Advantech offers to WISE-Cloud alliance members: an IoT development starter kit, SDK/Protocols, 180 day Microsoft Azure service, professional consulting and technical training services, business matching making, co-marketing programs and more, to shape the win-win strategy needed to succeed in the IoT market.

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The Ongoing Advantages of Control Technology -

Advantech LNC Commercializes Robot IPC

In addition to efficacy, integrity and compatibility are essential requirements for industrial robots. After initially producing tool controllers, Advantech LNC is now promoting Robot IPC to the robotics industry and developing high-performance yet cost-effective solutions that enable system integrators to increase competitiveness.

By MD Wang and images provided by Advantech
Interview with Michael Kuo, General Manager of Advantech LNC Technology Co., Ltd.

Industry 4.0 is considered the most significant industrial evolution of the last decade, but how many manufacturers are up-to-date with this trend? When discussing Industry 4.0, we must first address industrial robots. Through the use of industrial robots, the concepts of an "unmanned factory" and "lights-out manufacturing" can be realized. In recent years, small and medium-sized manufacturers in Taiwan and Mainland China have begun developing robots despite fairly unsatisfying results. Why is this? "Large factories have influenced market trends for some time," said General Manager of Advantech LNC Technology Co., Ltd., Kuo Lun-Yu, highlighting a key reason for the lack of success.

"In the past, industrial robots were manufactured independently; however, with the establishment of manufacturing standards, industrial robots have become more affordable for large-scale factories."

Advanced skills and declining prices drive demand. However, most small and medium factories in Taiwan and Mainland China struggle to enter the market.

Although large factories have the advantage of reduced costs, introducing new applications remains difficult. Because robots are designed for differing environments and manufacturing processes, specific software, hardware modules, and imaging equipment must be installed to operate the robots. For manufacturers, resolving these issues requires considerable time and resources.

Robot IPC is Efficient and Flexible

Consequently, system integrators began building robots independently. Because of their professional industry knowledge, system integrators only need to source and integrate existing products. Yet, the issue

appears to be more complex. The results of independently manufacturing robots are less than ideal, because, as Kuo pointed out, integrating independently manufactured products can be fairly problematic.

"It is fairly easy to use different parts to build a standard robot. However, the industrial application of such robots when integrated into the manufacturing process generates problems."

The key factor contributing to these problems is a lack of "specific" robot controllers or solutions that enable system integrators to rapidly add value and conduct mass production according to industry demands for quality-assured robots. The timely appearance of Robot IPC is expected to address this deficiency, with Kuo also highlighting, "Advantech LNC is unique in this field."

Advantech LNC promotes this all-in-one Robot IPC to the robotics industry as a niche product aimed at benefiting system integrators.

Kuo also stated that because robots have unique applications, designers should leverage industry knowledge when designing robots to ease their subsequent integration and operation. However, professional knowledge of specific fields is a core competency of system integrators; hardware suppliers have no need to get involved. For such cases, Advantech LNC adopts a pre-built approach by producing a control substrate with full functionality, while reserving up to 20% of the design for customization by system integrators, according to industrial application requirements.

In addition to flexibility, compatibility is a crucial requirement for robot design. This is because in robot manufacturing, although the standard factory layout has been established for a long time, the varying purposes of the robots means that mixed production line approaches are inevitable. To address this need, Robot IPC is designed with high flexibility to ensure compatibility with all automatic components in the EtherCAT interface market, increasing the ease of production line integration.

Robot IPC also features a minimized controller pattern on the board computer, which enables it to be embedded into an existing IPC structure. This approach increases the available internal space and allows system designers to install various slots according to application demands.

Unlike the traditional approach, which requires numerous wires, Robot IPC servers and I/O adopt the instant Internet standard of Yaskawa and Panasonic servo motors.

Kuo also stated that EtherCAT is one of the advanced communication protocols supported by Robot IPC. Because

EtherCAT is expected to be the mainstream standard of industrial Internet in the future, most manufacturing systems will adopt this communication protocol. Advantech LNC's vision is to lead the field of robot control for the next generation by linking equipment manufacturing with the building of highly integrated manufacturing systems.

Optimal Production Lines

Various industrial robot configurations, including Delta, SCARA, slides, and multi-joints, are currently available on the market. Robot IPC is equipped with several versions of corresponding software. Advantech LNC can ship devices installed with different software versions according to the customer's needs. Robot IPC can support a maximum of six axes. Kuo revealed that Advantech LNC is currently developing a more advanced version.

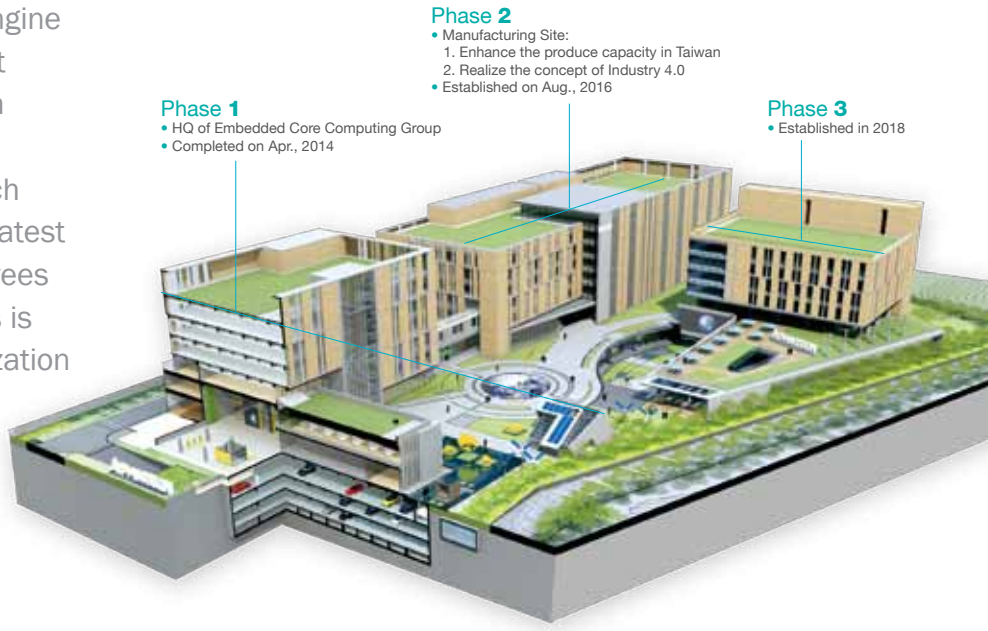
The number of axes controlled can be increased in multiples of six based on the concept of connectivity. Because the CPU capacity of a standard IPC is limited to the host, increasing the number of axes controlled consumes much of the platform's computing resources. However, because Robot IPC is equipped with a built-in CPU, increasing the number of axes does not influence the efficacy of the host. With the popularity of Industry 4.0, the number of industrial robots installed worldwide has gradually increased. Kuo stated that the growth of the robotics industry is unlikely to be explosive; instead, growth will be steady and long-term. Faced with crucial business opportunities, system integrators must select hardware suppliers with sufficient technical capabilities, and Advantech LNC is one such supplier.

Currently, Advantech LNC is focused on regional promotion in Taiwan and Mainland China. In the future, Advantech LNC aims to combine software and hardware production lines, for example, ADAM and WebAccess, to produce comprehensive solutions for the global market. ■

Linkou Campus for Collabo

IoT & Smart City Solution Experience Center

To realize the vision of the core engine accelerating the “Era of the Smart City”, Advantech collaborated with its industry partners and carried out the development of “Advantech Linkou Campus”. We provide the latest solutions here for not only employees but customers to experience. This is only a small step toward the realization of the Smart City, as Advantech utilizes its position as a leader of industry to assist Taiwan’s ICT enterprise in its advance into the “Global Smart City” era.



Interactive TV Wall

We provide an interactive display of Advantech's worldwide presence, history and Live Manufacturing, Lab Central Monitoring System, and Remote Device Management, etc. Information is presented engagingly, and visitors can quickly learn about our company with the touch of a finger.

Central Control Room

We think control center is like the brain of the building. All information should be shared with the people working in and visiting the building, and the intelligent building system can serve as an advanced people-oriented service for the benefit of everyone.

rative Innovation

Smart City Lego & Demo Room

We build the smart city lego based on various applications, such as Digital Healthcare, Digital Logistics & Fleet Management, Intelligent Retail, Smart Manufacturing and so on, hope to make public understand what we imagine about the future. Moreover, once you go inside the demo room, you will understand what we are really struggling and realizing the mission of "Enabling an Intelligent Planet".

Intelligent Meeting Room

We list meeting room reservations and usage information on the large digital signage display, allowing people to see all using status by different colors at a glance. Unreserved meeting rooms may be reserved using the touchscreen at the bottom, which helps to maximize meeting room usage.

Jo Sunga

Embedded Computing Engineer Director, Advantech USA

您好, Guten Tag!, Konnichiwa, and Hello to you, wherever you are reading this! My name is Jo Sunga, and I am Director of Engineering for Advantech's Embedded Computing Division in North America, located in Irvine California. Now going into my 14th year with Advantech, I first started when there was only a small office of 15 people. Today, we have grown to 140+ dedicated individuals.

Having a passion for science, tech, and creating things, I started at a young age building my first Intel® 8088 based computer, coded in assembly, built simple circuits and worked on robotics; this passion has allowed me to be able to be in the position I am today. Leading different technology and engineering teams for Advantech such as in applications, electrical, research & design, mechanical, software and IT has given me opportunities to work with cutting edge customers on innovative projects that make a difference in our world. For that I am truly grateful.

Perisa Pezeshk

Purchasing and Sales Co-ordinator, Advantech UK

My name is Perisa Pezeshk and I am based in the London office where I am the UK Purchasing and Sales Co-ordinator. My responsibilities include loading orders, liaising with suppliers, resolving queries and ensuring customer satisfaction. I support four Key Account Managers, our Channel Manger and Channel Partners for Embedded Core within the UK.

Our office was originally that of GPEG, which was acquired by Advantech in November 2013. We were officially integrated into Advantech in October 2014. Even after 9 months, we already feel a valued part of the Advantech family.

I love meeting new people and working for a global company which enables me to communicate with people all around the world. In the morning I could be speaking with suppliers in Korea or China, by lunch time with co-workers in Holland and the end of the day, with customers in the UK.

Tommy Chen

iSystem PSM Director, Advantech China

Hello every one, I am Tommy Chen, and I am in charge of China iSystems as PSM. I joined Advantech in 2000 and at that time there was only the IPC-610 Single Board Computer and a few others and business was under $70M. Today, under Paul's great leadship, we in IPC have grown to nearly $200M and we have a special relationship with peripherals which we call IPC+N. Generalized IPC means IPC, ARK, PPC, Box IPC, etc. It depends on our well known market share which is 50% in Greater China.We are also selling SQFlash, HPC, Advantech brand DVD-ROM, keyboards / mice, UPS and monitors, ICOM, Microsoft bundled Windows, touch monitors (ITM, DS, Elo Touch), EKI switches, UTCs, on-site 1-year services, and more. This is the "N" in "IPC+N". China is a huge land, with interesting culture, long history, and an advanced IT environment, represented by Baidu, Alibaba, Tencent, and XiaoMI. This is why I chose to locate in mainland China Also, thanks to Paul's full understanding and reliance on me, I have the decision-making power to capture new Premier Key accounts.

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Advantech holds “Enabling an Intelligent Planet” as our corporate vision, and “Partnering for Smart City & IoT Solutions” is our concrete goal; we will continue collaborating with various partners to build new paradigms in each vertical field. Advantech will consistently follow our LITA (Altruistic) spirit, positively cooperating with partners and engaging in innovation to develop every Smart City opportunities.

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研華以「智能地球的推手」作為企業願景，將「驅動智慧城市創新」作為具體目標，並與各產業夥伴協同合作深耕各垂直領域，共建各式物聯產業典範，期望能持續以利他的精神，積極創新並與夥伴共創智慧城市的每一個可能。