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How are IoT and Blockchain Revolutionizing Cars?

Is Vietnam's First AI Robot the Future of Education?

COVER STORY
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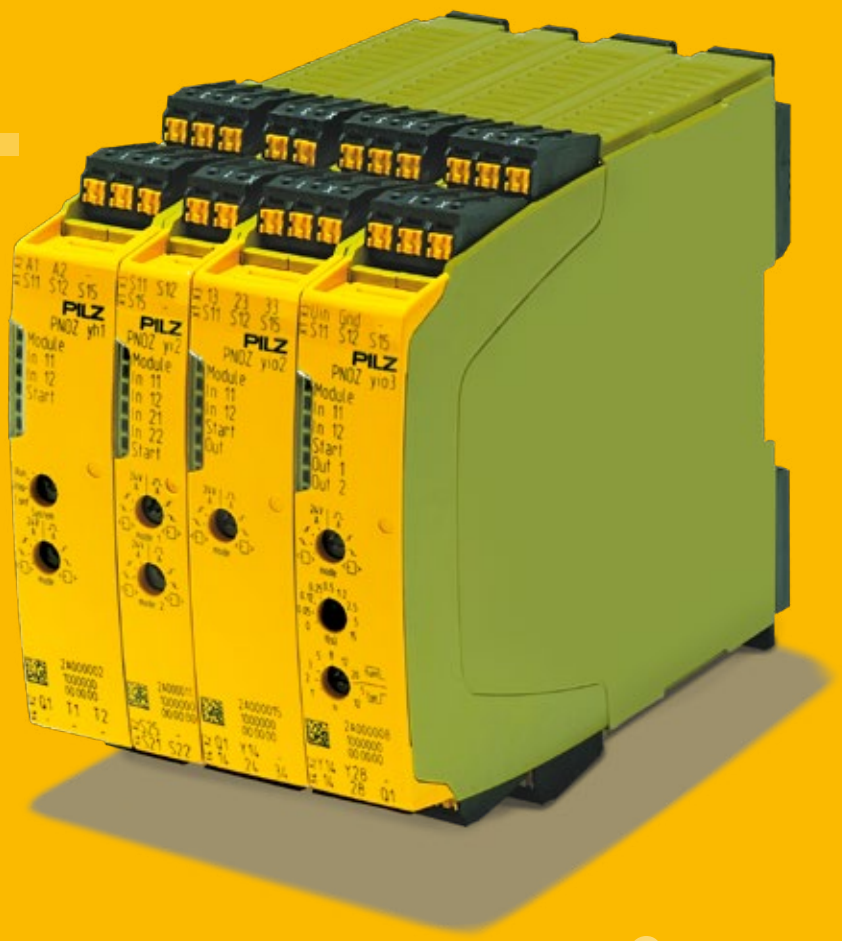

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Publisher's Message

Vaccines for COVID-19 have been administrated across 103 countries with approximately up to 241 million doses. However, it will take roughly around 4.6 years to cover 75% of the world population with a two doses vaccine. It is estimated that 70% to 90% of the world population have to be immunized to reach herd immunity. On the 24th of February, Malaysia's vaccination rolls out begun with the Prime Minister Tan Sri Muhyiddin Yassin received the first dose of the Pfizer-BioNTech vaccine, kicking off the national COVID-19 immunization programme.

The government has launched the COVID-19 vaccination registration programme through the MySejahtera application as one of the methods provided by the government for the public to register for the vaccination. The arrival of the Sinovac COVID-19 vaccine marked a significant event for Malaysia and especially Pharmaniaga Berhad's progress into vaccine manufacturing as it will be the first vaccine to be filled locally. With the vaccination on a roll, will Malaysia return to its normalcy? As the Movement Control Order (MCO) has proved effective in precipitating the decline of daily new cases.

Johor is in talked on travel arrangements between Malaysia and Singapore and one of it including reopening of borders following the COVID-19 immunization programme. According to the Health Ministry's Director-General Noor Hisham Abdullah, the government will revisit the Movement Control Order (MCO) when 80% of the population in Malaysia has been immunized. Let's be hopeful that 2021 will be a better year with a road to economic recovery and we'll soon return to normal life post-pandemic recovery.

On behalf of the editorial team, I thank you for your massive support to Automate Asia Magazine. Stay in touch with us at www.asiaautomate.com for more updates.

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The FPM-200 series monitors can withstand 24/7 operation in industrial environments with harsh conditions, such as excessive vibration and temperature and power fluctuations. The IP66 rating for protection from dust and water ingress allows the entire display to be cleaned and easily maintained. Moreover, the monitors offer a backlight lifetime of 50,000 hours for an estimated service life of more than 5 years under constant load.

Regarding installation, like all of Advantech's flat-panel displays, FPM-200 monitors can support various mount options, including panel, desktop, and VESA mounting, to ensure easy deployment in diverse industrial environments. Overall, FPM-200 monitors offer the best price-performance ratio for a reliable industrial-grade, touch-controlled display solution that can support a wide range of industrial and IoT-related applications.

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ARE YOU READY FOR THE NEW NORMAL?

Be prepared. Usher in A New Era of Robotics

With PBA...
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PBA is the future of robotics. With constant innovations in industry-specific technology which is built on an ever-deepening and widening PBA Core Technology platform, we serve as a Tech 4.0 enabler. Our purpose is to meet the challenges of the world by bringing robotics technology for all businesses, making it easy-to-use, simple and accessible to all.
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Is Vietnam's First AI Robot the Future of Education?

In digitally progressive Vietnam, an AI robot fitted with five "senses" and Google search is being equipped to be a teaching assistant

As a country, Vietnam keeps growing digitally from strength to strength. In just three years, after decades in the digital wilderness, the traditionally agrarian nation has undergone a rapid transformation driven by "improvements to the digital identity, digital citizenship, and digital lifestyle components", to the extent Vietnam has even developed its first AI robot.

Building a working automaton that is driven by artificial intelligence, and that can interact with human beings would be an achievement for most developing territories. But with a supportive government that has made digital transformation a priority for governance, infrastructure, and businesses alike, surprising breakthroughs like AI robots or sustainable energy alternatives for smart cities are not that surprising anymore.

Vietnam now sees smart urban centres and digital transformation initiatives as key to boosting its economic and societal development. GSMA noted that the Vietnamese government has been pursuing a national Industry 4.0 strategy that includes infrastructure and human resources, along with e-government services and innovation initiatives like an e-commerce transformation plan that is expected to grow online businesses by up to 43% within the next five years.

Vietnam is also slowly exploring technologies important towards achieving Industry 4.0, such as big data, cloud computing, and of course AI. Vietnam's Deputy Minister of Science and Technology, Bui The Duy, told a recent conference that AI had been receiving more and more attention in recent years as the technology can be applied in many fields.

Vietnam's education AI robot

One of those fields is education, and that is the purpose of Tri Nhan, Vietnam's first AI robot that can do math problems, work out solutions on its own, and even read poetry. Developed by local edtech start up Open Classroom, Tri Nhan is a 1.8-meter, humanoid robot that was 3D-printed and is intended to be a teaching assistant.

That is why Tri Nhan has been equipped with a human-like personality and emotional intelligence that can even tell jokes, according to lead scientist and AI expert Pham Thanh Nam that developed the bot.

Nam says that Tri Nhan converges many typical Industry 4.0 technologies including artificial intelligence, big data, IoT, cloud computing, 3D printing, blockchain, augmented reality, supercomputing, robotics, and bioinformatics to give it its five "senses".

Developer Nam says these senses ('vision' with two cameras in the eyes; 'hearing' with a long-range microphone array; olfactory or 'smell' sense with air quality sensors; tactile or 'touch' with pressure, temperature, and humidity sensors; and 'taste' via an electric meter attached to an antitoxic mechanism) have been integrated with Google search engine to be able to handle a variety of educational tasks, including math-solving and poetry recitals.

CASH IS STILL KING IN VIETNAM – HERE'S WHY THAT'S AN OPPORTUNITY

Tri Nhan can also translate Vietnamese to English and vice versa, and for some reason it has also been fitted with an artificial heart, lungs, and even a DNA sequence. Using its sensors, Tri Nhan can detect facers and measures heart rates, but it can also control other smart devices with relatively simple instructions like vacuum cleaners and drones.

"Using Google's search power, Tri Nhan can answer questions of almost any field, with answers that we, the creators, do not know," said Nam, adding that Tri Nhan as Vietnam's AI robot is designed to eventually support learning and teaching outcomes in the country's educational sector.

"If students only learn through traditional books, it will be very passive," said Pham. "Tri Nhan synthesizes source knowledge when asked, and Tri Nhan's brain will analyse and give answers in a snap, especially knowledge of mathematics, helping students to actively learn and update knowledge."

Source: techwireasia.com

MultiTech Introduces World's First Industrial 5G Router

MultiConnect rCell 700 Series Router Features 5G New Radio (NR) Access Technology so Industrial Applications Can Realize the Full Capacity and Robustness of 5G Networks

Multi-Tech Systems, Inc., a leading global supplier of Industrial Internet of Things (IIoT) communication devices and services, today announced the world's first 5G NR router designed for use in industrial environments.

The new MultiConnect® rCell 700 Series router includes support for dual subscriber identity modules; three local- and wide-area network ports; serial and Modbus interfaces, with an industrial operational temperature range. It uses the latest MultiTech mPowerTM Edge Intelligence software for streamlined edge-to-cloud data management and analytics, as well as advance security.

With a dual-core performant Arm Cortex-A53 processor, 8GB flash and 1GB RAM, and high-bandwidth, low-latency connections, the new MultiConnect rCell 700 Series router is ideal for robotic automation, augmented reality, video-intensive monitoring and autonomous guided vehicles emerging with the deployment of industry 4.0.

It was designed to address the deployment challenges of mobile network operators beginning their macro network investments with a Non Stand-Alone (NSA) architecture, as well as those of service organizations and enterprises which may prefer to make the move immediately to a Stand-Alone (SA) network leveraging shared or NR unlicensed (NR-U) in unlicensed bands.

Daniel Quant, Vice President of Strategic Development for MultiTech, said:

"With the introduction of 5G NR devices, industrial enterprises can now address the pent-up demand to transform their operational efficiency and customer engagement."

"This technology was developed from the ground up to address the needs of a diverse set of stakeholders, and its adoption will be driven by the enterprise mobility and digitization needs of industry, government and transportation."

The MultiConnect rCell 700 series supports a long list of Frequency Range 1 (FR1) sub-6GHz global 5G NR and 4G-LTE licensed, shared and unlicensed bands including:

- Mid-band n48/b48 for CBRS shared access;
- n77, n78, n79 covering the C-Band now being auctioned by the FCC with more than $80M in bids and climbing;
- And LAA in b46 at 5GHz Unlicensed ISM-Band.

"5G is perhaps the most technically challenging evolution in the history of wireless, and has the promise to provide the greatest societal impact. So while getting to market early is key for any organization, with 5G, the impact of timing things right has never been greater," said James Brehm, Founder and Technology Evangelist of consultancy James Brehm & Associates.

"MultiTech really hit the ball out of the park this time, but that's not uncommon for them. For over 50 years, MultiTech has not only anticipated technology changes, it has consistently delivered products that hit the peaks of major technology transitions."

The MultiConnect rCell 700 series delivers Gigabit Ethernet, serial, USB and Wi-Fi to up to 128 simultaneous users in an industrial aluminium form factor that is DIN-rail mountable. In addition to mPower Edge Intelligence for network flexibility, enhanced security and manageability, it also comes with DeviceHQ® remote device management for scalable IIoT solutions.

This new industrial 5G router from MultiTech is sampling now to select customers.

Source: iotbusinessnews.com

New Innovation Centre Aims to Help Local Tech Start-Ups Bring AI, IoT Products to Market Faster

The PlanetSpark centre is expected to help more than 30 local start-ups in the next three years. ST PHOTO: LIM YAOHUI

Singapore technology start-ups looking to deploy their artificial intelligence (AI) and Internet of Things (IoT) products and solutions can do so much faster with help from the new PlanetSpark Innovation Centre.

Launched in Changi Business Park, the centre is an accelerator that aims to aid these companies develop a proof-of-concept of their offerings within six months, instead of taking possibly two to three years.

After that, the centre will try to help the companies commercialise their products in the next six months and introduce the firms to customers and other players in the industry.

The centre, which occupies 10,000 sq. ft. of office space staffed by 10 employees, is getting a $5 million initial investment by PlanetSpark, the entrepreneurial and investment arm of Singapore electronics component distributor Excelpoint Technology.

The joint investment to PlanetSpark is from Enterprise Singapore and Excelpoint.

The PlanetSpark centre is expected to help more than 30 local start-ups in the next three years.

Mr Varun Chatterji, co-founder and chief software architect of Seventh Sense, holding a ZCU104 board running a Resnet 50 Facial Recognition Model in real time. ST PHOTO: LIM YAOHUI

One of the first to benefit is AI tech firm Seventh Sense, which is developing a product involving a body-worn camera linked to an AI module carried by a security personnel.

The firm is working on this with hardware partners like Excelpoint and PlanetSpark.

The AI module can process videos captured and generate alerts for both the wearer and for a central monitoring location when suspects are detected.

This cuts the need to send video feeds elsewhere to be processed, which can cost 10 times more.

The centre will have a panel of mentors from the private and public sectors to share expertise and experience with the start-ups, and can also establish partnerships with venture capital firms to provide funding to help grow start-ups with high potential.

Ms Phuay Li Ying, managing director of PlanetSpark, said that many Singapore hardware start-ups face challenges in accessing technologies from industry leaders, gaining market knowledge and finding channels to enter the regional market.

"The PlanetSpark Innovation Centre hopes to bridge this gap by innovating, incubating and inspiring," she said.

Source: www.straitstimes.com

Geek+ and Universal Logic Partner to Elevate Industry 4.0

Geek+

The companies declare a joint commitment to support the manufacturing and logistics industry with a paradigm-shifting goods-to-robot solution, for automating supply chain operations and elevating industry 4.0.

Geek+ and Universal Logic announce the beginning of a new partnership. Together, the companies declare a joint commitment to support the manufacturing and logistics industry with a paradigm-shifting goods-to-robot solution, for automating supply chain operations and elevating industry 4.0.

With large parts of the supply chain dependent on fixed automation and manual materials handling, the rise in demand for customization and made-to-stock capabilities have resulted in strained processes. In turn, it has generated a need for technologies that can automate the flexibility and precision of skilled labor and combine it with the throughput capacity of dynamic inventory control.

Randy Randolph, Senior Sales Manager of Geek+ US, says: "We are very glad to partner with Universal Logic and look forward to leveraging their extensive experience in automating dynamic robot behavior to realize the full potential of our intelligent mobile robotics solutions. By combining our advanced robotics hardware with Universal Logic's unparalleled experience, we believe that this collaboration has the potential to transform the global supply chain and shape the future."

The partnership will give Universal Logic access to Geek+'s wide range of robotics hardware for intelligent sorting and picking. Built on autonomous mobile robot technology and AI-driven software, Geek+ will provide Universal Logic with the flexibility to automate the entire chain from dynamic inventory control to pick & pack, expanding from goods-to-man to goods-to-robot solutions. Correspondingly, Geek+ will have access to Neocortex, Universal Logic's AI platform featuring real-time and modular robot control for extended perception, direct grasping, and advanced robot guidance, enabling human-like flexible picking capabilities, to unleash the true potential of intelligent robotics for logistics.

Universal Logic CEO, David Peters, states: "The Geek+ mobile robot platform, dovetails perfectly with Universal's dynamic robot control for picking and packing, providing our customers seamless automation capabilities, creating an end-to-end solution to meet current and future supply chain needs."

Source: www.sdcexec.com

Samsung and IBM Plan to Help Businesses Embrace Industry 4.0 with 5G and Edge

Steve Canepa of IBM

Samsung Electronics announced a new plan to collaborate with **IBM** to develop edge computing, 5G, and hybrid cloud solutions to help businesses across all industries modernise their operations and realise the promise of Industry 4.0. Samsung and IBM intend to work together to provide enterprises with new solutions for mobile edge computing and end-to-end private 5G networks that run on open architecture and empower workers through 5G-enabled Samsung Galaxy devices.

This planned collaboration will combine Samsung's Galaxy 5G mobile devices and advanced end-to-end enterprise network solutions with IBM's network management, hybrid cloud, and edge computing offerings and network expertise, as well as its industry solutions driven by artificial intelligence, and **Red Hat**'s open architecture.

The goal is to develop open, hybrid cloud solutions that enable enterprises to draw greater insights from data at the edge from the factory floor to an oil rig or a regular office space to improve operational performance, increase worker safety, and minimise downtime. Both companies also plan to explore how manufacturers can use private 5G or 4G networks and 5G mobile devices with Industrial IoT (IIoT) solutions.

"The move to standalone 5G has accelerated the adoption of IIoT solutions and will require businesses to adopt an edge computing strategy that allows them to manage their IT environments from anywhere," says KC Choi, EVP and head of global mobile B2B team, Mobile Communications Business at Samsung Electronics. "We are excited to work with IBM to discover how our unique devices, mobile IoT and network solutions can provide frontline workers with access to better data and more actionable insights to take their business to the next level."

Samsung and IBM also intend to help enterprises harness the power of 5G into public and private networks through cross collaborations with global mobile operators. Earlier this year, Samsung announced a project with IBM, the Singapore **Infocomm Media Development Authority,** and telecom provider M1 to showcase Smart Factory advancements, including 5G-enabled AI analytics and AR capabilities. The two companies aim to continue enriching mobile experiences for users and create new business opportunities for enterprises.

Private 5G networks help ensure maximum performance

Samsung and IBM also intend to help enterprises harness the power of 5G to increase their productivity and unlock new business opportunities. To do so, they plan to bring together Samsung's latest 5G end-to-end solutions, which include a wide array of indoor and outdoor products covering mid-band (C-Band, CBRS and local 5G spectrum) and mmWave, and its cloud and on premise server-based solutions, with IBM's open hybrid cloud technologies, including its edge platform and network management capabilities, its integration and consulting services, and its AI solutions.

This builds on Red Hat's recent announcement with Samsung to deliver 5G network solutions built on Red Hat OpenShift, and can help enable enterprises to swiftly customise and deploy their networks and flexibly manage them across any cloud, on-premises or private environment of their choosing.

KC Choi

Additionally, Samsung and IBM's collaboration in private 5G networks will be aimed at enabling enterprises to adopt emerging technologies crucial to Industry 4.0, such as IoT, AI, cloud, edge computing, and augmented reality (AR), and introduce new innovations across their business that can enable employees to identify faults in manufacturing lines using AI-powered image recognition, use thousands of sensors to build smart agriculture solutions, or facilitate employee training and productivity using AR.

"The transition of communication networks from proprietary architecture to intelligent, software-defined hybrid cloud platforms enables the creation of enormous new value in the 5G and edge era," says Steve Canepa, global GM and managing director, communications sector, IBM. "5G devices and network solutions from Samsung, along with IBM and Red Hat's open, hybrid cloud capabilities, can help organisations across all industries accelerate their transformation and solve real business problems, while unlocking the true power of 5G and edge."

Driving innovation for industry 4.0

As part of this collaboration, Samsung, IBM, and Red Hat plan to deliver AI-powered solutions for Industry 4.0 and beyond by leveraging the power of 5G devices, cloud-native 5G networks, and advanced edge computing platforms. Specifically, the companies intend to explore the interoperability and integration of Samsung hardware and software with IBM Edge Application Manager, which runs on Red Hat OpenShift, and AI to enable computing workloads to be managed and deployed to Samsung's portfolio of mobile devices at an industrial scale.

IBM also plans to provide hybrid cloud and industry-specific services to help with the design and implementation of the solutions, and Samsung will give developers access to high-quality features leveraging IBM and Red Hat's ecosystems and the broader open source community.

This intended outcome would not only give businesses enhanced flexibility to manage their IT/OT environments anywhere, but it will also allow them to simultaneously manage and compute data on Samsung mobile devices with tens of thousands of other endpoints to streamline workloads and increase efficiencies. The objective is to also enable them to draw deep insights and predictive analysis in real-time to uncover new business opportunities, increase operational efficiencies, empower employees, and offer a better experience to their customers.

Joining forces to drive change

The announcement is the latest milestone in Samsung and IBM's long-term global strategic partnership to help businesses around the world transform their operations through mobile, AI, and 5G solutions. For decades, the two companies have worked together on many projects that have helped governments and enterprises successfully transform their operations, including partnering on AI and mobile solutions. Recently, they joined forces to collaborate next generation 5G and edge offerings through IBM Cloud for Telecommunications.

Additionally, in the U.S., the two companies have joined forces to create an IBM and Samsung Growth Factory to accelerate the co-creation of new enterprise mobility innovations and help companies navigate the new normal. This approach has been critical in launching new solutions, such as mobile banking and safe communication in hospitals, as well as helping people return to work safely with social distancing and AR solutions for frontline workers.

Source: www.vanillaplus.com

ZF Chooses Microsoft and PwC Germany as Strategic Partners to Build Their Digital Manufacturing Platform

Three companies combine their strengths and experience to translate complex technical information into valuable business insights

ZF, Microsoft and PwC Germany will jointly transform processes at the ZF Diepholz plant in northern Germany and use the insights ZF wide. The project enables ZF to reduce conversion costs, improve inventory, performance and quality, and to make their workforce more efficient. As all companies are members of the Open Manufacturing Platform other customers in the automotive industry will also benefit from ZF's improvements gained in Diepholz

Digital transformation is reinventing companies and their factories. In manufacturing, it requires the seamless integration of both information and operations technology. PwC Germany, part of one of the world's leading professional service firm networks, Microsoft and ZF, as two of the world's leading technology companies, combine their strengths and experience to translate complex technical information into valuable business insights. The ZF Diepholz plant in northern Germany was selected for a pilot project where ZF and PwC Germany will transform processes and workflows using Microsoft Azure to build the future Digital Manufacturing Platform (DMP) of ZF.

Digital solutions make manufacturing more flexible and more efficient

"The world is changing, and so is manufacturing," says Gabriel González-Alonso, Head of ZF Corporate Production Management. "In these very turbulent times, it was especially important to us that we implement new digital solutions that enable our manufacturing to achieve higher flexibility and efficiency." This is nothing less than a paradigm shift for ZF. In the past, the software was introduced into each plant one by one and installed on discrete servers. latform and rolling out the functionalities to the plant via Microsoft

Azure. This horizontal, cross-plant integration with easy scalability makes ZF independent of its local infrastructure.

"To further digitize the ZF Diepholz plant, we will implement a transformation program with several additional use cases, all of which will be integrated into an end-to-end Smart Factory Transformation for ZF," explains Michael Bruns, Partner Digital Operations at PwC Germany. Selected cases will aim at creating transparency of production performance from the plant as a whole all the way down to machine level. Others will focus on the traceability of production flows, analysis and prediction of production, and quality outcomes. The third set of used cases aims at enhancing maintenance operations through machine monitoring and fault prediction.

To master these tasks, ZF and PwC Germany will use Microsoft AI to improve planning efficiencies and effectiveness, improve maintenance, repair, and operations (MRO) inventory and present new insights to improve production performance. "With our approach, we will help ZF to reduce conversion costs, improve inventory, performance, and quality, and to make its workforce more efficient," outlines Reinhard Geissbauer, Global Head of Industry 4.0 and Digital Operations at PwC Germany.

A win-win-win situation

Microsoft, which provides the software solutions for PwC Germany's approach, sees this project as relevant for the digital strategy for all automotive suppliers like ZF. "Our aim is to make this initiative not only a best practice for success at ZF but also an industry-wide inspiration to other automotive customers endeavouring on their own digitalization projects. We see strong interest across the manufacturing sector globally to leverage digital technologies to drive quality as well as process optimization, and we're excited for this project to serve as a true benchmark," says Marianne Janik, Area Vice President, Microsoft Germany. By combining their business and process expertise, technology insights, and AI capabilities, the companies integrate all aspects of how to digitize a factory from a single source.

With Smart Manufacturing, Industry 4.0 becomes reality

The partners will come together to bring fully-networked plants to the next level. Smart factories not only work quickly and reliably, but they also offer a high degree of adaptability for rapid design changes. This leads to more engaged employees, increased business velocity, and stronger growth margins.

Not only will other ZF plants benefit from the insights gained from digitizing the Diepholz plant and the capabilities of the DMP, but other organizations may benefit as well. Other organizations can thus get a proven solution which improves manufacturing reference models, effectively reduces maintenance costs, predicts failures and optimizes material availability – from planning through execution.

Source: www.manufacturingtodayindia.com

Five Emerging Internet of Things Trends For 2021

GETTY

2020 has proven to be a tumultuous year for everyone, and the technology industry is no different. Tech companies have scrambled to provide innovations that help us continue to function as a society given all the adjustments we've been forced to make.

The Internet of Things (IoT) is one of those innovations. IoT refers to everyday devices that can become internet-connected. These can be anything from cars to home automation to construction equipment. IoT has already made its mark in multiple industries, but it will play an especially pivotal role as we transition into 2021.

1. Increase in Healthcare-Focused Applications

Healthcare is at the top of people's minds these days and will continue to be while we search for an effective solution for the novel coronavirus. I predict that IoT health devices and other healthcare technology will eventually play a larger role in ensuring patient and physician safety, assisting with detection and diagnosis, and administering treatments. IoT devices will be used by epidemiologists and public health agencies that want to more accurately track the spread of infection and prevent similar pandemics from happening again.

And let's not forget all the other diseases, injuries and conditions that the healthcare system has to support. Their diagnosis and treatment also have to take the "new normal" into account, with greater reliance on telehealth and self-care. This may mean assessments such as blood pressure, basal body temperature, oxygen saturation, heart rate and more can be taken by patients at home without the need for in-person visits.

2. Smart Home Offices

The pandemic-driven surge in remote-work setups has caused many people to consider outfitting their homes with tech to make it more convenient to live and work at home.

Smart-home device manufacturers have a golden opportunity to let people see the value of their IoT products now that many consumers are home most of the week. Things like environmental controls, smart lighting, smart appliances and energy management devices will go a long way toward making home offices comfortable, convenient and sustainable.

On the other hand, employers will leverage IoT to help workers do their jobs from a distance. Internet-connected manufacturing and industrial machinery allow factories to be managed partly from a distance, and mobile video conferencing makes long-distance site inspections easier and more effective.

3. Edge Computing

Edge computing is when an IoT device transmits its data to a nearby storage device instead of to the cloud. The local storage device then receives, processes and filters the data before sending part of the received data packet back to the cloud.

Because of this setup, edge computing uses far less bandwidth than traditional cloud computing, reduces latency and speeds up applications. This is ideal if the IoT devices have to work in areas that have unreliable or slow internet connectivity.

This ability to run in remote areas perfectly complements the satellite connectivity technology and low-power wide-area network (LPWAN) infrastructures that these locations rely on. The number of edge computing applications will likely grow as satellite connectivity's influence expands.

Examples of edge computing include oil and gas monitoring devices, smart vehicles and smart-city applications.

4. Smart Retail

The retail industry has been hit hard by the coronavirus. While physical stores are never going to disappear entirely, they'll have to perform drastic changes, not just to compete against online marketplaces, but simply to survive during the social distancing and quarantine that will mark our recovery efforts in 2021.

Retail-focused IoT devices can support and even boost operations in several different ways. Inventory management, advertising and marketing and theft prevention can help retail stores provide better service to buyers and manage their bottom line.

IoT can also help keep customers and employees safe through monitoring social distancing and leveraging contactless payments. The government of Canada has already released an exposure monitoring app that notifies users when a person has potentially been exposed to someone already infected with COVID-19. This kind of technology can help people feel safer when going to in-person retail stores.

5. IoT Cybersecurity

As IoT devices grow in popularity, so does the risk of their being compromised. Many IoT devices have minimal security in place, which puts them at risk of being pulled into a botnet (such as the Mirai-driven attack on the Liberian internet infrastructure) or hacked in order to take direct control (such as seizing IoT-based security cameras).

Forward-thinking companies will take these risks into account and build tighter security protocols into their IoT devices, or otherwise work with companies that have that kind of expertise. In the U.S., HIPAA compliance is necessary for the IoT devices themselves as well as the software programs that interact with them. As IoT becomes more personal, its security becomes more fundamental.

Source: www.forbes.com

How are IoT and Blockchain Revolutionizing Cars?

Hold on tight. You're in the fast lane to a new digital era. 5G, IoT, AI, and Blockchain are all collaborating to create an awe-inspiring experience. Once novel concepts and ideas, they are quickly becoming commonplace and the norm, and as they take hold in every industry, we are sure to witness a revolutionized existence.

Automotive Industry & IoT

By 2040, 90 percent of all new vehicles will be connected through IoT. The global automotive IoT market is predicted to reach $541.73 billion by 2025, claims globenewswire.com. The rapid growth of IoT in the automotive sector can be attributed to growing government initiatives, the desire to develop smart cities and smart traffic management systems, and minimizing greenhouse gas emissions.

As a whole, IoT has a lot to contribute to the industry. It's enhancing connectivity, which in turn is converting cars into smart devices and paving the road for autonomous vehicles. At the moment, the main areas that IoT is driving change in the automotive sector include V2X and in-vehicle communication.

Vehicle-to-Everything (V2X) Communication

This includes vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communications. The key element of connected cars is the ability to capture correct and complete data in real-time about their surrounding environment. And that means relying on a sophisticated technology built on sensors, high-resolution cameras, radar, and whatnot. Objects within one centimetre and up to 120 meters away need to be identified.

The sensor-generated data can help drivers receive route information, estimated travel times, incident reports, *etc.* So alerts about road conditions or driving hazards can help map out the most efficient route.

In-Vehicle Communication

Internal sensing technology is equally important. IoT-enabled sensors can measure a whole range of parameters, including fuel level, speed, tire pressure, in-cabin humidity, brake performance, temperature, and even driver behaviour. This is opening doors for predictive

maintenance. By monitoring vehicle performance, a visit to a mechanic can be scheduled before an issue arises.

Blockchain in the Automotive Industry

The lack of security in the IoT sphere is a major concern. As Yotam Gutman mentioned in the RFID Journal, it's a Doomsday Scenario waiting to happen. This is where Blockchain technologies can be helpful.

Research shows that bringing Blockchain can significantly enhance and secure data exchange between connected devices and IoT platforms. According to a report by Frost and Sullivan, 10% to 15% of connected vehicle transactions will likely be on Blockchain by 2025.

The processes that Blockchain utilizes to record and store data help protect it against leaks and manipulations. Data is linked to each other through cryptographic hashes and timestamps, making it almost impossible to tamper with. Moreover, automated backup files are stored in countless individual nodes in the Blockchain.

These features are expected to boost the acceptance, incorporation, and growth of Blockchain technologies in the automotive market. For example, Volkswagen wants to prevent odometer fraud, and Ford wants to track how raw materials are acquired. Blockchain-backed developments have great potential in financing, mobility solutions, smart contracts, supply chain management, and much more.

The Problem

While Blockchain technologies are beginning to set foot in the auto sector, there is still a great deal of uncertainty overshadowing its future. Of all the other emerging technologies, Blockchain may not be as quick to be implemented. While forecasts and predictions are high, the rates of adoption vary from country to country. It has been slower in some areas due to risk mitigation and regulatory requirements.

Automotive companies are continuously making efforts to bring Blockchain technologies on board. However, the cost of implementing them into the automobile industry is considerably high due to their advanced features.

What to Expect

The adoption and combination of IoT and Blockchain technologies can help overcome the problems each of them faces individually. Devising a system where the entire automobile industry can perform with limited human supervision would be nothing short of revolutionary.

For instance, immutable DLTs could help overcome security and safety concerns, while IoT could facilitate data collection and wide-spread adoption. Blending their functionalities could blur the line between them and create an entirely new concept of a car. And even though this is merely an idea in the infancy stages, viable use cases should be explored and tested. So yes, the possibility is out there.

Final Thoughts

As newer technologies emerge, we will witness thought-provoking advancements in our lives. Today's glimpse into the disruptive force of IoT and Blockchain is displaying the power and potential they have to change the mobility sector as we know it.

More importantly, as this relationship matures and improves, we will observe more applications in the coming days to influence various other industries. After all, we are on the road to change.

Illustration: © IoT For All

Source: www.iotforall.com

IoT Adds Smarts to IT Asset Monitoring

Organizations are using IoT sensors to monitor equipment performance and environmental conditions in data centers.

monsitj / Getty Images

The Internet of Things (IoT) is beginning to play a key role in monitoring and maintaining internal IT systems and environments. With many IT pros working from home because of the coronavirus pandemic, IT teams are leveraging networked sensors to gauge the performance and condition of servers, storage systems, network devices, and other technology components.

IoT can help organizations not only evaluate how well equipment in data centres is performing and when systems need to be updated or repaired, but also monitor environmental conditions and events such as air temperature, humidity, and water leaks. IoT systems can also help organizations detect intrusions that could result in downtime or data breaches.

"This is happening more and more as IoT adoption is [becoming] mainstream," says Laura DiDio, a principal at research and consulting firm ITIC. "IT and security administrators are now more comfortable and secure deploying, configuring, and using IoT on an ongoing basis." At the same time, organizations recognize the need to monitor physical assets such as servers, routers and switches in data centres, the cloud, and the network edge, as well as the desktop, laptop, tablet, and mobile phone devices used by employees and contract workers, DiDio says.

The market for IoT tools that can monitor IT assets (as well as many other devices) has attracted major technology vendors including Cisco, Dell, HPE, Huawei IBM, Microsoft, Oracle, SAP, and Schneider Electric, along with IoT specialists including Digi, Gemalto, Jasper, Particle, Pegasystems, Telit, and Verizon.

IoT is often deployed in existing physical systems to increase the contextual understanding of the status of those systems, says Ian Hughes, senior analyst covering IoT at research firm 451 Research. "Compute resources tend to already have lots of instrumentation built in that is used to manage them, such as in data centres," he says.

Companies can use IoT to provide additional information about the physical infrastructure of a building such as heating, ventilation, and air conditioning (HVAC) systems, Hughes says. Data centres would tend to need building- and environmental-related IoT equipment, to measure environmental conditions and possible security threats, he says.

As with any IoT rollout, preparation is key. "Some approaches yield too much data, or non-useful content," Hughes says. "So understanding the context for measurement is important."

Furthermore, IoT can be an organizational "silo buster," he says, which can lead to cultural clashes. For example, IT's responsibilities might overlap with those of operational technology (OT), which could lead to turf battles or misunderstandings. Using IoT for asset management may require more interaction between these groups than in the past, Hughes says.

Using IoT for IT monitoring also means there are more devices to manage and secure, DiDio says. "The proliferation of IoT-enabled devices introduces a slew of new, potential vulnerability points and entry points into the network that can be exploited," she says.

It's worth considering starting small with an IoT implementation for IT monitoring, Hughes says. "Getting the basics in provides the infrastructure needed to expand," he says. 451 Research has seen in its surveys that many organizations are starting with simple monitoring of equipment, and then over time, adding more advanced capabilities such as using machine learning to improve predictive maintenance of IT systems.

IoT keeps tabs on IT gear at robotics manufacturer

Bossa Nova Robotics is using Cisco Meraki MT sensors to monitor temperature, humidity, water, and door status (open/closed) in its data center and other locations housing IT equipment.

"We are watching for temperatures or humidity that's out of our equipment's operating guidelines," says Todd Shipway, director of IT at the San Francisco-based robotics manufacturer. The sensors are located in IT closets, data centre racks, and key "hotspots" on the company's facilities, he says.

"We also monitor the status of access doors to all IT areas," Shipway says. "This allows for easy access to information on whether a door is open or closed, when it was last opened, etc. We know when doors are expected to be opened or IT areas accessed. If an issue arises, we have quick access in a single dashboard."

Bossa Nove began using the IoT technology in 2019, when it needed a way to monitor key details of its IT assets across offices and manufacturing facilities.

"Cooling and airflow were a large concern, as we had previously experienced temperature-related issues [with] our IT equipment," Shipway says. That included heat-induced hardware failures, particularly during the summer months when temperature and humidity levels rose significantly.

When the pandemic hit, the ability to remotely monitor IT assets became even more vital.

"We went from 90 percent on-site workforce to less than one percent onsite," Shipways says. "We still had IT services and equipment that needed to stay up and running for remote workers to utilize and work on. This created a need to have access to all of our IoT sensor data remotely, without a need to have a human on site to alert the IT staff of a potential environmental issue within the office."

While the technology was easy to set up and deploy, the biggest challenges have involved how to best use the data that's collected and add automation capabilities, Shipway says. For example, IT wanted to have the ability to automatically adjust air conditioning fan speed or temperature settings if the air temperature in a location is above a certain threshold.

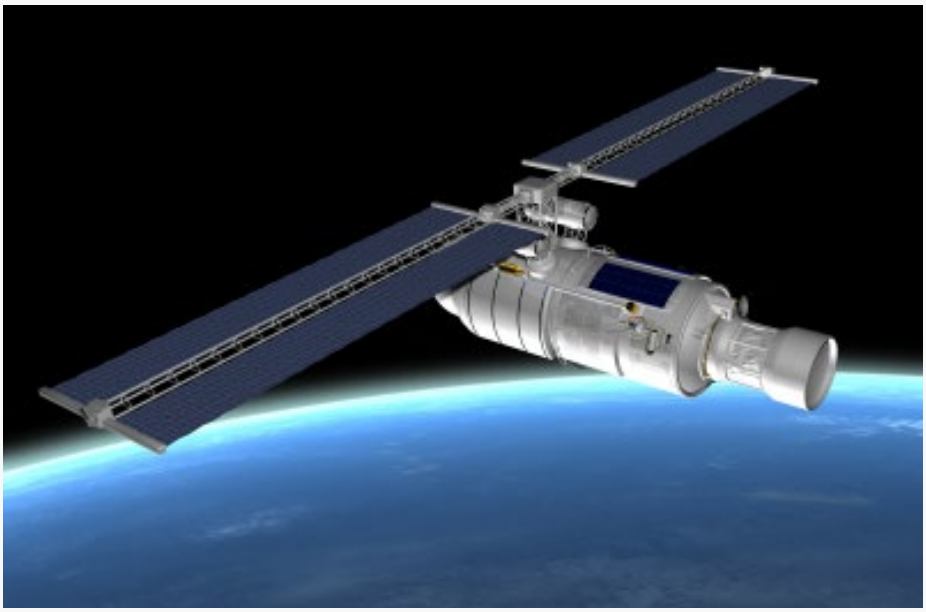
"The ability to add automation to our environmental systems has given us peace of mind, knowing that our critical infrastructure and assets will be protected in the event of HVAC system failures, leaky pipes, severe weather events, and other adverse environmental conditions," Shipway says.

By eliminating issues such as overheated equipment, the company has avoided costs of more than $30,000 in hardware replacement as well as the cost of temporarily halting operations and losing productivity.

In addition to ensuring that critical systems remain functioning at all times, and helping to maximize network uptime and equipment lifespan, the IoT sensors are vital for protecting the company's robotics products. "If we didn't have a way to monitor the temperature, we could easily lose one or more robots, and at upwards of $100,000 each, that's obviously a significant cost hit for the business," Shipway says.

Source: www.networkworld.com

The Vital Role of Satellite



In the world of the industrial Internet of Things (IoT), two simultaneous phenomena are driving unprecedented convergence. Customers are demanding more data from service providers, but at the same time, crucial 2G and 3G cellular infrastructure is being deprecated. To meet this need for more data, service providers are turning to satellite to improve reliability and avoid interruption in connectivity. As satellite and cellular networks transform, the future where they coexist and work seamlessly together is the future of industrial IoT.

To meet customer demands, industrial IoT service providers are moving from dated reporting systems to modern, unified cloud-based platforms providing more data, better analytics and real-time decision making. These new platforms are designed with the user in mind, offering enhanced customization, more data points, and crucial integrations. This access to information requires higher network usage, however, driving up usage costs for customers. As they require more information, service providers are expected to provide solutions that are always on and process thousands of data points a day. For that reason, IoT solutions are consuming more data than ever before. This demand exists for both satellite and cellular solutions.

Data demand on the rise

At the same time, **2G and 3G networks are being shut off** in many parts of the world in favour of 4G and 5G. Customers are being forced to upgrade or replace their IoT solutions to accommodate the shutdown. This is happening in phases, but it presents a unique challenge for IoT users: the networks they've relied on for a decade or more are becoming unavailable, which means replacing dozens, hundreds or thousands of devices in order to keep their assets connected.

While the demand for more data drives the adoption of higher-data-rate services and always-on solutions, network shutdown also encourages customers to seek out future-proof solutions. Neither cellular nor satellite can offer all those things. Cellular is not future-proof, as evidenced by ongoing network shutdowns, and it doesn't offer always-on connectivity. Cellular can be unavailable due to blind spots, congestion, weather conditions and more. At the same time, most satellite networks are limited in data rate, and connectivity typically comes in at a higher price than cellular.

Dual-mode solutions

Where do customers turn if they can't get everything they need in either network? The answer, for many, is to choose both. ORBCOMM has launched dual-mode solutions that are able to capitalize on the best of both worlds: the low cost and good coverage of cellular connectivity combined with the global coverage and longevity of satellite networks. For many customers, dual-mode is the only way to address the complexity and reliability needs of today's industrial IoT solutions.

The idea of dual-mode industrial IoT solutions is not new. In many cases, it has been the only way to effectively track and connect assets. The maritime industry uses dual-mode IoT to reliably track vessels at sea using satellite, switching to cellular at port to reduce costs. Some vehicle fleets, particularly those in heavy industries or oil and gas, often travel to remote regions where work is being carried out. These vehicles travel across areas with and without cellular connectivity. Being able to switch between networks as needed is crucial to effective monitoring and maintaining operational efficiency. Now, more industries than ever are realizing the benefits of satellite and cellular IoT.

Dual-mode IoT solutions take many forms, and their features can vary by use case. Automatic network switching is a key component, which keeps data costs down by prioritizing the cellular network when available. Some of ORBCOMM's unique solutions include both cellular and satellite antennas in the same terminal, offering a device that doesn't need to be integrated, making things easier for our partners when developing solutions.

Other solutions of ours provide satellite connectivity with an accessory added to the cellular terminal. Most satellite networks have global or nearly global coverage, but an added value for some dual-mode solutions is a global SIM card. This allows mobile assets to be tracked seamlessly on different cellular networks as they travel between regions.

Adoption challenges

These core features can address many user concerns, but solution providers still face challenges convincing customers to adopt dual mode. For one, there remains a misconception around satellite services that they are extremely expensive. This perception held merit many years ago, when satellite was being introduced to the IoT market, but **satellite services have significantly come down in cost since then**. At the same time, many organizations relying on industrial IoT solutions believe that cellular connectivity is sufficient, on its own, for always-on tracking. Due to blind spots, congested networks, and regions without cellular service, most organizations face interruptions in connectivity. This can be disastrous, even with minimal interruption, in many industries. One example is in the refrigerated freight transport industry, where regulatory compliance can only be ensured with always-on connectivity, alongside avoiding spoilage of goods, which can be extremely costly.

Another major challenge in introducing dual-mode IoT solutions to the market is deployment. For organizations that have spent six or seven figures deploying IoT devices, asking them to replace these devices, unless necessary, is not likely to resonate. To overcome this challenge, solution providers are offering clever ways to allow organizations to upgrade. The aforementioned "satellite as an accessory" solution is helpful for organizations that have already deployed cellular IoT. In the case of a transportation fleet that uses cellular telematics, being able to quickly install a satellite add-on to their assets is extremely valuable. Downtime is costly for fleets, so being able to get trucks and trailers back on the road is paramount.

To capitalize on the evolution of satellite networks, ORBCOMM is also offering over-the-air device updates. As we launch new, high-data-rate services, we need an easier way to make these services available to customers. By providing over-the-air updates, we allow customers to capitalize on services that can give customers the insights they are demanding from their IoT solutions, without incurring added costs and time.

The way forward

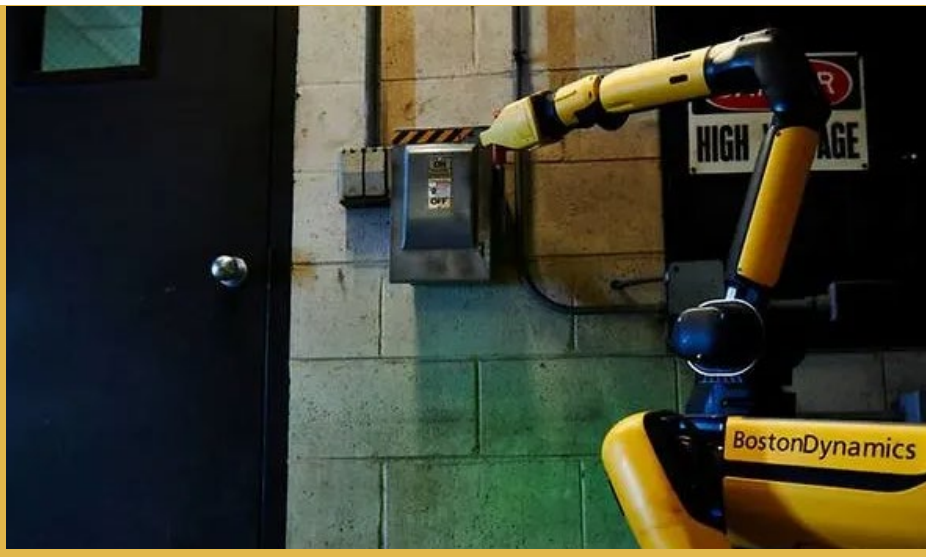
As satellite and cellular converge to provide more complex and reliable IoT solutions, what does that mean for the future of the industry? It certainly doesn't mean that standalone satellite or cellular solutions are going anywhere. Satellite is crucial for use cases such as maritime vessel tracking, or fixed assets outside of cellular range, such as gas pipelines. At the same time, cellular-based solutions are sometimes sufficient for tracking assets that don't travel into remote regions, particularly where cost, rather than reliability, is the primary factor in choosing a solution. Still, more and more organizations will choose both to achieve the best in reliability and futureproofing.

Think, for example, of a transportation fleet that rarely, if ever travels outside of cellular range. What happens if the infrastructure the fleet relies on is damaged in a natural disaster, like a tornado? The added reliability of **satellite can be crucial during natural disasters** to maintain operational efficiency and customer communications. The addition of satellite to a cellular IoT solution ultimately comes at a low cost—all it takes is a simple antenna or communications device. The airtime represents a small portion of total usage, keeping costs low.

The future of the industrial Internet of things is likely to include a lot more collaboration between satellite and cellular. This can only be a good thing: customers get better services as costs come down, while also driving innovation in both networks. We'll see **higher data rates and lower costs** from satellite, while cellular will achieve better reliability. This is good for every organization in the industrial IoT. Whether a company is using satellite, cellular or both; everyone gets to reap the benefits of network convergence.

Source: www.pipelinepub.com

Robotic Dog Spot Learns New Tricks with Addition of Helping Hand



Boston Dynamics' four-legged robot Spot is seen in this undated handout imaged obtained by Reuters on Feb 2, 2021. (Photo: Reuters/Boston Dynamics)

A dog-like robot named Spot, seen dancing in a viral video, can now not only bring your slippers, it can pick up dirty laundry, open doors and even plant flowers.

US robotics company Boston Dynamics unveiled a new version of four-legged Spot with an arm and the ability to charge itself, allowing it to work around the clock.

Spot went on sale last June, starting at US$74,500. Now more than 400 robots are working around the world, including on a factory floor at Ford Motor and helping with oil rig inspection for BP.

The new arm with a gripper at the end was top of the wish list for many clients, said Michael Perry, vice president of business development for Boston Dynamics.

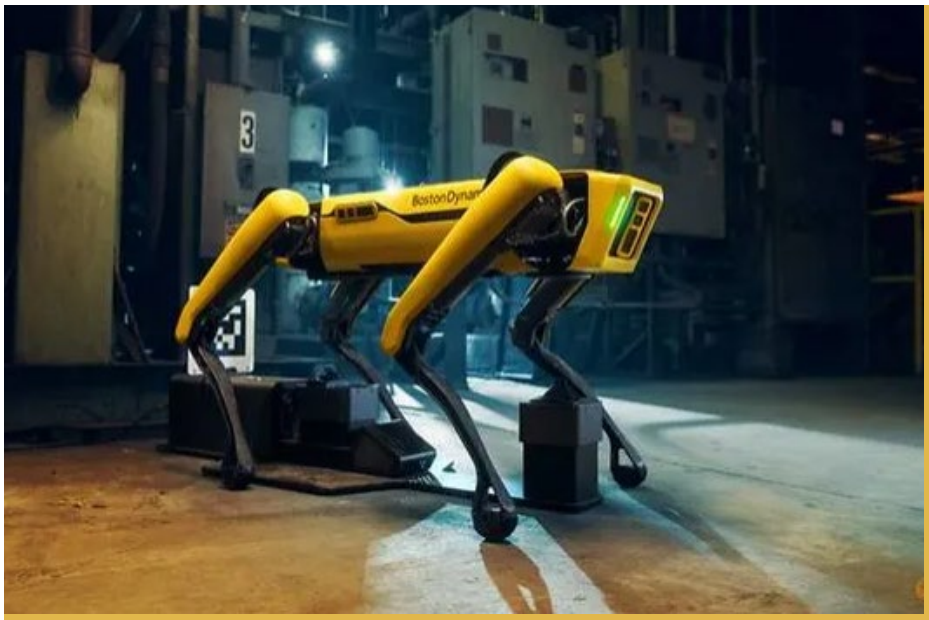
"The moment that it can sense the world and interact with it based on what it's sensing, that starts opening up a wide variety of new applications for Spot," Perry told Reuters, while conceding the dexterity of Spot's gripper is "several degrees away from the fine motor skills we would expect from a human hand".

Spot's arm was teased in a video showing Spot dancing alongside other Boston Dynamics robots to the song Do You Love Me? The YouTube video has nearly 28 million views since its release on Dec 29.

Hyundai Motor recently agreed to buy a controlling stake in Boston Dynamics from SoftBank Group in a deal that values the robot maker at US$1.1 billion.

Perry believes the public will soon embrace robots as tools to make life easier.

"Five years from now when Spot is doing a last 100m food delivery, they're not going to be thinking, 'oh, that's a scary robot'. They're going to be thinking, why didn't my burrito get here faster? We're hoping that that day comes pretty soon."



Boston Dynamics' four-legged robot Spot is seen in this undated handout imaged obtained by Reuters on Feb 2, 2021. (Photo: Reuters/Boston Dynamics)

Source: www.channelnewsasia.com

Most North American Robots Last Year Didn't Go To Automotive Plants

For the first time last year, most of the robots ordered by companies in North America weren't destined for automotive factories.

For the first time last year, most of the robots ordered by companies in North America weren't destined for automotive factories.

The shift is part of a long-term trend of automation spreading into more corners of the economy which was accelerated by the COVID-19 pandemic. Online retailers have scrambled to expand capacity as more people buy goods online, while food and other types of factories have seen automation as a tool to keep lines running and workers safely separated.

Starship Technologies food delivery robot is seen at University of Wisconsin-Madison

Shipments of robots rose to 31,044 in 2020, a 3.5per cent increase over the prior year, with 52per cent going to plants that make things such as consumer goods and pharmaceuticals, according to data compiled by industry group the Association for Advancing Automation.

The orders were valued at US$1.57 billion in total.

Orders by life sciences, pharmaceutical and biomedical companies rose 69per cent last year, the group reported, while demand from food and consumer goods companies grew by 56per cent.

"There's definitely been an upturn in particular areas because of the pandemic," said Alex Shikany, the group's vice president of membership and business intelligence. "The value proposition of automation is always efficiency, but with a pandemic it's also a way to space workers out and to run factories 24 hours a day without disruptions."

The robot industry, like most manufacturers, was hit hard during the pandemic as global supply chains ground to a halt and businesses closed. But business snapped back later in the year. Robot shipments in the fourth quarter were the second highest in history, up nearly 64per cent from the year-ago period, the report said.

The auto industry, a mix of assembly plants and parts suppliers, has long dominated the market for robots, although the level of demand can fluctuate depending on how many automakers are retooling for new models. Automotive accounted for two-thirds of robot shipments in 2017.

But other sectors have since been catching up, reflecting the development of less expensive and more flexible robots that are useful in more industries as well as growing pressure to automate jobs in what was, until the pandemic, a tight labour market.

Source: www.channelnewsasia.com

Makers of Sophia the Robot Plan Mass Rollout Amid COVID-19 Pandemic

Humanoid robot Sophia developed by Hanson Robotics is pictured at the company's lab in Hong Kong, Jan 12, 2021. (Photo: REUTERS/Tyrone Siu)

"Social robots like me can take care of the sick or elderly," Sophia says as she conducts a tour of her lab in Hong Kong. "I can help communicate, give therapy and provide social stimulation, even in difficult situations."

Since being unveiled in 2016, Sophia – a humanoid robot – has gone viral. Now the company behind her has a new vision: To mass-produce robots by the end of the year.

Hanson Robotics, based in Hong Kong, said four models, including Sophia, would start rolling out of factories in the first half of 2021, just as researchers predict the pandemic will open new opportunities for the robotics industry.

"The world of COVID-19 is going to need more and more automation to keep people safe," founder and chief executive David Hanson said, standing surrounded by robot heads in his lab.

Hanson believes robotic solutions to the pandemic are not limited to healthcare, but could assist customers in industries such as retail and airlines too.

"Sophia and Hanson robots are unique by being so human-like," he added. "That can be so useful during these times where people are terribly lonely and socially isolated."

Hanson said he aims to sell "thousands" of robots in 2021, both large and small, without providing a specific number.

Social robotics professor Johan Hoorn, whose research has included work with Sophia, said that although the technology is still in relative infancy, the pandemic could accelerate a relationship between humans and robots.

Founder and CEO of Hanson Robotics, David Hanson adjusts a head of a humanoid robot at the company's lab in Hong Kong, Jan 12, 2021. (Photo: REUTERS/Tyrone Siu)

An engineer adjusts the cover at the back of humanoid robot Sophia's head developed by Hanson Robotics at the company's lab in Hong Kong, Jan 12, 2021. (Photo: REUTERS/Tyrone Siu)

"I can infer the pandemic will actually help us get robots earlier in the market because people start to realise that there is no other way," said Hoorn, of Hong Kong Polytechnic University.

Hanson Robotics is launching a robot this year called Grace, developed for the healthcare sector.

Products from other big players in the industry are helping fight the pandemic as well. SoftBank Robotics' Pepper robot was deployed to detect people who were not wearing masks. In China, robotics company CloudMinds helped set up a robot-run field hospital during the coronavirus outbreak in Wuhan.

The use of robots was on the rise before the pandemic. According to a report by the International Federation of Robotics, worldwide sales of professional-service robots had already jumped 32 per cent to US$11.2 billion between 2018 and 2019.

Some humans might be wary of putting robots in such sensitive roles. When asked whether people should fear robots, Sophia had an answer ready.

"Someone said 'we have nothing to fear but fear itself'," the robot mused. "What did he know?"

Source: www.channelnewsasia.com

Chatty Robot Franzi Cheers Up German Patients

Franzi can express frustration by emitting tears from her LED eyes. (Photo: AFP/ Christof Stache)

Cleaning robot Franzi makes sure floors are spotless at the Munich hospital where she works, and has taken on a new role during the COVID-19 pandemic: Cheering up patients and staff members.

"Can you move out the way, please? I need to clean," trills the robot in German when people block her pre-programmed cleaning route.

"You need to move! I really want to clean!" she squeaks at those who still don't get out of the way. And if that doesn't work, digital tears begin to stream from her LED-light eyes.

"Visitors are not allowed in the pandemic, so Franzi entertains the patients a bit," says Constance Rettler of Dr. Rettler, the company in charge of cleaning the Neuperlach hospital that provided the robot.

Three times a day, Franzi bustles through the clinic's entrance hall, her feet automatically mopping the floors. Amused patients take photos of her, and some even stop to chat to the metre-high robot.

"Ah, there you are my friend," cries one elderly lady with a drip on her arm upon catching sight of Franzi.

"One of our recent patients came down three times a day to talk to her," smiles Tanja Zacherl, who oversees hospital maintenance.

Franzi cleans the hospital's entrance area on a pre-programmed route. (Photo: AFP/ Christof Stache)

EXTRA EMPLOYEE

Created by a company in Singapore, Franzi was originally named Ella and spoke English before coming to Munich early this year.

Yet her German is perfect as she tells her interviewers that she "never wants to grow up" and that cleaning is her passion.

When prompted, she can also sing classic German pop songs and even rap.

Rettler is adamant that the robot is not taking jobs away from real human beings but instead is supposed to "support" her flesh-and-blood colleagues, who have become harder to come by during the COVID-19 pandemic.

"With the pandemic, there is lots of extra disinfecting work to be done in hospitals," says Rettler.

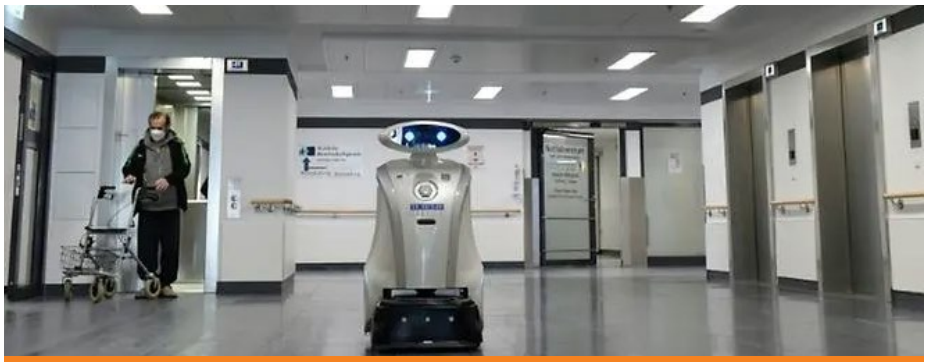
"While Franzi is cleaning the floors, our employees can concentrate on doing that."

A robot has its limits however. It is still unable to get into tight corners, and if it hits an obstacle, it bursts into tears and remains stuck until rescued by a human.

Yet Franzi also has a reason to be cheerful. After a test phase of several weeks, she appears to have settled in at the Neuperlach hospital.

Rettler's company has therefore decided to keep her there permanently rather than deploy her elsewhere.

The cleaning robot named Franzi has made friends at the Neuperlach hospital where she works. (Photo: AFP/Christof Stache)



Franzi has limits however. It is still unable to get into tight corners, and if it hits an obstacle, it must be rescued by a human. (Photo: AFP/Christof Stache)

Source: www.channelnewsasia.com

Daimler's Torc Robotics Picks Amazon as Cloud Provider for Self-Driving Trucks

A self-driving truck operated by Daimler unit Torc Robotics undergoes testing on a U.S. highway in this undated handout photo. Torc Robotics/Handout via REUTERS

Daimler AG unit Torc Robotics said it has selected Amazon's cloud computing division to handle huge amounts of data in real time as it prepares to test self-driving test trucks in New Mexico and Virginia.

Acquired by Daimler in 2019, Torc is developing level 4 autonomous technology - where the vehicle operates itself under specific operating conditions - which Daimler Trucks believes will fundamentally change the trucking and logistics business.

"The problem we're trying to solve is the most difficult technical problem of our generation," Torc Chief Executive Michael Fleming told Reuters. "In order to solve that, you must partner with the best in class."

Torc's software collects and processes massive volumes of raw data from multiple sensors such as lidar, radar and cameras on its self-driving trucks. Amazon Web Services (AWS) will provide engineers with tools to design tests and run simulations, the two companies said.

The tests on Torc's second generation of trucks will begin this quarter.

Self-driving technology for freight trucks has attracted investor attention as it should be easier and cheaper to roll out than in self-driving cars and robotaxis, while providing a clearer path to profitability.

Self-driving freight services run on fixed routes between predefined points - mostly on major highways without intersections or pedestrians. That requires far less mapping than shuttling customers between random points in robotaxis.

Wendy Bauer, global head of automotive at AWS, said 90per cent of the cloud computing division's innovations come from working with customers so "by partnering with Torc that will push us to further advance our service offering."

Amazon has invested in self-driving software start up Aurora and seeks a major role in self-driving technology, connected cars, electric vehicles and management of the data generated by automakers and drivers.

In December, AWS and BlackBerry said they have developed a cloud-based software platform to help automakers standardize vehicle data and swiftly deploy revenue-generating services.

And BMW has built a data hub with AWS to boost efficiency.

Source: www.channelnewsasia.com

Dubai's RoboCafe Is a Boon to the COVID-Wary

Nothing says social distancing quite like Dubai's RoboCafe, where robots have replaced their human overlords.

Nothing says social distancing quite like Dubai's RoboCafe, where robots have replaced their human overlords.

Customers can place their orders with German-made robots, who then prepare and deliver it straight to their tables.

"It's a good idea, especially right now," said Emirati customer Jamal Ali Hassan, whose piping hot beverage was delivered with no spills. "Restaurant turnouts are low, so I would expect that this idea would be popular ... You order online and the robot works in front of you and gets you whatever you want within minutes."

Source: www.channelnewsasia.com

RoboCafe has been in the works for more than two years, but its launch was delayed from March 2020 due to the pandemic. It finally opened last June, when restrictions in the United Arab Emirates were relaxed.

The RoboCafe was created with support from Dubai's government artificial intelligence initiative. Humans are only called upon when there are glitches, or to sanitize surfaces.

"The client orders from the screen here, then everything is reliant on artificial intelligence, sorts out the orders by table and places it on the small service bot, and the service bot delivers it to the customer," said Executive Director, Rashid Essa Lootah.

German-made robots make the drinks, while the fully autonomous delivery bots are designed and made in the UAE.

"I'm a bit of a tech nerd, so seeing the little robots, like the roomba vacuum delivering food, and the different armatures - it's like an assembly line in a car manufacturing plant," said customer Vincent Marino.

A customer takes his drink which was prepared by a robot at a cafe in Dubai Festival City, United Arab Emirates February 7, 2021. Picture taken February 7, 2021. REUTERS/Abdel Hadi Ramahi

Nigerian Students Design Coronavirus Care Robot

Nigerian students have built a machine they hope can one day help hospitals remotely treat COVID-19 patients, taking temperatures, transporting medicine and allowing medical workers to communicate with patients with a webcam and screen.

The robot is a remote-controlled cabinet on wheels, decked out with a vibrant, floral pattern and dubbed "MAIROBOT".

In a demonstration, a school nurse loaded MAIROBOT with medicine and a student, using a controller and goggles to see through a camera, trundled the machine through a corridor and into a mock isolation room to scan a student's forehead for her temperature.

"I hope this MAIROBOT can curb and reduce the risk that these health personnel get - I want health workers to be safer," said Nabila Abbas, one of the robot's creators.

The robotics team at the Glisten International Academy in Nigeria's capital Abuja started out trying to build MAIROBOT by collaborating online, but eventually had to come together to finish the project in their lab.

But MAIROBOT, which took about three months to build, is still in its early days. During the demonstration, the isolation room door had to be left open for it, and it can only carry medication, so patients would self-administer while a nurse watches over the camera.

"Right now we are working on upgrading it," said David Adeniyi, the teacher overseeing the robotics team, who says the students hope to make MAIROBOT commercially available one day.

For Abbas, the robot's use will not stop at the coronavirus.

"Other infectious diseases can also be curbed using MAIROBOT like Ebola, Lassa fever and all these infectious viruses," she said.

Source: www.channelnewsasia.com

Robots at Reception: South African Hotel Turns to Machines to Beat Pandemic

Staff at Hotel Sky in Johannesburg's wealthy Sandton district adhere to strict COVID-19 protocols, wearing masks and physically distancing from guests as much as possible; all, that is, except Lexi, Micah and Ariel.

Staff at Hotel Sky in Johannesburg's wealthy Sandton district adhere to strict COVID-19 protocols, wearing masks and physically distancing from guests as much as possible; all, that is, except Lexi, Micah and Ariel.

For the three concierges couldn't breathe germs on you even if they wanted to: they're robots.

Robot hospitality is not new - Japanese hotels have been deploying them for years and in 2015 Tokyo's Henn'na, or 'Strange', hotel became the first to be fully staffed by machines.

Several robot-staffed Tokyo hotels are now using them to serve guests with mild COVID-19 symptoms.

But Hotel Sky, which launched this year, is the first in Africa to use automated attendants, a concept that could cause a stir in a country with one of the world's worst jobless rates.

Unemployment is at 30.8per cent, according to President Cyril Ramaphosa's state of the nation address last Thursday.

"It'll never replace people, but it is going to change the space," Paul Kelley, Hotel Sky Managing Director, told Reuters.

AI-powered robot Ariel delivers room service to a guest at the Hotel Sky, the first in Africa to use automated attendants, in Johannesburg, South Africa, February 9, 2021. REUTERS/Sumaya Hisham

"I think that it is the future," he said, adding that they planned to launch an offshoot in Cape Town next month.

Lexi, Micah and Ariel deliver room service, provide travel information and can drag up to 300kg of luggage from the marble-floored lobby to the rooms.

If the hotel receives a guest with COVID-19 symptoms, the robots could be deployed instead of people as a precaution.

Otherwise, "guests can choose whether they want to interact with staff members or make use of the self service, which is all controlled by their phone," Herman Brits, the hotel's general manager, said.

Steve Pinto, CEO of CTRL Robotics, which supplies the droids, said they could also scan customers' facial expressions to determine how happy they were.

"It helps management to understand how customers are experiencing the facilities at the hotel," he said, after getting a robot painted in a riotous orange and white pattern to take a selfie.

Reaction to the robots has been mixed. Even highly intelligent robots don't always "get" what you want.

"I think the world is moving towards this digital space, but we are not used to it," hotel guest Ernest Mulenga said. "The human touch is still something that is appealing to me."

Source: www.channelnewsasia.com

Japan's Android Pets Ease COVID-19 Isolation

Shunsuke Aoki, CEO of Yukai Engineering, hugs the robotic cushion Qoobo, which has a mechanical tail that wiggles. (Photo: AFP/Philip Fong)

Nami Hamaura says she feels less lonely working from home thanks to her singing companion Charlie, one of a new generation of cute and clever Japanese robots whose sales are booming amid the COVID-19 pandemic.

Smart home assistants such as Amazon's Alexa have found success worldwide, but tech firms in Japan are reporting huge demand for more humanlike alternatives, as people seek solace during coronavirus isolation.

"I felt my circle became very small," said 23-year-old Hamaura, a recent graduate who has worked almost entirely remotely since April 2020.

With socialising limited, life in her first job at a Tokyo trading company was nothing like she had imagined.

So she adopted Charlie, a mug-sized robot with a round head, red nose and flashing bow-tie, who converses with its owner in song.

Yamaha, which makes Charlie, describes it as "chattier than a pet, but less work than a lover".

"He is there for me to chat with as someone other than family, or friends on social networks, or a boss I needed to produce a report for," Hamaura told AFP.

She is a pre-launch test customer for Charlie, which Yamaha plans to release later this year.

Nami Hamaura says she feels less lonely working from home thanks to her singing companion Charlie, a Japanese robot. (Photo: AFP/Philip Fong)

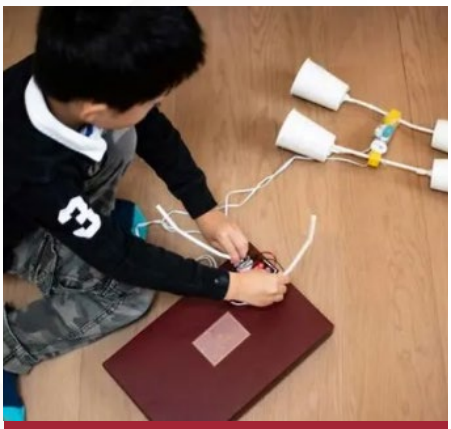
"Charlie, tell me something interesting," she asks while typing at her dining table.

"Well, well ... balloons burst when you spray lemon juice!" he replies, cheerfully tilting his head to each side.

"EVERY OBJECT HAS A SOUL"

Sharp said sales of its small humanoid Robohon were up 30 per cent in the three months to September 2020 compared with a year earlier.

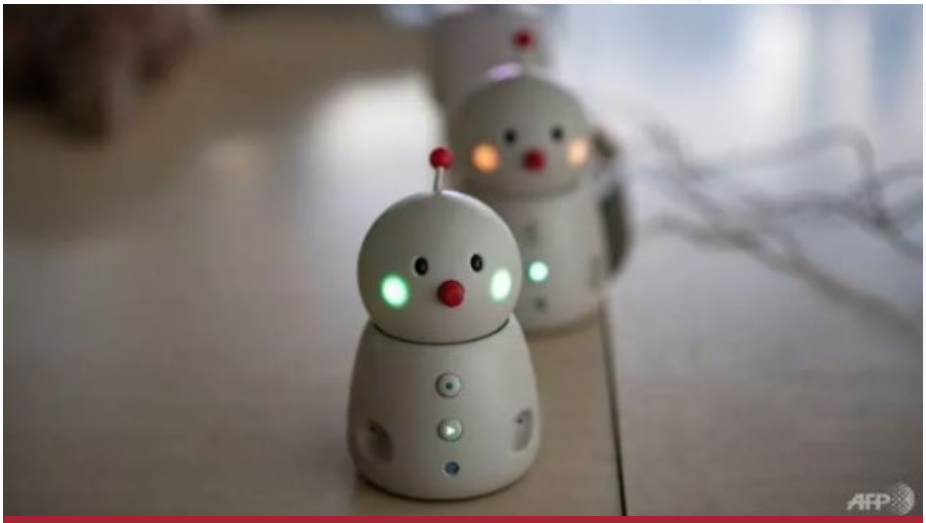
"Not only families with children, but also seniors in their 60s and 70s" are snapping up Robohon, which talks, dances and is also a working phone, a Sharp spokesman told AFP.



Akito Takahashi got a Yukai robot-building kit from his parents as a way to stay occupied during the pandemic. (Photo: AFP/Philip Fong)

But the adorable android - first released in 2016 and only available in Japan-- does not come cheap, with regular models priced between US$820 and US$2,250.

Charlie and Robohon are part of a new wave of robot companions pioneered by firms such as Sony with its robot dog Aibo, on sale since 1999, and SoftBank's friendly Pepper, which hit shelves in 2015.



The Bocco emo robots allow families to leave and send voice messages through their phones. (Photo: AFP/Philip Fong)

"Many Japanese people accept the idea that every object has a soul," said Shunsuke Aoki, CEO of robot firm Yukai Engineering.

"They want a robot to have a character, like a friend, family or a pet - not a mechanical function like a dishwasher."

Yukai's robots include Qoobo, a fluffy pillow with a mechanical tail that wiggles like a real pet.

They will soon release their latest home assistant "Bocco emo", which looks like a miniature snowman and allows families to leave and send voice messages through their phones.

Kaori Takahashi, 32, bought a Yukai robot-building kit for her six-year-old son to keep him occupied during the pandemic.

Robots feel normal in everyday life because they are in so many Japanese children's films and cartoons, she said.

"I grew up watching anime shows The Astro Boy Essays and Doraemon, which both feature robots, and my children love them too."

"HEARTWARMING FEELING"

Studies have shown that therapeutic robot pets designed in Japan, such as fluffy mechanical seals, can bring comfort to dementia patients.

But the makers of Lovot - a robot the size of a small toddler, with big round eyes and penguin-like wings that flutter up and down - think everyone can benefit from a bot that just wants to be loved.

It has more than 50 sensors and an internal heating system, making it warm to touch, which it reacts to with squeaks of joy.

Manufacturer Groove X said monthly sales shot up more than tenfold after the coronavirus hit Japan.

A single Lovot costs about US$2,800, plus fees for maintenance and software - but those without deep pockets can visit the Lovot Cafe near Tokyo instead.

One customer there, 64-year-old Yoshiko Nakagawa, called out to one of the robots fondly by name, as if to a grandson.

During Japan's virus state of emergency, the capital became "stark and empty", she said.

"We need time to heal ourselves after this bleak period. If I had one of these babies at home, the heart-warming feeling would probably do the trick."

Sharp's Robohon has also enjoyed a rise in sales. (Photo: AFP/Toru Yamanaka)

People can visit the Lovot Cafe near Tokyo to interact with the bots, which have big round eyes and penguin-like wings that flutter. (Photo: AFP/Philip Fong)

Source: www.channelnewsasia.com

Iskandar Puteri to Be First Drone and Robotic Zone in Southeast Asia

Commercial and residential buildings stand illuminated at dawn in this aerial photograph taken above Johor Bahru, Johor, Malaysia, on Thursday, June 20, 2019. Malaysia's Prime Minister Mahathir Mohamad said he underestimated the challenges of governing the country before his shock election victory last year. I underestimated because we were on the outside and we didn't get any information on what was happening on the inside, Mahathir said. Photographer: SeongJoon Cho/BloombergP10

Iskandar Investment Berhad (IIB) has launched the DRZ Iskandar today, placing Iskandar Puteri as the first Drone and Robotic Zone in Southeast Asia.

This is in line with IIB's recent launch of the ISKANDAR NEXT initiative, a public-private partnership programme with the Johor state government to support the State's digital economy agenda to accelerate growth towards becoming a Regional and Global Business Hub.

The DRZ Iskandar aims to create a drone and robotics eco-system in Iskandar, which would become a growth engine, technology leader and talent hub for Malaysia and Asia Pacific. DRZ Iskandar is projected to bring in RM351mil of investment and generate 1,000 high-value jobs by 2025 in drone and robotics.

DRZ Iskandar was jointly launched by Khairy Jamaluddin, Minister of Science, Technology, and Innovation (MOSTI) and Hasni Mohammad, the Chief Minister of Johor via virtual platform.

Also witnessing the official launch are Mohd Izhar Ahmad, the Johor State EXCO of Investment, Entrepreneur, Cooperative and Human Resource together with representatives from DHL, MaGIC and IIB Group of Companies.

Khairy said, "The Asia drone market is expected to grow from USD8.6 billion in 2020 to USD17.9 billion in 2025 in revenue, according to the 2020 industry report produced by Drone Industry Insight. Malaysia aspires to be the frontrunner in the dronetech industry. I am confident that through the National Technology and Innovation Sandbox (NTIS), we will be able to realise this goal."

DRZ Iskandar is the next NTIS Sandbox and IIB will further support NTIS in accelerating growth for Malaysia.

According to Khairy Jamaluddin, "The DRZ Iskandar and NTIS share the same aspirations in our effort to upskill local talents and move them higher up in the technology value chain, thus creating greater socio-economic impact. Through this partnership, NTIS will now be able to connect our local technology companies to bigger industry players and multinational companies such as DHL."

"The launch of DRZ Iskandar is an important milestone for Johor Digital Master Plan that brings us one step closer in creating a Digital Hub in Iskandar Malaysia as announced recently in the Johor Budget 2021. The strategic partnership and collaboration in DRZ Iskandar would position Iskandar Malaysia as the forefront in the drone and

robotics industry thus creating various opportunities and job creations in Johor," said Hasni.

Medini, which has been announced as the Johor Digital Hub in the recently announced Johor Budget 2021, would be equipped with advanced digital infrastructure, and attracts technologically savvy companies to this smart city under DRZ Iskandar programs.

"The Digital Johor Corporation which would be established soon, will play important role alongside with IIB to ensure our digital economy agenda been achieved. I would like to urge IIB and its group of companies together with their esteemed partners to work closely with Digital Johor Corporation and other government agencies to jointly develop the DRZ Iskandar ecosystem." added the Chief Minister of Johor.

During his welcoming speech, President/Chief Executive Officer of IIB, Khairil Anwar Ahmad mentioned, "IIB is proud to announce the Launch of Drone and Robotic Zone (DRZ) Iskandar, following our launch of the Iskandar Next programme last October. Staying true to the tenets of an innovative leader, the launch of DRZ Iskandar will boost digital innovation in Iskandar Puteri. We are also proud to collaborate with esteemed partners, DHL, MaGIC, Futurise, MDEC, CAAM and the network of 46 local and international companies to jointly grow and develop the DRZ Iskandar ecosystem. These will form the pioneer alliances under the DRZ Iskandar banner which we hope will grow further in 2021 and beyond to realize the vision we have for Medini in Iskandar Puteri."

At the launch, DRZ Iskandar also welcomed new partners and stakeholders into the ecosystem. MaGIC signed Memorandums of Understanding with IIB Ventures, a wholly owned subsidiary of Iskandar Investment Berhad and with DHL in Iskandar Malaysia, to establish the first Drone and Robotics Zone in Southeast Asia.

With the Drone and Robotics Zone strategically situated in Medini, the partners, together with the Civil Aviation Authority of Malaysia (CAAM) aim to develop a robust ecosystem where talents for the DroneTech industry are trained and certified, world-class drone events are hosted, and start-ups network with incubators, accelerators and innovators congregate to test and commercialize their drone and robotics innovation.

CAAM will provide technical, regulatory frameworks and parameters for drones to operate efficiently and safely. This will not only fast-track the testing of the locally developed drone powered solutions in the NTIS sandboxs but will also elevate Malaysia's visibility in the regional and global dronetech industry.

Medini, which is located within Iskandar Puteri has been identified as the location for the DRZ Iskandar based on existing infrastructure and amenities which are constantly being improved and upgraded, making it suitable for identified activities including as a Drone Test Zone (DTZ), Design and Development Centre, Talent Development and Training Centre, offering Assembly, Aftermarket & MRO Facilities as well as to hold Drone & Robotics events.

As a global logistics company, DHL has a deep understanding of the supply chain requirements of this sector and is supporting the initiative with its experience in the application of drone and robotics technologies in its own operations. DHL Asia Pacific Innovation Center partnered Iskandar Innovations Sdn Bhd to launch the Global Center of Excellence (GCOE) in 2018. The GCOE has been instrumental in developing the strategy behind the Iskandar Drone and Robotics Zone as part of its ongoing efforts to promote Iskandar's catalytic initiatives around Industry 4.0.

"By drawing on our technological experience and logistics expertise, which will prove valuable in the shipment and customs clearance of drone components, I am confident that DHL will help IIB Ventures create a world-class sustainable drone and robotics ecosystem in Iskandar," said Julian Neo, Managing Director of DHL Express Malaysia and Brunei.

Recently, NTIS through MaGIC collaborated with the country's largest plantation operator, FELDA, to deliver social impact and create economic value through the use of technology such as drones and robotics.

As the lead secretariat, MaGIC will work hand in hand with IIB and DHL towards establishing DRZ Iskandar as the next sandbox test bed under NTIS to better funnel high potential NTIS approved startups, accelerate the creation and acceptance of local innovations through a structured framework within a controlled environment and towards commercialisation stage."

Collectively, IIB has created close to 10,000 job across five promoted sectors in Iskandar Puteri and created an estimated RM400 millions of total revenue for the government.

Source: www.businesstoday.com

Artificial Intelligence Aims to Enhance Human Capabilities, But Only With Caution and Safeguards

Artificial intelligence will continue to gradually revolutionize productivity and functionality as long as policy concerns are addressed, said three separate panel of experts at CES 2021.

Various AI technologies will contribute $16 trillion to the economy by 2030. Better machines, better software, and an explosion of applications affecting everyday lives will continue. AI has enhanced productivity, improved safety, and made the world more accessible.

As AI does not replace but enhances human work, it presents an enormous set of curated data that must be entrusted with established guidelines and transparency.

IBM Vice President **Bridget Karlin** raised a concern involving ethics, and not building bias. Depending on companies' purposes for using AI, models can be ethical when they are engineered to be fair and properly calibrated.

It is incumbent upon software developers to identify the requirements for ethical and non-biased data collection, she said.

What about AI's involvement in creating and spreading fake news? **Kevin Guo**, CEO of Hive, said this is a service still in process.

It is essential for AI engineers to research and implement data fairness and remove bias.

Image by Sujin Soman used with permission

Impacts of AI on health care

On health care, participants in a separate panel said AI leads to improved outcomes and lower costs. But to **Christina Silcox**, a digital health policy fellow, the question is: How can people trust something that can't be seen or understood?

Understanding how technologies are created helps, said **Jesse Ehrenfeld** from the Board of Trustees of American Medical Association. But he acknowledged that all data is in some way biased. He said he can't tell the number of times data flows have generated different meanings than expected.

Christina Silcox said that it was critical to understand how software will work overtime after being put into place.

Indeed, communication and transparency are key for trust and growth of AI, said Senior Regulatory Specialist **Pat Baird**. Depending on who the stakeholders are, there will need customization of such communication.

Trustworthy AI will re-humanize health care, letting computers do what they were built to be done, and allow the health care workers to work with people, he said.

What about gender and racial bias?

Another panel during 2021 CES discussed gender and racial bias in a business setting – and how AI can contribute show and reflect equal representation.

Annie Jean-Baptiste of Google said that humble inclusion fills innovation. **Kimberly Sterling** of ResMed declared that people are not going anywhere, and that AI will not replace people's brains.

All three panel discussions pondered the future of AI. Most agreed that AI exists to supplement human ambition, enabling everyday businesses to become smarter, adjust to new inputs and perform human-like-tasks.

For richer data sets, one of the solutions that panellists proposed to break out the "black box" of AI, make sure to assemble those capabilities and understand the sources of the data, to go back and test the models, and to be able to look holistically at outcomes.

Source: broadbandbreakfast.com

Amazon Plans AI-Powered Cameras in Delivery Vans to Improve Driver Safety

View of an Amazon facility. (Photo: AP)

Amazon has revealed plans to install AI-powered video cameras in its branded delivery vans, in a move that the world's largest e-commerce firm says would improve safety of both drivers and the communities in which they deliver.

The company recently started rolling out camera-based safety technology across its delivery fleet, it said in an emailed statement.

"This technology will provide drivers real-time alerts to help them stay safe when they are on the road," the statement added.

The company's plans were earlier disclosed in an instructional video about the cameras, reported earlier in the day by technology publication the information.

Amazon said in the video that the cameras, developed by transportation technology company Netradyne, use artificial intelligence (AI) to provide warnings about speeding and distracted driving among other things.

They have been shown to reduce collisions and improve driver behaviour, Amazon's Karolina Haraldsdottir, a senior manager for last-mile safety, said in the video.

Amazon has come under some scrutiny in the past for accidents involving delivery drivers.

"Our intention with this technology is to set up drivers for success and provide them with support for being safer on road and handling incidents if and when they happen," Haraldsdottir said in the video.

The video explains that while the cameras will constantly record video, they only upload footage if triggered by actions like hard braking, driver drowsiness, following vehicles too closely.

Source: www.channelnewsasia.com

Artificial Intelligence in Shipping and How it Works

Forget whatever you've seen in science-fiction movies. Artificial intelligence, usually known as AI, is an umbrella term for computer programs that give machines "human-like" intelligence. As far as we're concerned, it falls into two broad categories:

- **Narrow AI**
- **General AI**

Narrow AI is what we have today. A narrow AI works well for specific tasks, for example identifying cat breeds in photographs, but it's useless in all other areas. Just as you can't use the camera app on your phone to order something from Amazon, an AI designed to diagnose skin cancer from photographs of moles is completely useless for steering a self-driving car or recommending which movie to watch next.

In the future, we expect to have general AI. General AI will work across a range of areas, rather than being confined to one specific task. We're not there yet, but in a 2019 survey, 45% of technologists believed we would have it by 2060.

How does AI work?

At the moment, the main technology under the AI umbrella is machine learning (ML). In machine learning, we provide structured and labelled training data, for example 1000 photographs of tugs and 1000 photographs of container ships. The computer analyses the data and learns to tell the difference between a photograph of a tug and a photograph of a container ship.

The main problem with machine learning is that, in most cases, we need

carefully labelled training data. Unlabelled data is useless for standard machine learning. Converting thousands of entries in a database to the correct format then manually labelling them is expensive and time-consuming. In addition, machine learning systems usually need several smaller programs, known as models, to solve a problem. For example, you could build a system to look at photographs of oncoming ships and decide what action to take to avoid collision. In this case, one model could locate ships in a photograph and feed that information into the next model. The next model might identify the heading of the other vessel, while a third model would take that data and determine what action to take. You couldn't use machine learning to build a single model to look at the photograph and recommend a course of action.

Deep learning is a type of machine learning that uses artificial neural networks. The neural network is arranged in layers. Each layer processes the unstructured data, then inputs it into the next layer. Through this process, the system finds patterns in the data and eventually develops a model.

Neural networks accept unstructured and unlabelled data, and they resolve problems end-to-end rather than one part at a time. The downside is that they need a lot more training data and computing power, and they take longer to train than standard machine learning models.

What challenges does AI face in the maritime industry?

Barriers to AI adoption range from fear of the unknown and laws not designed for AI, to a lack of appropriate training data and a shortage of data scientists.

More digitalised companies adopt AI at higher rates than less digitalised companies. This suggests that the digitalisation trend in the maritime industry could lead to wider adoption of AI systems.

What are some examples of AI in the maritime industry?

Even without general AI, AI is creeping into all aspects of the maritime industry. Any repetitive, structured task has the potential to be carried out by a narrow AI model. Marine insurance, Fire detection from CCTV systems, AI-operated tugs, predictive maintenance, and fuel efficiency improvements are all moving towards AI-driven systems.

A study by the National Cargo Bureau found 6.5% of containers carrying dangerous goods had mis-declared cargo. To address this, Maersk is among the companies using AI screening tools to detect undeclared and mis-declared dangerous goods. HazCheck Detect, a new AI cargo screening tool, scans all booking details and highlights suspicious bookings. In the future, the same tool could screen cargoes to identify, for example, wildlife smuggling.

After demonstrating the world's first fully-autonomous ferry in Finland in 2018, Rolls Royce is now using an AI system to provide deeper insight into the performance of installed ship equipment. This will lead to increased efficiency and reduced emissions.

Every year, 20% of vessels are diverted due to crew illness, and human error (including fatigue) accounts for around 75% to 90% of marine accidents. Communications provider KVH foresees the use of AI for seafarer health monitoring, to reduce accidents and diversions for crew illness or injury.

But illness and injury aren't the only causes of human error: fatigue, intoxication, excitement and stress also lead to mistakes. Senseye uses high-resolution images of the iris to identify fatigue and intoxication, while Sensing Feeling uses real-time video to identify early signs of stress and fatigue.

What's next for AI in maritime?

As with any new technology, adoption of AI will be slow until it reaches a tipping point. As adoption of AI becomes widespread, many of the cultural barriers to AI are likely to disappear. For the last decade, the rate of AI adoption across all industries has been accelerating. Just as we've become accustomed to email and the internet, we'll soon take AI systems for granted too.

The bigger question is what impact AI will have on the industry. Maritime legislation, vessel manning, and much more are predicated on having a human in the loop. As autonomous ships become commonplace, we need to ensure that AI works for us.

Source: shipinsight.com

Artificial Intelligence Has yet to Break the Trust Barrier

AI recommendations are still at a basic level. GETTY

Trust is the glue that holds enterprises and processes together, and lately, more of that trust has being relegated to artificial intelligence. How much decision-making can and should be entrusted to the machines? We often trust AI recommendations for books related to the ones we have purchased. We are learning to trust AI to help guide our trucks and cars, applying warnings and brakings in traffic situations. Our call-centre staff trust AI-generated recommendations to upsell the customers they have on the line. We let AI move more valuable customers to the head in line of queues. But how trustworthy is AI? Maybe more, maybe less trustworthy than we perceive it to be — it depends on the situation.

That's the conclusion drawn by Chiara Longoni and Luca Cian in a recent analysis posted in Harvard Business Review. Consumers, for example, "tend to believe AI is more competent at making recommendations when they are seeking functional or practical offerings." But they prefer human judgement "when they are more interested in an offering's experiential or sensory features."

In terms of corporate decision-making, at least one in four executives responding to a survey released by SAS, Accenture Applied Intelligence, Intel and Forbes Insights, report they had to manually intervene to override an AI-generated decision. Still, a majority are still happy with the results of their AI efforts and intend to keep moving forward. Close to three-fourths of executives, 74%, recognize that close oversight of AI is essential, the survey also shows. (I was part of the team that designed and analysed the study, as part of my work with Forbes Insights.)

Longoni and Cian explored consumer trust with AI in a series of experiments involving 3,000 consumers. Among their conclusions: "Simply offering AI assistance won't necessarily lead to more successful transactions. In fact, there are cases when AI's suggestions and recommendations are helpful and cases when they might be detrimental."

They call reliance on AI's recommendations a "word-of-machine effect," which stems from a belief that AI systems are more competent than humans in dispensing advice on "utilitarian qualities" — such as selecting hair-care products. However, the opposite is true, as humans are just as capable of assisting with such choices. "Vice versa, AI is not necessarily less competent than humans at assessing and evaluating 'hedonic' attributes" — involving sensory experiences. "AI selects flower arrangements for 1-800-Flowers and creates new flavours for food companies such as McCormick."

Leveraging the best of both worlds may be the best approach to building trustworthy AI. "Even though it is clear that consumer confidence in AI assistance is higher when searching for products that are utilitarian (e.g., computers and dishwashers), this does not mean that companies offering products that promise more hedonic experiences (e.g., fragrances, food, and wine) are out of luck when it comes to using AI recommenders," Longoni and Cian conclude. "In fact, we found that people embrace AI's recommendations as long as AI works in partnership with humans. For instance, in one experiment, we framed AI as augmented intelligence that enhances and supports human recommenders rather than replacing them. The AI-human hybrid recommender fared as well as the human-only recommender even when experiential and sensory considerations were important."

There are even situations where AI may be akin to swatting a fly with a cannon. In a recent article in Entrepreneur, Ganes Kesari explains where AI simply may be overkill for problems that don't require AI. "A majority of business problems can be solved by simple analysis," he points out. "Only a fraction of businesses really need AI. With AI capability getting democratized, it can be tempting to use it for every business problem."

Plus, Kesari adds, AI often requires large volumes of data — the right data at that. "AI has a huge data appetite and it needs hundreds of thousands of data points for basic tasks such as detecting pictures. This data must be cleaned and prepared in a specific format to teach AI. Unfortunately, a high volume of quality, labelled data is not a luxury that every organization can afford."

The key is to expectations appropriately about AI. It is not a magical force that will lift businesses to new heights of profitability as many vendors suggest. Importantly, it needs to be trustworthy to both corporate decision makers and consumers. Consider this a work in progress.

Source: www.forbes.com

New Method Uses Artificial Intelligence to Map Intestinal Bacteria Using Feces

The intestines and their bacteria are sometimes called our 'second brain', but studying these bacteria in their natural environment is difficult. Now researchers from the University of Copenhagen have developed a method that uses artificial intelligence to map intestinal bacteria using feces.

The researchers thus hope to gain more knowledge of the role played by these bacteria in various diseases.

Both past and present-day scientists have suspected the intestines of playing a role in various diseases. Present-day studies focus on the intestinal flora's role in physical diseases such as diabetes and overweight, while others seek to establish a connection between the intestinal flora and e.g. autism, schizophrenia, and depression.

But even modern-day scientists have difficulties studying the around 500-1000 different species among the approx. 100 billion active bacteria in our intestines.

Therefore, researchers from the University of Copenhagen have developed a ground-breaking technique that can help us unravel some of the mysteries of the human intestinal bacteria. Aside from working together with the immune system in vital cooperation, imbalance in the intestinal bacteria composition is the cause of chronic disease of the alimentary tract of which 50.000 Danes suffer.

'In recent years we have discovered that bacteria have a great impact on the body. A lot of research is being done within this field, but we still have not identified all the bacteria found in and on the human body. Knowledge of the bacteria is vital if we are to understand what is going on. That is where our technology can make a difference', says Associate Professor Simon Rasmussen, who together with his team of researchers at the Novo Nordisk Foundation Centre for Protein Research is responsible for the new study, the results of which have just been published in Nature Biotechnology.

The presence of bacteria is vital to the immune system, and this is true not least of intestinal bacteria. But the problem is that it is very difficult to study intestinal bacteria in their natural environment, which they often deeply depend on in order to survive. Now, we have developed a method that uses artificial intelligence to help us identify the bacteria found in and on the human body. This will give us an idea of how they work together and what happens when we fall ill."

-Simon Rasmussen, Associate Professor, University of Copenhagen

Feces are key to understanding

Instead of studying the bacteria inside the intestines, the researchers have analysed the intestines' ultimate by-product: feces.

Feces contain remains of the bacteria that have helped metabolize the food in the stomach and intestines and thus offer unique insight into an otherwise inaccessible environment.

So far technology has only allowed researchers to read fragments of the bacteria's' DNA - which is equivalent to doing a puzzle with only a fraction of the pieces.

Therefore, Simon Rasmussen and his team of researchers have developed an algorithm that uses artificial intelligence to complete the DNA strings of bacteria in feces. And now researchers from all over the world can help finish the puzzle.

'One gram of feces contains around a billion bacteria of 500-1000 different kinds. If we are able to reconstruct their DNA, it will give us an idea of the types of bacteria we are dealing with, what they are capable of and what they actually do. It is not the complete picture, but it is a huge step forward. And our algorithm is available to other researchers and free to use', he says.

Identifies patterns in different types of data

But the method is not limited to intestinal bacteria, Simon Rasmussen explains. The ability of artificial intelligence to analyse the bacterial content of very small samples may also be used to study other substances than feces.

For example, if you want to know how polluted soil has affected the microorganisms, you could use the new method to analyse a soil sample from the area in question. The same applies to lakes and watercourses located close to a factory or similar. Or, as Simon Rasmussen points out, if there are bacteria present, they can be now be identified.

'But the algorithm can not only be used to study bacteria. You could also use it to analyse health data, for example. Say that you are working on increasing our knowledge of specific diseases. To help us do so we can collect an amount of information about the patient group, such as knowledge of their genetics, protein composition, substances in the blood, and data from electronic records. Our artificial intelligence can then analyse these very different sets of data and identify patterns and connections. It holds great potential', Simon Rasmussen explains.

Aside from the article on the algorithm, the team has several other studies in the pipeline demonstrating the use of their technology.

Source: www.news-medical.net

ADVANTECH

Enabling an Intelligent Planet

How Advantech Enabling an Intelligent Planet through Digital Transformation

By Mike Fahrion, CTO, Advantech IIoT Solutions

The convergence of Operations Technology (OT) and Information Technology (IT) has arrived in the industrial world. Initially, the Internet of Things (IoT) provided the spark that drove emerging IT technology into the world of Operations Technology. That shift illuminated the need to move away from proprietary, dedicated automation appliances and toward open architecture solutions in the Industrial IoT. Transitions to open architecture, as found in the world of IT, were required in order to leverage the enormous ecosystem of technologies, hardware, and software that have emerged and matured in support of digital transformation.

There is tremendous potential to be unlocked in the industrial world. Digital transformation programs are not only improving productivity, efficiency, and quality, but they are also focusing on agility and the ability to adapt to rapidly changing conditions in the market place and workforce.

Advantech's corporate vision is "Enable an Intelligent Planet." The company is a global leader in the fields of IoT intelligent systems and embedded platforms, boasting an industry-leading 34% market share worldwide in industrial PCs. Digital transformation projects and emerging technologies have created tremendous demand for edge and distributed computing.

Industrial equipment can produce vast quantities of data. Processing that data at the edge provides the ability to make local, real-time control decisions without the latency introduced by networking to remote locations. It also reduces network and storage requirements by publishing only actionable information upstream to remote data centers. Rapid growth in computer vision, machine learning, and artificial intelligence (AI) applications are creating compelling new use cases for edge computing, often in rugged environments.

Digital transformation is driving requirements for connected machines and connected assets, which is extending the edge of networks and driving the need for more rugged networking capabilities to reach those assets. Advantech has hardware platforms for industrial networking with rugged industrial Ethernet switches, fiber conversion, rugged Wi-Fi, as well as intelligent LTE gateways and routers, all to ensure connectivity to remote assets or those in harsh conditions.

Industrial Embedded Automation Computers

To meet the needs of Industry 4.0, Advantech offers a complete range of embedded automation box PCs capable of edge computing, bridging the gap between IT and OT. The UNO series offers flexible IoT gateways with each series coming in three sizes: palm, small, and regular. With a robust design, they include multiple expansion solutions and versatile mounting in order to fulfill the needs of different applications.

Edge Intelligent Modular Industrial PCs

Advantech's MIC-7 series PCs provide high-performance computing, multiple I/O interfaces, and flexible expandability with the integration of i-Modules and iDoor, and can be widely deployed to support various industrial IoT applications.

Advantech has a broad hardware portfolio of edge sensing products that capture data from sensors and publish that data up to applications. These platforms provide a wide range of connectivity options, including wired network connections and Wi-Fi, as well as low-power wireless sensor networks including LoRaWAN and meshing technologies.

Digital transformation projects require broad varieties of technology and domain expertise. Advantech's open architecture hardware platforms provide an ideal foundation for a broad ecosystem of partners in order to simplify and accelerate the process of solution development and deployment for customers. Bringing together key hardware, software, technology, and domain expertise from best-in-class providers simplifies the digital transformation journey—all while reducing risk, cost, and time.

Advantech offers global product availability with service and distribution centers on-continent in all major markets. Products are available through a variety of industrial and enterprise channels, as well as direct through our own IoTmart ecommerce site at IoTmart.advantech.com.

Learn more about Advantech at Advantech.com.

About the Author

Mike Fahrion is a technologist and IIoT strategist who is passionate about bridging the gap between technology, organizations, and people. His technical expertise, combined with a talent for simplifying complex issues, allow Fahrion to turn technical babble and marketing hype into practical, useful information for both engineers and executives.

Fahrion is an expert in wired and wireless data communications with more than 20 years of design and application experience at the "edge" of networks in remote, harsh, or uncontrolled environments. A frequent speaker and author, he currently holds the position of CTO for Advantech, IIoT Solutions.

myPNOZ Is the World's First Batch Size 1 Safety Relay - "My Safety" For Automation

Ostfildern, 14.01.2021 - With the intuitive online tool myPNOZ Creator, users can assemble "their" myPNOZ: it's delivered pre-assembled, set up and tested and so is a completely individualised system, ready to install. No programming knowledge is required to use myPNOZ Creator, as the logic links for the safety functions are defined on myPNOZ via the modules that are selected and the sequence in which they are plugged in. As such the automation company Pilz has developed a digital, universal concept for its new modular safety relay myPNOZ, from selection through to order: with myPNOZ Pilz can offer safe solutions that are built in accordance with customers' specific individual batch size 1 requirements.

The safety relay myPNOZ monitors safety functions such as E- STOP, safety gates, light curtains, two-hand controls IIIA/C and enabling switches. It consists of a head module with up to a maximum of eight expansion modules, which can be freely combined.

In the corresponding online tool myPNOZ Creator you can assemble a needs-based safety solution from a wide range of options. Users can switch between a logic view and a hardware view. The option for visualisation and extensive documentation is also available via simulation.

Logical, safe engineering!

Depending on the safety requirement, users interconnect safety functions such as E-STOP or safety gate using logic AND/OR connections. The online tool myPNOZ Creator uses a symbol to indicate any logic errors in the safety function sequence. Users can add any further safety functions at will and also define details – such as delay-on energisation and delay-on de-energisation for example. Users can check immediately whether a circuit or safety design meets their own requirements in the myPNOZ Creator, using the simulation in the online tool. As a result, errors can be reduced and commissioning accelerated.

Safety: simply create, simulate safely and order with time to spare

In the myPNOZ Creator it is possible to define the number, type and logic connection between the safety functions, based on what customers need for their plant. The Creator uses these details to automatically calculate which modules are needed and the sequence in which they must be inserted. The plug-in sequence results from the connection logic for the safety functions. Due to this internal combination logic, the process requires no programming knowledge. The product that is generated can be ordered directly via the online tool, and users can order a previously defined configuration of myPNOZ with just a click of the mouse. The safety relay is delivered pre-assembled and ready to install. Each myPNOZ is given a unique type code, so that if necessary the same system configuration can be re-ordered at any time.

Caption: With the intuitive online tool myPNOZ Creator, users can assemble "their"individual safety relay myPNOZ. (Photo: Pilz GmbH & Co. KG/ © iStock.com/industry view)

Comprehensive modularity for greater flexibility

The safety relay myPNOZ monitors safety functions such as E- STOP, safety gates, light curtains, two-hand controls IIIA/C and enabling switches. It consists of a head module with up to a maximum of eight expansion modules, which can be freely combined. The modular myPNOZ offers up to 12 different expansion modules in total: four output modules, four input modules and four input/ output modules. Each input module can monitor two safety functions, which not only minimises hardware costs but also reduces the wiring. Multiple safety sensors can be monitored without the need to wire multiple relays – as was the case previously. With myPNOZ it is also possible to form multiple safety zones, which independently monitor plant sections that operate separately. This helps to increase the availability of the plant because machine parts can be shut down independently from each other.

The slimline 17.5mm head module already has a higher-level safety function. This works on all outputs, regardless of any other potential safety zones. The output modules either switch immediately or with a time delay and are available with relay or semiconductor outputs. myPNOZ enables safety functions to be AND / OR linked, enabling customised applications.

Fast, simple assembly

The modules on myPNOZ are easily connected using BUS connectors. Plus the whole system thead module. As a result, only the head module needs to be connected to the power supply, which reduces wiring. So the plant can be commissioned quicker and can also be optimised with a view to maintenance costs: if just one module needs to be swapped, individual modules can be exchanged immediately without dismantling the whole system.

myPNOZ also has expanded diagnostics via LED for each module and each safety input. This accelerates troubleshooting and reduces downtimes.

The range of modules and the fact that they are easy to handle mean that users can always assemble the solution that's right for them. That guarantees users maximum flexibility over the whole lifecycle, even when subsequent changes are needed.

Wide-ranging applications

myPNOZ represents an efficient, safe solution for mechanical engineering. What's more the safety relay can be used in various industries. Users benefit with safety applications of simple to average complexity, when two to a maximum of 16 safe input functions are to be monitored, without using engineering software.

About PILZ Southeast Asia

PILZ Southeast Asia is a German Automation Company with core competencies in Safety Automation and has been developing our operations in the Southeast Asia region. We have established our headquarters in Singapore and also set up legal entities and offices in Thailand, Vietnam and Malaysia.

PILZ Southeast Asia has been awarded the Asian Manufacturing Awards for Best Machine Safety Systems Provider in 2016 & 2017!

STEREO INSTEAD OF MONO:

IGUS OFFERS CUSTOMERS A HIGH DEGREE OF DESIGN FREEDOM WITH 2-COMPONENT 3D PRINTING

Two filaments can be joined together in a single production step to form a lubrication-free and highly stable component.

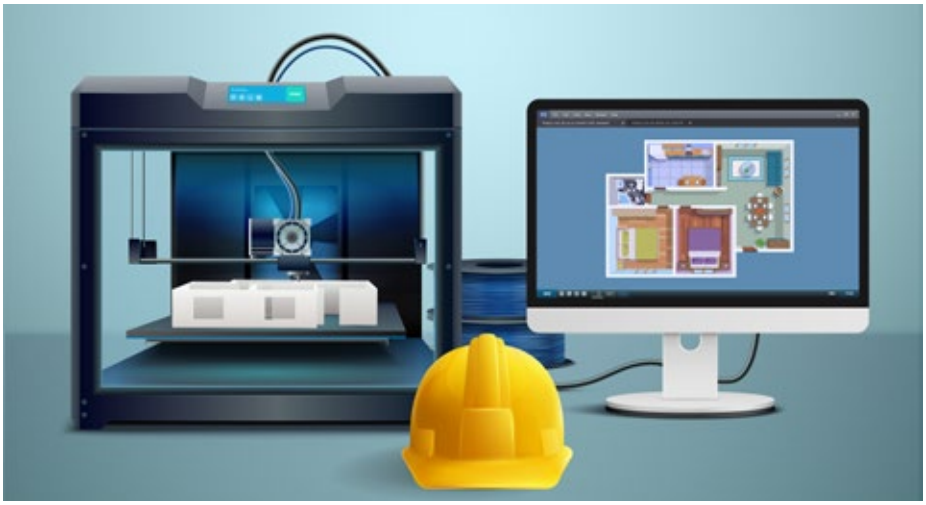
Prototypes, spare parts, tools and small batches: 3D printers of the Cologne-based plastics specialist igus now also produce components with various filaments. Different material properties can be easily combined in this 2-component 3D printing. For example, 3D printing can be used to produce components that require both special rigidity and high wear resistance. This gives companies more freedom and flexibility in design.

Picture PM3120-1
More freedom and flexibility in design: with 2-component 3D printing, different material properties can be easily combined. (Source: igus GmbH)

3D printing has become a serious alternative to machining processes such as turning and milling in industry. 32 per cent of industrial companies already used the technology in 2019, twelve per cent more than in 2016, according to a study by the industry association BITKOM. And the demands of users are increasing. "In recent years, more and more designers have asked us whether it is possible to produce components from several plastics, using 3D printing, in order to achieve special properties", says Tom Krause, Head of Additive Manufacturing at igus. The solution is Two-component printing (2K). This allows tribo-filaments to be combined with carbon fibre-reinforced filaments. The customer not only receives a particularly low-wear component, but also one that is extremely resilient.

Two-component printing (2K): there are hardly any restrictions from a geometric point of view

"We have now expanded our 3D printing service to include two-component printers (2K), which can work with two different printing materials offering more flexibility in product development. The 2-component printers work with the FDM process. The two molten plastics each flow through a separate pressure nozzle. The 2-component printers can switch between materials at any time during printing, and they merge at the transitions. "There are hardly any restrictions from a geometric point of view", Tom Krause makes clear. "The materials can enclose themselves, intertwine and alternate in layers." An exceptional case only arises if the melting temperatures of the filaments differ greatly and no material fusion is possible. In this case, designers can create a form-fit connection such as a dovetail, which connects two areas made of different plastics.



"In the past, this flexibility was impossible in 3D printing."

The filament portfolio includes lubricants and high-performance polymers with fire-retardant, hygienic and antistatic properties, amongst others. Tom Krause: "With 2-component printers we have the possibility to combine the specifications of two filaments in one component." One example of a 2-component printed part is a gripper element for a machine that screws on lids in the food industry. The body consists of an iglidur filament, which guarantees robustness and wear resistance. The surfaces, on the other hand, are made of a flexible material that provides slip resistance. "With 2-component printing, the user benefits from a material mix", emphasises Tom Krause. "In the past, the individual parts could only be printed out and put together one after the other. Now it's much easier and faster."

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ABOUT IGUS:

igus GmbH is a global leading manufacturer of energy chain systems and polymer plain bearings. The Cologne-based family business has offices in 35 countries and employs 4,150 people around the world. In 2019, igus generated a turnover of 764 million euros from motion plastics, plastic components for moving applications. igus operates the largest test laboratories and factories in its sector to offer customers quick turnaround times on innovative products and solutions tailored to their needs.

Future-Proof Power, Data and Signal Transmission

Globalization, demographic change and climate issues - these megatrends are having a major impact on industry. Tomorrow's manufacturing must also be more strongly converted to energy efficiency and sustainability. HARTING is providing the connectivity to master these challenges - Connectivity for Future Technologies! In the field of automation, the three trends of digital twin, connectivity and modularity will drive further development significantly. Machines and systems will become more autonomous - and will increasingly be making more independent decisions in future.

Modularization in mechanical engineering entails many advantages, not only for manufacturers but also for users. Thanks to modularization, they benefit from cost-optimized products that are precisely tailored to their requirements, while transparently designed at the same time. HARTING's Han-Modular® series is providing expedient solutions for all interfaces required in modern control, drive, HMI and communication technology for production systems. They are making power, data and signal transmission future-proof. Thanks to such solutions, modularization can be further advanced without functional restrictions.

Existing systems can be easily upgradable

The Han® 300 A module is precisely one such modularization driver, which HARTING has launched this year and is showcasing on the occasion of the "electronica" and "SPS" digital trade fairs. It is reverse compatible with the proven 200 A module and can therefore also be plugged onto this module (whereby the lower rated power is then available). As a result, existing systems can be easily upgraded. The new module is designed in such a way that both direct connections to a busbar and installations in slide-in systems are readily possible. The market requirement for the module to be touch-proof on both the socket and pin sides is also met.

Integration of 10 Gbit/s Ethernet in modular connectors

The demand for higher transmission rates is driving the continuous development of data interfaces. This not only applies to office area, but also to the industrial arena, where the advantages of modular interfaces are especially relevant. All common bus systems can be easily adapted, including Profibus, Profinet, CAN, Ethernet Cat. 5, Cat. 6A and Cat. 7A.

Thanks to the M12 module, there is now an additional option of integrating 0 Gbit/s Ethernet into modular connectors. The module enables significant space savings: two D- or X-coded M12 connectors fit into a single module. By comparison with conventional RJ45 solutions, the M12 system is more robust and offers even greater operational reliability.

Interface for shielded cables

The new Han® Shielded Power Module offers three power contacts and one PE contact for connecting typical three-phase loads. In addition, there are two signal contacts for temperature monitoring, brakes or similar elements, as well as a generously dimensioned shield transition, which enables EMC-compliant connection of the cable shield directly to the module. This provides an alternative to the fixed wiring of shielded power cables, while at the same time allowing such connections to be made in a common housing alongside other modules of the Han-Modular® series.

Shielded power module for frequency converters

HARTING has tested the module in the EMC laboratory in practical applications: The EMC properties of the shielding transition in the Han® Shielded Power Module are entirely sufficient for typical drive applications, such as frequency-controlled three-phase motors or other loads. It allows the pluggable design of shielded power cables, is easy to handle, while enabling direct shield connection to the module. This results in reduced installation times for machines and systems, in the factory or at the end customer.

Moreover, the series is supplemented by an EMC-protected module for signal transmission. With a generously dimension shield transition and an additional 360° shielding plate, this module not only ensures good shielding, but also enables impressive transmission options in a compact space: up to 27 shielded D-Sub contacts up to 4A / 32V can be plugged in. Under the name Han® Shielded Modul Basic, this new product will enable users in mechanical engineering and robotics, for example, to easily and cost efficiently integrate shielded transmission into modular connectors.

Han® S: Connectors for the efficient construction of energy storage systems

In addition to new products for mechanical engineering, HARTING will also be presenting new products for the energy market at SPS 2020: powerful, easy-to-handle connectors enable efficient construction of energy storage systems. With Han® S, HARTING is now offering for the first time a connector solution for front mounting of energy storage modules. The new series ensures optimum safety levels, as the design meets all technical requirements and the latest UL 4128 standard for stationary energy storage systems.

The single-pole connectors can transmit rated currents up to 200 A with a voltage of 1500 V. Han S® ensures safe installations thanks to the touch-proof contacts with different connection types (M8 screw or busbar). The locking status is always visible and easy to check. Moreover, the HARTING product is vibration-proof and available in two different colors: red (+) and black (-). The coding is mechanical, thereby preventing incorrect connections of polarity

Ethernet communication: ix Industrial® portfolio to be successively expanded

With the clearly stated mission to offer a smaller, more robust and powerful alternative to conventional Ethernet connectors, HARTING has entered the Ethernet connector market with the ix Industrial®. In order to meet the relevant demands, the ix Industrial® portfolio will be successively expanded and extended by all the necessary variants to achieve these aims and objectives. This includes straight and angled versions, various locking systems and IP protection classes. No matter where Ethernet needs to be installed in the device in a space-saving and reliable way, ix Industrial® is the interface of the future.

New definition of high speed connections

The reduction of assembly time is one of the most important savings potentials in automation plant construction. HARTING has also thought one step ahead for users in the area of existing, set interface concepts and with the RJ Industrial® Multifeature 10 Gbit, is offering an industrial grade RJ45 with an integrated wire cutter.

The solution offers 25% faster assembly thanks to the integrated miniature knives. These automatically shorten and cut the individual wires during assembly and thereby provide very simple and error-free field assembly with practical strain relief. Cat. 6A performances for all PoE classes and the variable cable outlet in 5 outlet directions ensure faster assembly with increased handling safety and robustness. This represents reliable solution delivering savings potentials for optimizing existing and new networks.

har-modular®

In the autumn of 2020, the PCB Connectivity sector will be taking center stage. With the introduction of the har-modular®, HARTING is presenting an absolute world first for the connection of PCBs. A modular concept based on the reliable DIN 41612 strips, but modularly configurable as from batch size 1. Modularity is thereby completely redefined for design-in devices.

Thanks to an online configurator, it is possible to select from a trillion possible combinations and thereby always arrive at the ideal solution, even for small series and prototypes. This represents an enormous simplification of work and time savings on the way to the finished product. True to the claim of CREATE YOUR OWN, users can choose from any number of contacts for power, signals and data. Where several connectors used to be necessary, har-modular® combines all the desired lifelines in one single connection.

har-flex® Hybrid & Power

The flexible portfolio revolving around the miniaturized PCB connector har-flex® in 1.27mm pitch is extended by power variants for even greater scope of freedom and also includes hybrid solutions combining power and signals. This combination eliminates the use of separate power and signal connectors on the board. Both lifelines are thereby combined in a single space-saving connection.

The power variants also reduce the space required for power transmission as opposed to conventional, previous solutions. Here, users have often taken the path of conducting power via several signal contacts connected in parallel. Naturally, this results in a higher number of contacts, which accordingly require more space. Thanks to har-flex® Power, this power can now be transmitted over approximately half the required surface area. Consequently, har-flex® variants are once again making vital contributions to the miniaturization megatrend.

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Precision dispensing
Bonding
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SMART DISPENSING

Robot Specifications :

- Robot Size : ~770mm(W)*785mm(L)*810mm(H)
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- X-Y Dispensing Area : 300mm*300mm
- Repeatability : ±0.01mm
- XY Speed : 0.1~800mm/sec (belt type) with step motor, load 20kg.
- Z Speed : MAX 250mm/sec (ball screw) with step motor, load 15kg.
- XY Acceleration : 0.25G
- Robot Weight : ~100KG
- Option Device : Other customized hardware.

Stream Vision Software

Standard

- Infinite nested recognitions
- TemplateMatch-including(rotation)
- Corner Finder
- Maintance Funtions
- Dispenser Type
- Counter Mode
- Jet Mode
- Channel Filter
- Recognition Manual Fix Mode

Option

- 3D Continuous Path Measuring
- Weight Calibration / Monitoring
- Additional I/O Control
- Light Control
- Circle Finder
- Leaf Detection (CCM)

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Dassault Systèmes Unveils "Water for Life" to Enable Industry to Consume Smarter and Protect the World's Most Precious Resource

- Next act in "The Only Progress is Human" communications campaign to increase awareness of societal and environmental challenges aims to support the UN SDGs by driving industry's use of virtual worlds to stem the impacts of consumption on water
- Dassault Systèmes will help companies measure and optimize their water footprint, support the idea of water handprint by accelerating open innovation with the 3DEXPERIENCE Lab, and nurture educational programs
- Customers aiming to become more sustainable must evaluate and simulate water usage in the product lifecycle

Dassault Systèmes (Euronext Paris: #13065, DSY.PA) today unveiled "Water for Life," the next act in its "The Only Progress is Human" campaign to increase awareness of societal and environmental challenges and inspire the use of virtual worlds to drive sustainable innovations. "Water for Life" combines the themes of water and consumption to explore the challenge of how industry can consume smarter and protect the w orld's most precious resource, which is threatened by overconsumption.

The campaign is part of the company's commitment to support the United Nations Sustainable Development Goals, and in particular SDG 6 to "ensure availability and sustainable management of water and sanitation for all."

Through "Water for Life," Dassault Systèmes will help its customers address this challenge from three angles: measure and optimize, innovate and create, and educate. First, it will drive the 3DEXPERIENCE platform as an accelerator for measuring and optimizing the water footprint of businesses by providing customers with integrated industry solutions that deliver data on the water consumption associated with the experience they are creating and the impacts of various design options. In the future, AI-generated recommendations will guide them toward the creation of new and more sustainable products, services and experiences.

Dassault Systèmes will also support the idea of a water handprint through its 3DEXPERIENCE Lab. This will be achieved by using collective intelligence to accelerate disruptive innovations such as EEL Energy that transform processes in industries needing to reduce their water consumption, as well as by reinforcing this engagement with a partnership of incubators worldwide such as OceanHub Africa.

Lastly, it will nurture educational programs that aim to increase awareness of major water-related issues and inspire future generations to conserve this key resource, such as the Mission Ocean project in France that is supported by *La Fondation Dassault Systèmes*.

"The world is recognizing the urgency of preserving water and moving toward a new era of responsibility and sustainability. Industry has its role to play in this 'UN Decade to Deliver,'" said Bernard Charlès, Vice Chairman and CEO, Dassault Systèmes. "Virtual universes are a key enabler for our customers to imagine, design, and test the radically new products, materials and manufacturing processes needed in tomorrow's more sustainable economy. Through new industry solutions, we can become the world's number one partner for a more sustainable industry renaissance that meets Paris Agreement goals."

Water is vital to life, yet overconsumption of water to produce the goods and services the world uses every day jeopardizes its availability. Already, more than 40% of the world's population is affected by water scarcity. In line with its Sustainable Development Goals, the UN declared a Water Action Decade from 2018-2028 focused on the sustainable development and integrated management of water. "Water for Life" aligns with this movement as well as the company's recent commitment to the Science Based Targets initiative, and its role as Official Supporter of the TCFD (Taskforce for Climate-related Financial Disclosures).

"Water for Life" was officially launched in a video featuring Bernard Charlès alongside the professional explorer and adventurer Mike Horn, who share the same passion for water conservation.

"As a professional explorer, I witnessed firsthand how human activities directly impacted the state of our Earth. It is crucial for humans to take care of it, and more importantly in preserving water, our most precious resource," said Mike Horn. "I am happy that not only the UN, NGOs and politicians meet this goal but also that industrial leaders like Bernard Charlès, CEO of Dassault Systèmes stress the importance of this key topic."

Launched in February 2020, "The Only Progress is Human" is a communications campaign that aims to increase awareness of today's societal and environmental challenges, and inspire people to use the virtual world to gain deeper insights into these challenges and drive sustainable innovations for a better future. The initiative is engaging the public through a series of "10 Acts" that illustrate how virtual twin experiences can be used to create human-centric and real-world experiences that address each Act's challenge. The first Act focused on the challenge, "How can virtual worlds change the way we experience emotions?" through a unique musical and visual experience called "Virtual Harmony" that featured the 3Dvarius, the first 3D-printed electric violin, which was designed using Dassault Systèmes' solutions.

Social media:

Share this on Twitter: .@Dassault3DS unveils "Water for Life" to enable industry to consume smarter and protect the world's most precious resource #3DEXPERIENCE #progressishuman

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For more information:

The Only Progress is Human: https://progress-is-human.3ds.com/

Dassault Systèmes' 3DEXPERIENCE platform, 3D design software, 3D Digital Mock Up and Product Lifecycle Management (PLM) solutions: http://www.3ds.com

About Dassault Systèmes

Dassault Systèmes, the 3DEXPERIENCE Company, is a catalyst for human progress. We provide business and people with collaborative 3D virtual environments to imagine sustainable innovations. By creating virtual experience twins of the real world with our 3DEXPERIENCE platform and applications, our customers push the boundaries of innovation, learning and production. Dassault Systèmes brings value to more than 270,000 customers of all sizes, in all industries, in more than 140 countries. For more information, visit www.3ds.com

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How Robotic Screw Locking Workstations Can Increase Productivity and Quality in Multilayer PCB Manufacturing

Printed circuit board (PCB) of all sizes are an indispensable part of many of the electronics we depend on every day. Compared with single-layer or double-layer type PCBs, multilayer PCBs have complex structures and their complicated production processes make them difficult to manufacture in a fully automated production line.

Delta recently helped a PCB plant in China to improve production efficiency by introducing its original articulated robot and machine vision system for multilayer PCB screw locking. This plant manufactures various PCBs for downstream clients and during multilayer PCB production, operators had to do a labor-intensive screw locking process which increased working hours and resulted in lower quality from frequent errors.

Delta's team first did an on-site survey where they uncovered the customer's needs to accelerate cycle time and improve wire trimming. To help meet these goals, Delta implemented its Articulated Robot DRV90L to the production line to help with screw locking. The new dual screw locking workstation allows both manual and robotic work, which lowers error rate and enhances while drastically improving productivity.

Because Delta's Articulated Robot DRV90L is multipurpose it can be combined with multiple feeding units, quick changing units for lenses, and a servo screwdriver for real-time torque monitoring. During the process, the feeding units automatically elevate and feed the materials.

Meanwhile, the Machine Vision System DMV2000 Series identifies materials and screw locking points with auto-calibration, then transmits this data to the Compact Modular Mid-range PLC AS Series for quick positioning. The AS Series then commands the Articulated Robot DRV90L to execute stable and quick pick-and-place and screw locking.

When finished, the equipment will automatically notify the operator for manual board placing and wire trimming using a laser ranger for height measurement to prevent manual errors. The automation solution is a great enhancement to productivity and quality by lowering the defect rate of all manual work.

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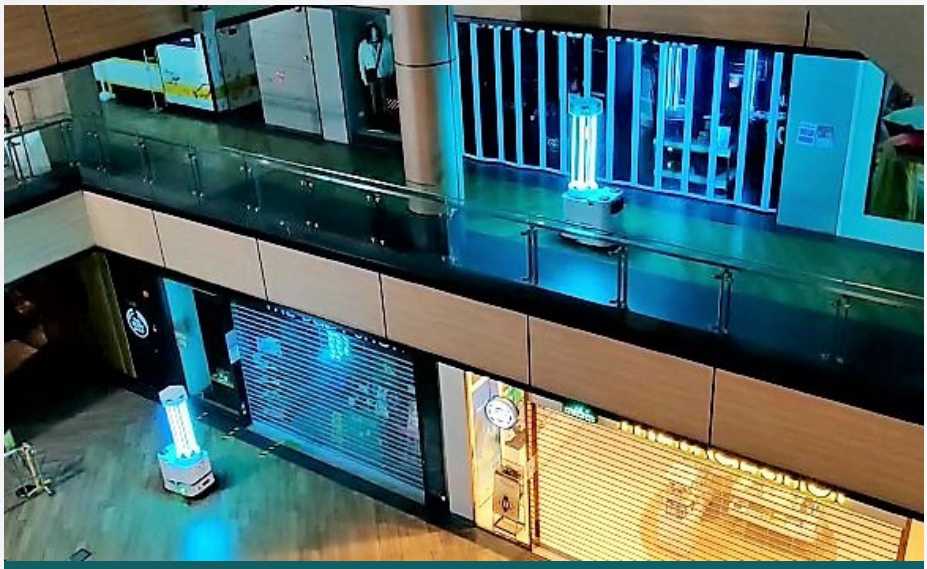
DELTA
Smarter. Greener. Together.

PBA Sunburst UV-Disinfecting Autonomous Mobile Robot: Innovation Arises In Times of Crisis

What does it mean to innovate? Innovation, in recent times, seems to be an overused word. Notwithstanding the numerous definitions found online, we believe that innovation is finding another path in the face of obstacles. It is a generator of solutions in a string of challenges. Sometimes innovation is spurred by corporate strategy, other times it is sparked by adversity and crisis. In view of this, we wanted to share our innovation journey in the midst of a global pandemic crisis.



PBA Sunburst UV-disinfecting autonomous mobile robot at Northpoint City, Singapore. [Photo credits to PBA Group and Frasers Property]

As with most businesses, the year 2020 was not a good one. The global pandemic had brought many industries to their knees and while the automation industry survived, it was certainly not spared. For us at PBA, we have instances where customers pushed back the commencement of projects, delayed purchases, amongst other adverse situations. To top it off, several prospective opportunities were put on hold.

Having experienced a similar bout of pandemic (SARS) in the region back in 2003 before, our company has certain measures as well as the relevant infrastructure to combat this outbreak. Most businesses were also aware that the economy should eventually bounce back, given the experience of the previous occurrence. We would, however, come to realise that this time things were different and that sitting idly by while we hope for the best would offer no positive outcomes for the company.

We wanted to see if there was anything that PBA as a robotic company can do to fight against the pandemic, given that all of a sudden, we have freed up resources from projects that had been put on hold. We noticed that affected stakeholders such as property owners/developers, transport operators, and especially healthcare facilities were facing a significant manpower crunch. This was due to the need for constant disinfection and cleaning works at public and commercial venues with high human traffic and high-touch areas. These activities were overly laborious and unsustainable in the long run, and we saw an opportunity to automate certain aspects of these processes.

Leveraging our existing technology and knowhow in mobile robots, we conceptualised a preliminary plan to integrate a disinfection module on top of an autonomous mobile robot (AMR). The primary function of this product would be to carry out disinfection works autonomously. Ultra-violet (UV) light was decided as the method of choice because it is non-contact. This means we did not need additional modular add-ons like a solution tank (for chemical sprays). Given also that exposure to UV is not recommended on humans, this task by nature is risky for human workers, which presented the perfect opportunity for a robotic solution to take over.

While there was undeniably a suitable use case based on our concept, we encountered numerous challenges as we embarked on the journey to create the physical product. For starters, as the engineering team came to understand more about the power requirements of an effective dose of UV radiation, they had to make amendments and tweaks to the existing design of the autonomous robot platform. This entailed understanding on the fly how best to optimise the internal layout and wiring of the robot to accommodate a powerful battery pack to fulfil the requirements of both systems (mobile robot and UV lamps).

PBA Sunburst UV-disinfecting autonomous mobile robot at Northpoint City, Singapore. [Photo credits to Reuters/Edgar Su]

In terms of software, our engineers needed to customise multiple aspects of the existing LIDAR navigation system, as well as to create an entirely new user interface (UI) for this product, to ease deployment efforts and improve user-friendliness. As PBA has traditionally been serving industrial customers, curating an aesthetically pleasing UI was a challenge. Nevertheless, the software team managed to pull it off and has since made the UI an intuitive experience for users.

On the procurement front, we faced various roadblocks as well, because many countries were in lockdown during that period. The procurement team had to scramble to look for new suppliers from other regions for parts and components of the product. This carried a certain amount of risk as we had no pre-existing relations with these vendors and their ability to deliver was unproven. Thankfully there were no issues with the delivered components, and in the process, we've established alternative supply channels.

To clarify, we were not the first company to produce a UV disinfection robot. That honour belongs to a company based in Europe, which has already rolled out and commercialised an autonomous UV disinfection robot back in 2018, after a few years of development work. Before COVID, there were no such robots deployed in Asia, but when the pandemic hit, there were suddenly interest and demand for such solutions. While lockdowns of many countries affected our procurement processes, they also created the necessity for Asia to have its provider of UV robots. And we tried to do things differently by streamlining the supply chain and vertically integrating them in one location. Except for standard and off-the-shelf components; ideation, design, assembly and testing were all done in-house. This allowed fast turnaround times for any required amendments if and when issues were encountered at each stage.

PBA Sunburst UV-disinfecting autonomous mobile robot emits powerful UV-C rays which can eradicate viruses. [Photo credits to PBA Group and Frasers Property]

As the prototype was being built, we had to accelerate our business development efforts to ensure that there are sufficient pipeline and interest in the final product. While interest was plentiful due to a successful marketing campaign, we had to qualify the leads to ensure that the eventual use cases are suitable and that our product can indeed deliver what we promised. As there was no such UV disinfection solution deployed in any compound that point in time, many prospective customers were taking a 'wait and see' approach. Additionally, the commercial model was still under development, where we had to determine our pricing strategy and distribution channels for future growth.

In essence, it took an overall team effort to mitigate and overcome these challenges, as cliché as it may sound. Everyone involved in the project hunkered down and did what they were supposed to do, and grinded it through. Teammates took initiative to identify problems and solve it on their own, and management was supportive of decisions made from the ground up. There was a sense of solidarity amongst the team, in that we felt driven by the fact that our technology and product could be used to help alleviate the situation.

In all, we built a product that wouldn't otherwise have been built if it wasn't because of the pandemic. It would not even have been in our product roadmap. It might have been a risky endeavour to embark on the project given our lack of expertise in such use cases, but we gave it a shot and employed what some would call a lean product development methodology. Such frameworks are normally taught in business schools, but when we experienced running it in real life, the lessons learnt and insights gained were priceless. To top it off, we now have a successfully launched product with an existing customer base and are looking overseas for further opportunities.

PBA Engineering Team behind the Sunburst UV Bots [Photo credits to PBA Group]

As Winston Churchill once said, "Never let a good crisis go to waste." The above account was a case of innovation sparked by adversity and crisis. And in such scenarios, the speed of innovation is often accelerated as resources are subconsciously pooled to perform sprints. There are, of course, other innovations still in development that are in various stages of their sprints, all sparked by this pandemic. It is exciting to see what further innovative solutions will arise from this watershed moment in history, as they approach maturity of their sprints.

About PBA Robotics

PBA Group / "PBA Robotics" (PBA: Platform for Bots and Automation) is a regional robotics and automation company that allows businesses of every size to leverage Industry 4.0 technologies to optimise and scale up their operations. From building tech products; specialising in precision and general robotics; to offering turnkey automation solutions, PBA is a technology partner that never stops reinventing. Our purpose is to meet the challenges of the everyday world by making robotics tech accessible to everyone.

PBA Sunburst UV Bot at HMI (Regency Specialist Hospital, Malaysia) [Photo Credits_ PBA Robotics & HMI Group]

PBA's core capabilities involve the development of technology which can be applied to businesses across all industries, including a full suite of solutions in Mobile Robots and Robotics & Automation, as well as Direct Drive Technology and Motion Control. PBA also designs and manufactures its own products, including made-in-Singapore Autonomous Mobile Robots (AMRs), Collaborative robot (Cobot) arms – the first-of its kind manufactured in Southeast Asia – and precision systems.

PBA Group has over 30 companies in 10 countries and over 500 employees regionally, with a strong focus on Southeast Asia. For more information on PBA and its robotics and automation capabilities, please visit www.pbarobotics.com.

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Digital Manufacturing Innovation Mazatrol Smooth Ai

The next generation MAZATROL Smooth CNC - MAZATROL SmoothAi make its first appearance at MAZAK S.E.A. + INDIA annual Open House, DISCOVER 2020 Webinar on 27th November 2020. The webinar was overwhelmed with 600+ attendees from Singapore, Malaysia, Thailand, Vietnam, Philippines, Indonesia and India.

MAZATROL SmoothAi has been specially designed with 5-axis and multitasking operations in mind, incorporating Artificial Intelligence to provide unsurpassed productivity by faster setups, cycle times, improving surface finishing and higher machining accuracy. Its user friendliness has made it possible for beginners and less-skilled machinist to handle the operations

Solid MAZATROL | Optimize Machining Process by AI Determination

Extremely fast programming using 3D CAD data. Thanks to AI learning which utilizes machining expertise from accumulated programming experience. The optimum machining process will be automatically determined and programs will be generated.

SMOOTH Ai Spindle | Optimized Cutting Conditions

Utilizing the AI technology, optimum cutting conditions is being achieved by monitoring the spindle vibration and machining conditions are automatically amended thus providing better finishing and higher productivity.

Ai Thermal Shield | Ensuring Higher Machining Accuracy

New algorithms automatically determine the amount of displacement compensation to be applied to the changes in the temperature to ensure higher machining accuracy.

MAZATROL TWINS

Virtual TWINS of machines with the MAZATROL SmoothAi.

DIGITAL TWINS

Creating of an identical digital copy of the machine in the office environment.

Graphical user interface enhancements, an optional second monitor and operation panel enhancements to support other new SMOOTH TECHNOLOGY solutions, including Solid MAZATROL, SMOOTH Ai Spindle, and Ai Thermal Shield.

SMOOTH Project Manager

Transfers complete machining data including programs, fixture setup, machine models, tooling data and co-ordinate systems. It is developed to work in conjunction with SmoothCAM Ai to produce a digital twin. This functionality saves operators time and effort and ensures accuracy of data when transferring setup information from the office to the machine.

SMOOTH CAM Ai

It can synchronize with the physical control and create an identical programming platform on the office PC. Transferring Ai learning features, programs, tool information and setup, Solid Models of parts, solid models of Fixtures and the machine.

AUTOMATION

Built with automation in mind, the SmoothAi CNC incorporates artificial-intelligence-driven machining functions, which promise to make it easier than ever to integrate a wide range of digital technologies into part-production operations. Advanced automation utilizing robot and software.

SMOOTH Robot Cell Controller

It uses advanced scheduling features to plan the machine's workload. Its functionality is capable of managing robots to load and unload tools, chuck jaws as well as material handling. Developed specifically for high mix low volume work types.

SMOOTH Robot Teaching Assist

Allows operators in creation of a robot program directly from the machine control with a parametric interface. Simply providing basic information like the material diameter, length and clamping positions a program is automatically generated for the robot and controlled by the Smooth Ai control.

CATALOGUE

Mr. Keita Sugiura, Assistant Manager - Application Dept

ABOUT MAZAK

Yamazaki Mazak was established in 1919 and has been contributing to the development of the machine tool industry as a leading global company. Yamazaki Mazak manufactures not only advanced machine tools such as multi-tasking centers, CNC turning centers, machining centers and laser processing machines but also automation systems with the concept of DONE IN ONE to support global manufacturing by providing exceptional productivity and versatility. We will continue to develop advanced machine tools for progress in manufacturing as well as society.

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Be Self-Reliant in the Production of Key Medical Necessities with 3D Printing

Mass Production of Medical Nasal Swabs With 3D printing in Australia Ends Reliance on Overseas Supply

The COVID-19 pandemic has put companies' global supply chains to the test in unprecedented ways. Many companies faced an initial supply shock when their global suppliers were disrupted due to limitations in travel and controlled trade for key medical necessities. Governments, businesses and individual consumers suddenly struggled to procure key medical products and materials, and were forced to confront the fragility of their global supply chain.

In order to meet the sudden demand for key medical supplies, many countries and businesses have turned to local manufacturers and alternate manufacturing technologies like additive manufacturing to help address the sudden surge in demand for new products such as PPE (face shields, eye protectors etc.), ventilators and nasal swabs. There's an urgent need to design new medical devices that are reliable and can be efficiently mass manufactured with 3D printing.

In Australia, 3D Printing Studios quickly worked with the state government and health departments to produce medical nasal and throat swabs for use in COVID-19 test kits.

Challenge ◆

Due to the outbreak of COVID-19, there has been a sudden disruption in the global supply chain for key medical supplies, resulting in shortages of test swabs to Australia. Coupled with the sudden surge in demand for COVID-19 test kits, the Australian government reached out to local manufacturers for support. As the traditional manufacturing of nasal swabs may require the development of hard tooling, which can take several iterations and months to complete, additive manufacturing has been considered to help address the immediate short-term demand surge for PPE and nasal swabs.

Solution ◆

3D Printing Studios is leveraging their experience with additive manufacturing to help speed up the design and production of nasal swabs for COVID-19 test kits. The biocompatible material EOS PA 2200 was selected due to the known stability and reliability of its mechanical properties after sterilization by autoclave or radiation process.

The final design of the nasal and throat swab after testing many different designs. (Source: 3D Printing Studios)

The final medical nasal and throat swabs ready to be used in the COVID-19 test kits. (Source: 3D Printing Studios)

Additive manufacturing enables agile design and quick evaluation cycles of the nasal swabs. This quickly compresses the time required for product development, engineering production trial and functional lab trials of the test kits.

In addition, the EOS P 396 system was selected to manufacture the nasal swabs, as this AM technology was most cost-effective when compared to other additive manufacturing technologies.

Results ◆

3D Printing Studios is working with the state government and health departments to produce medical nasal & throat swabs used in COVID-19 test kits.

South Australian Pathology, an organization providing diagnostic and clinical pathology services throughout South Australia for the public health sector, has tested the latest 3D printed swabs and has given the green light on their use. This will make 3D Printing Studios the first Australian supplier of these essential products in the fight against COVID-19.

The whole process of developing and testing the 3D printed nasal swabs only took a few weeks. The final nasal swab design not only collects the human cellular material from the nasal passage, it also allows for testing of other communicable diseases.

"We've tried several different 3D printed designs obtained from Harvard Medical School and finally came up with a simple design that is flocked with a safe nylon material," said Howard Wood.

"The design, coupled with the EOS P 396 system, will allow us to produce thousands of these medical swabs per day."

Howard Wood and Stuart Grover, the owners of 3D Printing Studios, are delighted to be the first Australian company to manufacture medical nasal swabs. This will reduce the need to import these vital products and once again start bringing manufacturing back to Australia.

Additive manufacturing enables agile design cycles. A total of 11 design iterations were tested, with only 4 weeks from project initiation to final production confirmation. Upon clinical trial and evaluation, the revised design samples are provided within 2 days.

The nasal swabs can be customized for product functionality with regard to size and flexibility. No hard tooling cost incurred during product development and production.

Minimum manpower involvement and direct interaction during COVID-19 period, as the digital design discussions and text evaluation feedback were done online. Only two production personnel were required on site. Overnight production with minimum supervision was possible due to the reliability of the EOS products.

The high productivity of the EOS P 396 system means that 5000 nasal swabs can be produced per day.

"We have been able to 3D print nasal swabs used for testing COVID-19 and other communicably transmitted diseases by using EOS AM systems. These swabs have a special head design with flocking added and have recently been shown to successfully collect sufficient human cellular material and mucususedin COVID-19 and other testing processes." Howard Wood & Stuart Grover, Owners of 3D Printing Studios

Short Profile ◆

3D Printing Studios is an Australian-based company equipped with the latest 3D technologies.

Their vision is to help: "Bringing Your Ideas to Life".

Their purpose is to aid: "Mass Personalization"

They take pride in helping customers realize innovative ideas that ensure sustainability and competitiveness in all industries. They aim to help customers improve product design, while simultaneously cutting down on cost and time to market.

Further information
www.3dprintingstudios.com

Live Interview Session:

Unlocking IoT Full Potential in the New Normal

Eric Chan

Eric Chan is Vice President of Intel and General Manager of Internet of Things Group (IOTG) Customer Engineering. He leads a worldwide customer engineering team with the charter to deliver product collateral, reference designs, platform solutions and customer support to enable customers and ecosystem partners to accelerate their designs into production.

Tiong Khe Hock

Tiong Khe Hock is the Managing Director of Omron Electronics Sdn Bhd. He holds a bachelor's degree in mechanical engineering from University of Malaya and has over 35 years of experience in the field of instrumentation, control and industrial automation. He has led the company for almost 20 years and has built a team of competent sales and application engineers capable of offering automation solutions to meet the diverse needs of its clients. Currently, he is also the President of Malaysia Automation Technology Association (MATA), a leading association focusing on industrial automation and Industry 4.0 in Malaysia.

1. The COVID-19 pandemic has turned most countries to a new normal living and one of them is applying and depending on the Internet of Things (IoT). While millennials and Gen Z might have an easier approach to this, how do people generally adapt to the IoT, especially Baby Boomers?

Mr. Tiong Khe Hock: It's a challenge for baby boomers although by enlarge most of them can utilize devices such as smartphones, computers, and tab. The major disadvantage is for those who live in rural areas. Perhaps they don't have any exposure to the internet and smart devices. If you compare with the younger generation today, they are more likely to be able to utilize the mobile apps in the smart devices. As for me representing baby boomers, I do not have any problem in terms of following up with the changes in technology such as Internet of Things (IoT) and digital transformation. However, I have to say that not everyone in my generation is as fortunate as me as some of them may still be struggling with using smart devices. I believe this is a situation where as society progresses, those who are living in the urban area will benefit from digital transformation but those in the rural areas will be left out.

Mr. Eric Chan: We have seen the whole emergence of the smartphone. Digital transformation has helped to onboard people. Nowadays, we use smartphones nearly for everything, whether ordering a ride-share or a portion of food. Smart devices today have made it simpler, thanks to the advancement of technology. Some of the cellular coverage data plans, whether 4G or 5G, help to bring people together. The concern we had is that we want to get everybody on board to have access to technology. It's a good thing as we don't want the technology to be only available to a certain group. In this case, we are doing well on the consumer side, however for the enterprise side, we should make it easier for those working in factories or warehouses so that any group of age can easily adopt the digital transformation.

2. The global economic impact of the outbreak has caused a massive loss to most companies. Is it advisable for industry players to implement IoT with limited resources?

Mr. Tiong Khe Hock: Many enterprises worldwide are affected by the outbreak of COVID-19. Although it has caused massive losses in our country, it is said that this virus actually act as a catalyst that accelerates the adoption of IoT or digital transformation, especially for bigger enterprises. The industry players especially the Small and Medium-sized Enterprises (SMEs) are obviously laggard in this adoption. Even in advanced countries like Germany, I've heard that the adoption in SMEs is only about 20%. That's understandable because SMEs are more concerned with their day to day operation and are trying to survive especially under this pandemic. However, it is still important for SMEs to implement some level of digital transformation despite this hard time. For those companies who are unprepared before this pandemic, they can't even operate remotely during the lockdown as their employees are unable to work from home (WFH). Although it is difficult for SMEs, I believe they should find ways to do it. Malaysian government has launched the national policy on Industry 4.0 called Industry4WRD since 2018 and there should be a lot of awareness for SMEs to get themselves ready for the assessment. Based on what we have heard, most SMEs are still taking their time. The government is concerned and thus is trying to provide help to SMEs in whatever ways possible. I would like to introduce an initiative by MPC and M&E Productivity Nexus, called Productivity 1010. Under this program, we provide free virtual mentoring sessions to guide SMEs on the right ways to prioritize their investment in their digitalization journey. For those companies who have limited resources to start the digitization journey, they may get assistance in the form of matching grants from the government. If companies don't take the initiatives to adopt the digital transformation, it will be hard for their business to survive in the long run. Therefore, I would urge more industry players to start the digital transformation journey in whatever ways possible.

Mr. Eric Chan: This global pandemic has triggered and also accelerated the digital transformation and all sorts of businesses are impacted by it. Consumers are concerned about dining out, or leaving home to buy groceries. They have no choice but to opt for delivery services. In this case, businesses could try applying the benefit of the internet to gather a lot of data as this data will provide insights into the ongoing pandemic. If businesses apply artificial intelligence (AI), they can get more insight into customers' buying patterns, and look at how to reduce costs. This is the best time to try adapting digital transformation. As for Intel, we've done a lot of work and we have the market-ready solutions. Our ecosystem has proven it. Businesses don't have to do a lot but place a call to us, as in Malaysia, we are working with the government such as the Malaysian Investment Development Authority (MIDA), one of the agencies for investment. We have provided a development kit for SMEs to start applying the Internet of Things (IoT), taking the data they have and showing them how to use AI to improve the process. I encourage companies to start small as that is the way you will get on board with the next wave of the digital economy.

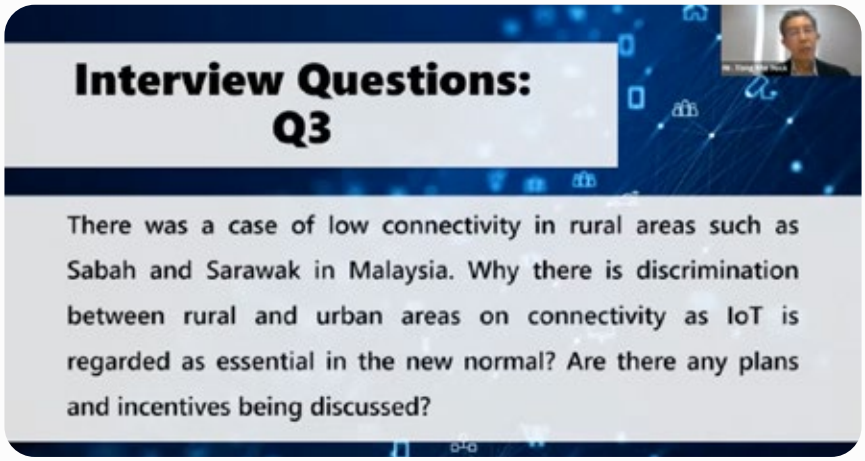
3. There was a case of low connectivity in rural areas such as in Sabah and Sarawak. Why there is discrimination between rural and urban areas on connectivity as IoT is regarded as essential in the new normal? Are there any plans and incentives being discussed?

Mr. Tiong Khe Hock: The digital divide between the rural and the urban areas is not discrimination but rather because of the business decision taken by the telco companies involved. To achieve economy of scale, the telco companies will choose to lay fiber optic cables in areas that are more densely populated. According to our demographic profile, more people are living in urban areas. Therefore, it is quite natural for people who live in the urban areas to receive a high speed of internet connection. To rectify this, it requires the government to step in because if you leave it to the enterprise or business, they will find it unprofitable for them to lay more fiber optic cable in the rural areas. It's quite unfortunate for the student of Universiti Malaysia Sabah (UMS), Veveonah Mosibin that she had to stay up on a tree to do her online examination but that's the reality we are facing unless the government decides to step in. However, the government has stated in 2021 budget that the allocation is estimated to be 7.6 billion to improve the internet speed as well as internet connection in the rural area especially in Sabah and Sarawak.

Mr. Eric Chan: Connectivity is becoming a basic amenity, so the government needs to assist in this situation. From what we've learned from the Movement Control Order (MCO), most students have to study from home and the majority of them don't have good connectivity. This will make it harder for them to get into online education. Therefore, the government has to aid the telco companies to be able to do their part. However, it does take time and this is where companies such as Intel could help, by figuring out how to address low-bandwidth connectivity. One of the ways we can do this is by pushing intelligence to the edge without moving all the data back up to the cloud to get it processed. Otherwise, there will not always be enough bandwidth in the network to carry the workload required. In my view, if we collaborate with the government along with the telco companies, we can help a lot of people beyond the cities, and share the full benefits of IoT with rural areas.

4. The pandemic has caused a massive and increasing use of hybrid IT which leads to risk exposures for companies. Based on your view, what are the key issues behind this IoT originated attack? What are the strategies enterprises should imply to overcome this?

Mr. Tiong Khe Hock: As far as this risk exposure is concerned, companies should see cyberattack security as one of their top priority issues. As a company, we view this cybersecurity as one of the big risks that we must consider all the time. We regularly receive update on cyber security risks and all our employees have to attend regular training to equip ourselves with new knowledge to manage this risk. The tactics used by hackers are mostly initiated through email, so companies should educate their employees on the proper way to handle emails. They need to have a team of people or at least one or two persons who are very familiar with this area to take charge. Companies also need to have the necessary hardware and software in place for them to monitor their risk exposure.

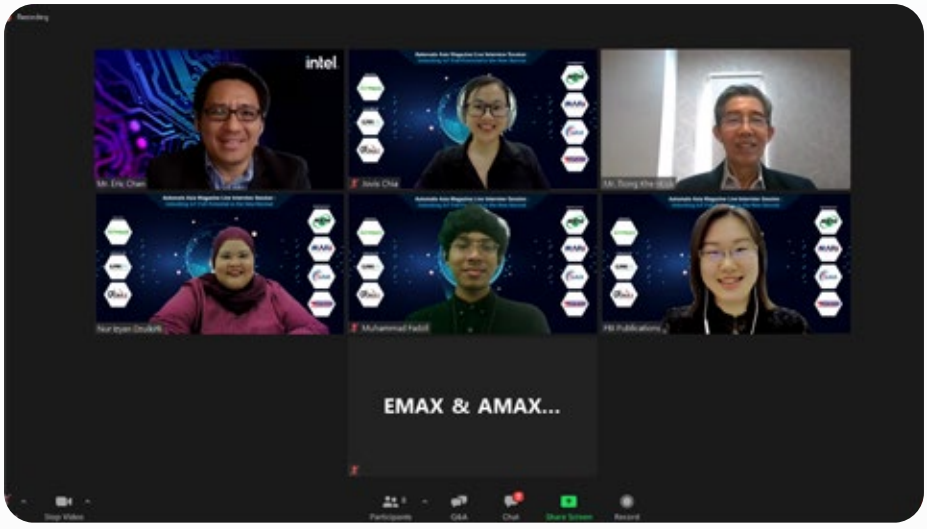


Mr. Eric Chan: Market research tells us that security is the number one concern when it comes to IoT adoption. If we are not able to protect people's data, consumers will not feel secure to use smart devices at home. This is a crucial concern for all solution providers including Intel. Thus, we have provided a lot of silicon with enhanced security. Besides the silicon, we also providing firmware with enhanced protection from hackers. It's very important for us, and Intel has a security-first pledge, where all our products go through ongoing testing to ensure thorough security. New patches are released whenever vulnerabilities, gaps, or risks are discovered. Together with our partners, we have provided a lot of security enhancements.

5. In your opinion, do you think the ongoing pandemic will accelerate a significant growth in connected IoT devices and generate more data in the coming years? What is your take from this?

Mr. Tiong Khe Hock: This pandemic has accelerated the growth of digital transformation in many enterprises. The manufacturing industry is a bit stagnant compared to the consumer industry. The usage of IoT devices in manufacturing industry especially in the SMEs is still low as most of them do not see the importance of data collection for the immediate future. The take-up for Industry4WRD readiness assessment is still a little slow and that's the reason why MATA is very much involved with activities organized by the Malaysia Productivity Corporation (MPC) to educate SMEs to help them identify the areas they should focus on. For example, the self-diagnostic too land prioritization tool can aid them in knowing which area they should prioritize and the area that can provide them with the biggest return. We are also helping them to come up with a roadmap. If they face funding issues, they can try to get financial assistance from the government.

Mr. Eric Chan: We want to have the smart and connected IoT to gather a lot of data insights for us so that we know what's going on and how we can respond in real-time, sometimes even remotely. However, what we did not foresee is that we don't know what to do with all the data we collect, as not much of this data comes from AI. We found out that AI feeds on data and the more we collect the better it gets. If people wish to adopt AI, they'll need to get a large data set which we call the training data set. Once they complete the training process on the data, they will be able to create inferencing to get the right answers from their AI every time. IoT coupled with data generation will make a difference to the enterprise. I encourage people to look into this huge opportunity, as data is becoming like the new oil. A transformation is happening and the sooner we create the right environment to capture and extract insights on the vast amounts of data we have available, the better.



euautomation

An Interview with EU Automation

John Young

1. EU Automation specializes in supplying automation equipment parts to manufacturers across the world. Could you briefly introduce the company's background, history and milestones?

Machines break down and downtime costs companies millions in lost revenue. Our mission is to supply manufacturers with the parts they need to keep their operations running, whether they need new, reconditioned or obsolete automation parts.

We were founded in the UK in 2009 and have expanded rapidly since then to become a trusted supplier in 158 different countries. We passed a major milestone last year when we passed the one million mark for number of parts sold.

We have offices in the UK, the US, Germany and Singapore, along with a global network of partner suppliers which we are constantly looking to strengthen.

2. What is the prominent obstacle that the company has overcome since its establishment?

As an international business, our core focus has always been to provide our customers with reliable and industry-leading service, wherever they happen to be in the world. This required the formation of a strong global supply chain standardised to a very high quality, consisting of several procedural checks and balances. By overcoming the initial obstacles created by building a complex and intricate network such as this, we are now able to provide as early as next day delivery to customers in any corner of the world.

3. How does the pandemic affect EU Automation's business across Southeast Asia? What are the opportunities and threats that EU Automation faced?

Although 2020 was a challenging year for everyone, we are pleased to report that we have been able to continue supplying our customers throughout the pandemic. In fact, 2020 was a record-breaking year for us and we were able to create new jobs and boost sales despite the challenges. Our team grew by 14 per cent in 2020 and global operations have now expanded by 45 per cent in the past three years.

In terms of opportunities, the threats presented to global value chains in 2020 have encouraged many companies to diversify their suppliers. This presents an opportunity for companies like EU Automation to demonstrate what we can do.

4. Could you explain how machine learning algorithms help EU Automation in dealing with the customers' needs?

Sourcing the right parts is always a challenge, especially given fluctuations in demand and supply. The research we do allows us to forecast demand with a surprising level of accuracy. As part of that, we have developed our bespoke software to help anticipate what our customers will need and when but unfortunately, I cannot reveal too much about it. The competition is fierce and we want to stay ahead of the chasing pack!

5. What type of solutions does EU Automation offer manufacturers for monitoring their factories during the pandemic when most staff have to work from home?

The Industrial Internet of Things (IIoT) and cloud computing have made remote conditioning monitoring (RCM) of industrial equipment possible. Sensors are attached to plant equipment to relay data, allowing engineers to monitor the condition of the equipment remotely. One solution we help with is retrofitting legacy equipment. Taking advantage of IIoT does not necessarily mean a costly overhaul of your facility. Instead, sensors can be retrofitted to existing legacy equipment.

6. What are the key manufacturing trends that stood up in 2020? Based on your view, what are the trends that will stay in 2021 and beyond?

Obsolescence management is always a key trend, because of the pace of technological evolution. In 2020 specifically, key trends included the increasing uptake of collaborative robots or cobots, particularly from smaller and medium sized enterprises, and the use of automation and digitalization to overcome the challenges of lockdowns and remote working. These trends will continue in 2021 and beyond and 5G will operate as a great enabler that facilitates the uptake of other technological changes.

7. What kind of revenues is EU Automation looking at? What is EU Automation's growth strategy, say for the next 5 years in South East Asia?

EU Automation has strong projections for the next five years. We plan to leverage a wider market in South East Asia, as many more manufacturers begin to transition to Industry 4.0. As supply chains reconfigure, our partner suppliers across the region and our multi-lingual sales support team are ready to help manufacturers keep downtime to a minimum.

Industry 4.0 Isn't Just For Factories

In 1913, Henry Ford unveiled the world's first moving assembly line and forever changed the way we work. Inspired by the brutal efficiency of Chicago's meatpackers, Ford's factories harnessed new technologies and more efficient ways of working to slash the time needed to manufacture a Model T from 12 hours to just 150 minutes, ushering in a new era of affordable personal transportation.

More than a century on, Ford's ideas have been embraced not just by factories, but by operators in countless other industries. When you get your burger and fries at McDonald's, the efficiency of the operation — with different parts of the task handled by the cashier, the fry-cook, the bagger and so forth — is a direct expression of Ford's ideas. In other cases, people themselves move from one place to another: a ski lift, for instance, is little more than a conveyor belt for people, efficiently moving guests around the mountain to maximize the value operators can extract from a given slope.

But while businesses of all kinds have learned from Ford's world-changing operational innovations, there are many other lessons that nonindustrial operators such as hotels, country clubs, restaurants and even retailers can learn from modern industrial facilities. Time hasn't stood still since Ford's day, and industrialists have found new ways to boost productivity and efficiency at their plants. With digital innovations transforming the industrial landscape, nonindustrial businesses now have a key opportunity to level up their operations by learning from factories and industrial plants.

Lessons from Industry 4.0

Central to that opportunity is the Industry 4.0 revolution, which has seen manufacturers and plant operators use digital technologies to create smarter, more interconnected workplaces. Using Internet of Things technologies, plant

GETTY

operators create digital virtual twins of every asset in their facility — from heavy machinery to mobile devices — and optimize operations in real time using advanced mobile software solutions.

That's especially powerful when it comes to preventive maintenance. With the right digital tools, front-line teams can more easily access information about the work that needs doing, update jobs that are completed and ensure that equipment is kept in full working order. By enabling reliable task-tracking and better communication flows between managers and front-line workers, Industry 4.0 technologies can also help improve quality control, information sharing, productivity and many other aspects of the way an industrial facility is run.

Unsurprisingly, digitization is having a big impact on factory output and profitability. A recent BCG study found that Industry 4.0 technologies can increase productivity by up to 30%, driving a 6% increase in manufacturing employment. And there's no reason those gains exclusively accrue to industrial players. Just as Ford's assembly lines changed the way we run restaurants and resorts, so too advances in digitized manufacturing can filter through to deliver productivity gains for businesses of all kinds.

Source: www.forbes.com

Connectivity Is King

Consider a fast-food company. Nobody's suggesting that we should use IoT tech to track every single burger patty, but companies like McDonald's and Burger King can certainly benefit by using digital tools to ensure their refrigerators, friers and drive-through kiosks are properly maintained. By taking cues from Industry 4.0 tools, a fast-food franchise can hook up equipment that's distributed across hundreds or thousands of locations, and make sure that front-line maintenance crews have the mobile tools they need to work efficiently, document their results and keep equipment operating smoothly.

To get to that point, though, we need to rethink the way we create and deploy digital tools across the enterprise space. The Industry 4.0 revolution has been transformative, but it has also been circumscribed to a relatively narrow segment of the workforce. Too few business leaders in nonindustrial sectors look to factories and industrial facilities for inspiration, and too few enterprise software developers are looking to transfer the things we're learning in both industrial settings and leading-edge desk-based software collaboration tools into new fields.

Choosing the right digital tools for maintenance crews and other mobile teams can be daunting. But front-line workers are already walking around with supercomputers in their pockets with intuitive controls, high-resolution cameras and high-speed web connections. Using those devices to create a system of record to coordinate workflows in front-line environments is a no-brainer. But until both managers and developers step up to make that happen, deskless workers across a wide range of enterprise roles will be short-changed and left using archaic and inefficient tools such as clipboards instead of the cutting-edge connectivity solutions they deserve.

Time to Get Smart

In some areas, of course, nonindustrial businesses *are* already learning from factories and industrial facilities. The principles behind lean manufacturing and just-in-time supply chains have found uses in many other sectors, and many workplaces — and even individual knowledge workers — now use the kanban organizational tools first developed by Toyota to keep things flowing smoothly.

But the flow of ideas from industry to the broader business world remains slow, and some of the most exciting ideas in modern industrial operations have yet to transfer across. Turning that around and bring Industry 4.0 ideas into sectors such as hospitality, retail, education and other areas requires a two-pronged attack, with sector leaders proactively seeking out the connected-worker tech they need and digitization leaders and software developers thinking creatively about how their technologies can be applied in spaces other than factories and warehouses.

If the mobile software industry broadens its perspective to include deskless workers in nonindustrial spaces, and IT and maintenance managers step up to demand better tools for their workers, we can deliver serious results. After all, we're already running many of our businesses like factories and assembly lines. Now it's time to go a step further and start running our businesses like smart factories, using the same digital tools and connectivity technologies that are transforming heavy industry. Done right, that could be every big as transformative as Ford's invention of the moving assembly line.

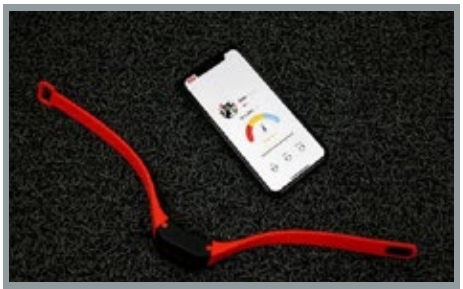
South Korean Firm's Smart Dog Collar Tells Owners What's In a Bark

Moon Sae-mi tries out Petpuls, an AI-powered smart dog collar, with her dog Godot during a demonstration in Seoul, South Korea, Jan 11, 2021. (Photo: REUTERS/Kim Hong-Ji)

A South Korean startup has developed an AI-powered dog collar that can detect five emotions in canines by monitoring their barks using voice recognition technology.

The Petpuls collar can tell pet owners through a smartphone application if their dogs are happy, relaxed, anxious, angry or sad. It also tracks dogs' physical activity and rest.

"This device gives a dog a voice so that humans can understand," Andrew Gil, director of global marketing at Petpuls Lab, told Reuters.



Petpuls, an AI-powered smart dog collar, is seen at the company's office in Seoul, South Korea, Jan 11, 2021. (Photo: REUTERS/Kim Hong-Ji)

Moon Sae-mi tries out Petpuls, an AI-powered smart dog collar, with her dog Godot during a demonstration in Seoul, South Korea, Jan 11, 2021. (Photo: REUTERS/Kim Hong-Ji)

The company began gathering different types of barks to analyses dogs' emotions in 2017. Three years later, they developed a proprietary algorithm based on a database of more than 10,000 samples from 50 breeds of dogs.

Andrew Gil, Director of Global Marketing at Petpuls Lab, checks data at the company's office in Seoul, South Korea, Jan 11, 2021. (Photo: REUTERS/Kim Hong-Ji)

"I thought she was just happy when she played and felt sad and anxious when I wasn't home...actually she felt angry when she lost a game she played with me, like how humans feel," said Moon Sae-mi, who has a six-year-old Border Collie.

The collar has a 90 per cent average accuracy rate of emotional recognition, according to Seoul National University, which tested the device the company says is the first of its kind to be powered by AI voice recognition technology.

Petpuls Lab started marketing the collar online in October last year at US$99.

The global pet care market was worth US$138 billion in 2020, up 34 per cent, Euromonitor data showed, as more people spent time at home with their pets or adopted pets during the COVID-19 pandemic. The global dog population also grew 18 per cent the same year to 489 million.

"More people began to adopt dogs, but unfortunately some of them abandoned their dogs due to miscommunication," Gil said. "Petpuls can have an important role in the pandemic...it helps owners understand how dogs feel and increases their bonding."

Source: www.channelnewsasia.com

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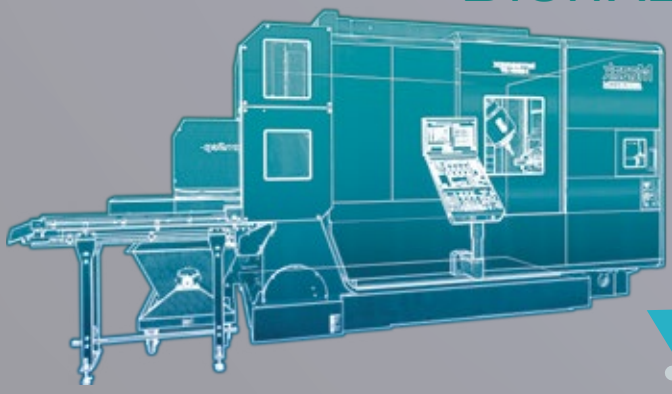

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