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MEDIA FACTSHEET

Innovative Smart Technology for Smart Cleaning – A Learning Journey for SMEs

This edition of the Learning Journey will showcase automated solutions available to SMEs and specifically focusing on the cleaning as well as food and beverage solutions. One of the key highlights is the introduction to Robot-as-a-Service (Raas) by V3 Teletech, a local ICT provider. This solution is supported by IDA's Enhanced iSPRINT programme that looks to increase SME productivity with infocomm adoption and sector-wide transformation.

About V3 Teletech, Robot-as-a-Service (RAAS)

This home-grown innovation could revolutionize the way companies deliver service excellence in areas where the labour market is tight, and automation is a key enabler to increase the productivity of today's workers.

Designed with the cleaning industry in mind, an "intelligent brain" is fitted onto industrial cleaning machine, such as a mechanical scrubber. The software system allows either manual learning or auto-mode route programming for the scrubber to be operated autonomously on pre-determined cleaning route, sequence and frequency.

The system comes with dual option: (a) human override in the event of malfunction of the robotic system; or (b) under certain environment constraints where manual operation of the scrubber is required.

The intelligent brain is equipped with an onboard camera and sensor employed to record images, manoeuvre with collision prevention software, and it is connected to cloud-based data storage for remote monitoring and analysis of cleaning tasks.

Equipped with Cognitive Intelligence for autonomous navigation and analytics, the V3 solution automates processes for the cleaning sector thereby reducing manpower needs without compromising service level standard, as well as enhancing the workforce skills set in using automation.

Benefit of V3 Solution

Qualitative:

- **Improved flexibility in resource deployment** as cleaners are upgraded to technicians after training. Technicians are able to manage multiple robotized machinery at once, addressing manpower shortage as well as allow for deployment of replaced manpower to other functions.
- **Increased consistency in cleaning services** rendered as robotized machinery is less prone to error and consistent in performance output as compared to human labour.
- **Flexibility to adapt to existing fleet of mechanical cleaning machines.**

This solution provides the flexibility of moving the robotic head from one mechanical machine to another with minimal technician involvement. Cleaning companies do not need to replace their existing fleet of cleaning machines.

Quantitative:

- **Replace low skill labour** by more than 15% via the replacement of 1 robot to 3 workers (Based on 3 cleaning shifts of mundane repetitive sweeping, mopping and vacuuming jobs). The total area covered per worker per shift is increased.
- **Enhanced efficiency and frequency of cleaning** by increasing the productivity by more than 15% via automation of robotized cleaning machinery which can allow for more frequent cycles of cleaning to be conducted. Robotized machinery can be operated 24 by 7, allowing cleaning services to be scheduled after working hours.

About V3 Teletech:

Founded in 2002, V3 Teletech (<http://www.v3teletech.com>) is a leading M2M Mobility and Robotics solutions and technology provider in the region. The company specializes in Fleet and Asset Tracking, Mobile Workforce Applications and Transport Optimization and Scheduling Applications plus Intelligent Transport Management for the past decade. V3 has diversified and developed its patent pending “Cloud Robotics” which has V3 robotic brain retrofitted onto any human operated mechanized machine to make it autonomous. V3 has also developed smart sensors and tools to support Internet of Things (IOT).

About IDA Enhanced iSPRINT

IDA's Enhanced iSPRINT (Increase SME Productivity with Infocomm Adoption & Transformation) programme aims to enable small and medium-sized enterprises (SMEs) to use smart technology, such as sensors, analytics and autonomous systems, to boost productivity and growth. Enhanced iSPRINT incorporates the \$500 million ICT for Productivity and Growth (IPG) programme announced by Mr. Tharman Shanmugaratnam, Deputy Prime Minister and then-Minister for Finance, in for Budget 2014.

To-date, more than 8,000 SMEs have benefited from Enhanced iSPRINT, deploying tech solutions at basic, intermediate or customized levels or solutions which are mapped to their sector work flow and designed to benefit groups of SMEs in the same sector.

Under Enhanced iSPRINT, SMEs do not need to make claim submissions. ICT solutions that could transform a specific sector could be supported at up to 80% capped at \$1 million per SME. SMEs that use proven sector-specific tech solutions will be supported at up to 70%. With the objective of equipping businesses with faster connectivity, IDA supports SMEs' fibre subscription plans of at least 100 Mbps as well as the implementation of Wireless@SG within their business confines. Find out more about IDA's Enhanced iSPRINT details at <https://www.ida.gov.sg/Programmes-Partnership/Store/Enhanced-iSPRINT>.

To help ensure the business relevance and increase the impact of sector solutions, IDA works with sector agencies and business leaders in Trade Associations and Chambers (TACs) to prioritize the business challenges and provide input to the tech vendor community

who develop these sector solutions. IDA has deployed more than 50 sector pilots for sectors ranging from construction, private health and education, logistics and transport through F&B, tourism and retail to facilities service providers such as cleaning.

Learning Journey Showcase at MBS

To showcase new and impactful smart tech to SMEs, IDA organizes events with partners through the year. At the Learning Journey on Smart Tech for Cleaning, IDA will showcase eight (8) solutions, one of which is V3's Transformer RaaS.

1) YuMi Collaborative Robot

Robot YuMi is a dual arm robot with accurate vision, dexterous grippers, sensitive force control feedback, flexible software and built-in safety features designed to help hospitality and service staff boost productivity through an innovative process of folding napkins. This frees up the workforce from dull, delicate and repetitive tasks into roles with higher job satisfaction and career advancement.

About ABB Pte Ltd:

ABB (www.abb.com) is a leading global technology company in power and automation that enables utility, industry, and transport & infrastructure customers to improve their performance while lowering environmental impact.

2) Restroom Visitlizer System for Smart Toilet

The Restroom Visitlizer System is equipped with odour detection sensors and a people counter system for cleaning companies to deploy janitors to dirty restrooms on-demand. It sends an SMS alert to cleaners when a pre-determined level of odour or people using the toilet is reached allowing smarter resource scheduling.

About Convergent Smart Technologies:

Convergent (<http://smarttechnologies.sg/>) has worked with Institute for Infocomm Research (I2R) to deploy this system to cleaning companies and commercial building owners. I2R licensed the technology to Convergent to scale for the mass market.

3) Atchayam FoodBox

FoodBox is an automated fresh food dispenser using an Automated Retrieval System that provides curated meals, several times a day, from the most popular restaurants in the city to places where they're needed the most. FoodBox comes with unique packaging solutions and a mobile app for e-Menu ordering, and serves fresh food in less than 90 seconds.

About Owl Tech Pte Ltd:

Owl Tech's technology brings about high automatic multi brand fresh food dispensing systems. The technology is commercially available in India as Owl Tech looks to bring expand in Singapore.

4) Prism Skylabs

Prism Skylabs is a cloud-based service that allows business owners to bring video feeds online, capture images from these feeds and share this data with consumers and the public.

It provides retailers with technology to predict demand and analyse touch-points between the merchandise and the customers. This enhances the store operations and drive revenue growth by eliminating the guesswork out of what the customers wants through their behaviour. Retailers are able to instantly capture the path movements and customer dwell time through Prism Skylabs by analysing the consumer behaviour through functions such as heat map, people counting and mobile access to conduct visual merchandising.

About Ishikawa Consultancy Pte Ltd:

Ishikawa (<http://ishikawa.sg/about>) is a newly incorporated company within the analytical/marketing industry. Ishikawa specialize in creating and improving every different business structure through dedicated products and services.

5) Muratec Buddy – Autonomous Scrubber Drier

Muratec's Intelligent Transfer Navigation System (or Navi®) is paired well with the autonomous floor scrubber drier, 'Buddy'. Navi® "learns" a planned route with the data of water, pad/brush pressure, speed and vacuum power. It would be your buddy and provide a safe and reliable cleaning in public settings such as office spaces, factory, hospitals, airport and shopping centres. The autonomous robot requires advanced robotics elemental technologies such as environment and situation recognition, travelling plan and travel control.

About Murata Machinery Singapore Pte Ltd:

Murata Machinery (<http://muratec.com.sg/>) is a Japanese multinational organisation found in 1935. It is a world leader in machine tool technology, automated material handling systems, clean room automation and textile machinery.

6) Intellibot Robotic Floor Cleaner

The Intellibot range of robotic floor cleaners enhances the productivity of the cleaning team as they can now focus on touch points that see frequent use, while the robotic floor cleaner completes the laborious task of cleaning the floor. The robot is able to send real-time messages to its operator when its task is completed or when it requires attention. Known as the Intelli-Trak, the system also provides 24/7 monitoring reports that will help cleaning service providers and buyers to better allocate cleaning manpower. The scrubber model also promotes sustainable cleaning with EcoSave®, a four-step water recycling system that allows cleaning water to be re-used. Its unique filtration system clears out particles of up to 1micron and can come fitted with a UV system to eliminate up to 99.9% of bacteria & viruses.

About King's Build Industrial Pte Ltd:

King's Build (<http://kingsbuild.com.sg/>) leading provider of innovative and technologically advanced solutions, King's Build Industrial seeks to help clients increase efficiency and productivity through the adoption of smart technologies. Its range of industrial equipment support functions ranging from front of house to backend operation demands.

7) Pandora Cleaning Operation System

Designed for SMEs in the cleaning services industry, Pandora delivers productivity for the back-office and onsite processes that includes lead and opportunity management, contract management, resource planning, tracking and management, human resources and payroll

and many more.

About PBA Solutions Pte Ltd:

PBA Solutions (<http://www.pbasolutions.com/>) creates industry-specific software solutions by putting multiple technologies together into a single cohesive platform.

For media clarification, please contact:

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