

# SINGAPORE BUSTECH GRAND CHALLENGE 2021





SINGAPORE  
BUSACADEMY



## MESSAGE FROM MS GOH PUAY SAN DEAN, SINGAPORE BUS ACADEMY

15 November 2021 marks an important milestone for the public bus industry with the launch of the inaugural Singapore BusTech Grand Challenge. Together with the Employment and Employability Institute and our partners, this competition is part of our continuing efforts to recognise our bus technicians' skills excellence and raise the technical standards in the public bus industry.

Since 2018, we have made significant efforts in upskilling our bus technical workforce. For instance, the Certification for Technical Specialist (CTS) (Bus) by SGBA and The Institution of Engineers Singapore (IES) was introduced in June 2018 to establish and update the competency standard of bus technicians with industry best practices in the areas of bus maintenance and engineering. The Chartered Engineering Technologist and Technician Certification Scheme was also launched in January this year as part of the IES' National Engineering Career Progression Pathway to recognise the skills of engineering technologists and technicians. To date, we have over 160 technicians conferred the CTS, and over 70 technicians who have received the Chartered Engineering Technologist and Technician Certifications.

We believe that our continuous efforts will benefit the bus industry, as we uplift the professional recognition of our bus technicians and hone their skills through certifications, carefully curated courses, and the newly launched Singapore BusTech Grand Challenge. Through these, we hope that our bus technicians will strive to continually improve and pick up new skills to be future-ready. This is especially so as we transition to cleaner energy buses.

I would like to extend a special thank you to all our sponsors, our partners - IES, Institute of Road Transport Engineers and National Transport Workers' Union, and our bus operators - SBS Transit, SMRT, Go Ahead Singapore and Tower Transit Singapore for your contributions in making this challenge a success. I look forward to forging even stronger partnerships in years to come. I would also like to congratulate and thank all participating bus technicians for your active participation, good sportsmanship and achievements. Your many months of hard work and dedication have definitely paid off. This is a great achievement for each one.



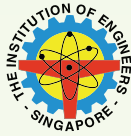
## MESSAGE FROM MS CARYN LIM CEO, EMPLOYMENT AND EMPLOYABILITY INSTITUTE

Bus Technicians play a vital role in keeping our buses running, from servicing, preventive and corrective maintenance to on-the-road technical assistance and system recovery. On a day-to-day basis, bus technicians work in teams to keep buses up and running to serve the public with more than 2.8 million trips daily. For a bus technician to be proficient in his domain, both skills upgrading and knowledge sharing are essential to carry out duties such as routine inspection, maintenance, diagnostics and troubleshooting. The inaugural Singapore BusTech Grand Challenge was thus an important event to recognise our bus technicians for their skills and efforts to ensure smooth and reliable public transport.

Since 2009, e2i has supported the bus industry to attract, retain and grow the workforce. Several employment and employability initiatives have been developed over the years to equip the workers with additional vocational and soft skillsets to deepen their competencies and grow in their careers. These include the Singapore Bus Academy as well as the Place-and-Train programmes for public transport technicians and bus captains.

The advent of electric buses and autonomous vehicles on the road will make the job of bus technicians more challenging. Continuous learning is thus critical to ensure the safety and competency of our bus technicians and to do so, e2i will continue to support our workforce in the public transport industry, bringing professional development and job opportunities to our workers.

I would like to thank all our bus technicians, bus professionals, as well as our partners in this journey. They have contributed tirelessly and played a crucial role in making our daily commute safe and comfortable.



## MESSAGE FROM DR RICHARD KWOK PRESIDENT, THE INSTITUTION OF ENGINEERS, SINGAPORE

Singapore's public bus services serve millions of commuters every day and form a critical part of our world-class transportation network. This would not be possible without the commitment and hard work of bus technical professionals.

As our transport network continues to transform for the future, our bus technical workforce will play an increasingly important role in repairing and maintaining our buses as well as in carrying out preventive repair works of sub-systems associated with the buses.

This makes it critical for stakeholders to work together to raise the level of technical excellence amongst bus technicians. The Singapore BusTech Grand Challenge 2021 is an excellent initiative to achieve this goal. The competition will also enhance recognition of bus technicians and raise greater awareness of their valuable contributions.

The Institution of Engineers, Singapore (IES) is proud to be the supporting partner for this joint effort to promote bus professionalism. It is in line with our ongoing efforts with the Land Transport Authority (LTA) and other key stakeholders to advance and validate technical competencies of technicians.

I would like to offer my heartiest congratulations to all the participating teams for completing the competition. To the top teams, wonderful job in your outstanding performance. You have demonstrated exceptional skills in areas from fault finding and problem-solving to logical thinking and time management.

I hope that this competition will inspire you to pursue even greater excellence in your work.



**National Transport  
Workers' Union**



## MESSAGE FROM MR MELVIN YONG EXECUTIVE SECRETARY, NATIONAL TRANSPORT WORKERS' UNION

Our Bus Technicians are literally the invisible workforce keeping our public buses running smoothly every day. Although thousands of commuters take our public buses daily, not many are aware of their tireless work behind the scene in the wee hours of the night while most of us are sleeping.

I am most glad that the Singapore Bus Academy is organising the inaugural BusTech Grand Challenge to recognise and celebrate the dedication and technical proficiency of our Bus Technicians.

The National Transport Workers' Union firmly believes in protecting every worker and not every job. Electrification and autonomous technology will be adopted widely over time and it will have a profound impact on our Bus Technicians. Their years of accumulated experience in traditional combustion system is at risk of becoming obsolete. This is why we need to start taking progressive steps to help them reskill now. Jobs will evolve and some diminished in time to come. It is crucial that we help our workers stay relevant and take on better or new jobs. It is therefore apt for the Challenge to include the handling of high voltage batteries.

As we celebrate the profession and pride of our Bus Technicians, let us also applaud the spirit, grit and adaptability of our workforce. These are the attributes that will see us through the different challenges ahead.

We will be by your side at every step of the journey – this is the Union's promise to you.



# IRTE



## MESSAGE FROM MR CHRIS GRIME INTERNATIONAL TRUSTEE REPRESENTATIVE INSTITUTE OF ROAD TRANSPORT ENGINEERS

The Institute of Road Transport Engineers (IRTE) is delighted to offer its support to the Singapore Skills Challenge. As the world continues to address the ongoing impact of the global pandemic caused by COVID-19 there has never been a greater need for the innovation and invention that qualified engineers provide and events such as this both celebrate and promote the skills within the industry.

The IRTE have held a number of Skills Challenges in the UK and have found it to be a superb way to demonstrate best practice, skills and competence. We are delighted to collaborate to help bring about Singapore's version of the event and are sure it will be a success.



## COMPETITION FORMAT



MECHANICAL



ELECTRICAL



DIAGNOSTIC

- ❑ 3 technical categories
- ❑ 4 stations per category
- ❑ Stations will be sponsored by OEM or Institutes of Higher Learning (IHLs)

### Assessment could be based on

- Fault finding
- Maintenance or repair of components or systems
- Problem Solving
- Logical order of repair
- Use and interpretation of technical information
- Precision measurement
- Appropriate use of tools
- Time Management
- Safety
- Communication of maintenance or repair process

## PRIZE CATEGORIES

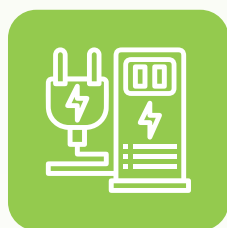
OUT OF 8 TEAMS AND 24 TECHNICIANS:



MECHANICAL



TOP  
INDIVIDUAL  
AWARD



ELECTRICAL



TOP  
INDIVIDUAL  
AWARD



DIAGNOSTIC



TOP  
INDIVIDUAL  
AWARD



TOP 3  
TEAM  
AWARDS



## SINGAPORE BUSTECH GRAND CHALLENGE 2021





## Introducing Bridgestone's New City Bus Tyre



### **U-AP 001**

Extra-deep tread  
all-position tyre  
specially designed for  
start-stop operations



### **BRIDGESTONE R150**

Premium all-position rib tyre  
suitable for highway and city operations



### **BRIDGESTONE M729**

Premium drive axle tyre with  
excellent mileage performance





# *SBS Transit* SBS TRANSIT

SBS Transit is excited to be a part of the BusTech Grand Challenge 2021 which aims to raise the skill standards of technicians in the bus industry.

As a major public bus operator, the efficient maintenance of our bus fleet is essential to provide safe and reliable rides for our passengers. As technology evolves, it has become all the more vital for our technicians to keep abreast of technology trends and be equipped with the technical skills to constantly stay relevant.

SBS Transit places great importance on our employees' career growth and development, and we continue to invest in their training and upskilling to cultivate a workforce of skilled technicians. This is why we are pleased to sponsor the BusTech Grand Challenge 2021 as it helps to sharpen our people's technical skills by learning from and competing with the best in the industry. Indeed, iron sharpens iron.

SBS Transit wishes all participants the best in this competition.



(Left to right)

- Phoon Yoke Onn
- Gan Kok Leong
- John Roy Joseph



(Left to right)

- Tiew Chong Lin
- Chong Kah Lok
- Chan Jinghan



**Sideguard Assist:** Flashing LED lamps and driver's seat vibrations alert drivers to dangers of collision with stationary or moving objects.



**Active Brake Assist:** This unique feature automatically initiates a braking manoeuvre with partial braking upon threat of collision.

# Electric buses have just discovered their role model. The new eCitaro.

We've taken our bestseller and given it an electric spin. Emerging from the proven and strongly established lineage of the Citaro, the eCitaro is a ground-breaking e-mobility solution for the transport system demands of tomorrow's cities.

## **Not wishful thinking. Tested and Proven. Repeatedly.**

The eCitaro is not a prototype. It is a fully developed all-electric bus that has undergone stringent tests to ensure the same level of dependability as conventional city buses. The eCitaro has been subjected to tough city traffic conditions to test its electrohydraulic steering and drive axle, and forced to negotiate the steep ascents and descents in the Sierra Nevada.

## **Driven by a mission of sustainability.**

The eCitaro is fully emission-free and runs on sustainable energy resources. Hence it dovetails perfectly with the Singapore Green Plan 2030, as well as the country's push for electric vehicles (EV) adoption. The bus also has an innovative Thermal Management System that reduces energy consumption without compromising on performance.

## **Safety as standard.**

Pursuing Mercedes-Benz's vision of accident-free driving, the eCitaro integrates all the safety considerations for drivers and passengers in challenging urban traffic conditions.

Find out more about how the eCitaro will spearhead the future of e-mobility in Singapore. Call Cycle & Carriage at 6568 4638 today.

**Avoid costly downtimes and keep your fleet running economically by using Mercedes-Benz Genuine Remanufactured Parts that guarantee exceptional quality and reliability.**

**Mercedes-Benz**  
The standard for buses.



Mercedes-Benz Singapore Customer Care Center: 1800 329 7540 · [cs.sgp@cac.mercedes-benz.com](mailto:cs.sgp@cac.mercedes-benz.com)

Cycle & Carriage (Authorised Dealer) Mercedes-Benz Commercial Vehicles Center – Sales Enquiries: 6568 4638

209 Pandan Gardens, Level 2, Singapore 609339. Mon - Fri: 8.30am - 6pm, Sat - Sun & PH: Closed. [www.mercedes-benz-bus.com/en\\_SG](http://www.mercedes-benz-bus.com/en_SG)



## SMRT BUSES

SMRT Buses is honour to be invited to participate in the very first Singapore Bus Tech Grand Challenge for the public transport industry segment. In SMRT Buses, our technical workforce are kept relevant through continuous training to deepen their skills. It is encouraging to see Singapore Bus Academy and Land Transport Authority catering the support to the changing needs of our technical workforce so that they are poised to handle the coming challenges in maintenance of new vehicular technologies in this everchanging world of technology advancements, be it electrification and autonomation.

Singapore Bus Tech Grand Challenge is a great opportunity for the authority, learning institutions and public transport operators to come together to learn from one another and we look forward to exciting events in the future as well. We are fully supportive in elevating the prestige of the technical workforce and it couldn't be done any better than recognizing them via a skills challenge competition.



(Left to right)

- Murugan A/L Sivalingam
- Leong You Fai
- Mohamed Faisal Bin Ayoob



(Left to right)

- Chang Sze Choon
- Hadiputra Bin Mohd Isa
- Tan Ching Kuang

# DENSO INTERNATIONAL ASIA PTE. LTD.

We are established in December 1998, 100% owned by DENSO Corporation in Japan. Our President, Mr. Naoto Inuzuka, stations in Bangkok Regional office but travels every month to Singapore pre-COVID-19 time.

We have about 79 associates with one Hong Kong Procurement Office (22 associates). There are 2 Japanese expatriates now in Singapore office. We used to have 16 expatriates but we have been localizing rapidly 4 years ago.

Our revenue is about USD 1.2 billion before COVID-19.

About our main business in Singapore, we are shareholders to a few subsidiary companies in ASEAN region. We provide regional financing, re-invoicing functions here. Sales of automotive parts is another key area and our customers cover those countries which do not have existence of DENSO Sales offices, like Singapore, Bangladesh, Brunei, etc.

We also have a Parts Procurement Office located in Hong Kong whereby most of their suppliers are located in China.

*Data accurate as of Oct. 2021*

## Our Philosophy and Core Values



### Our Philosophy

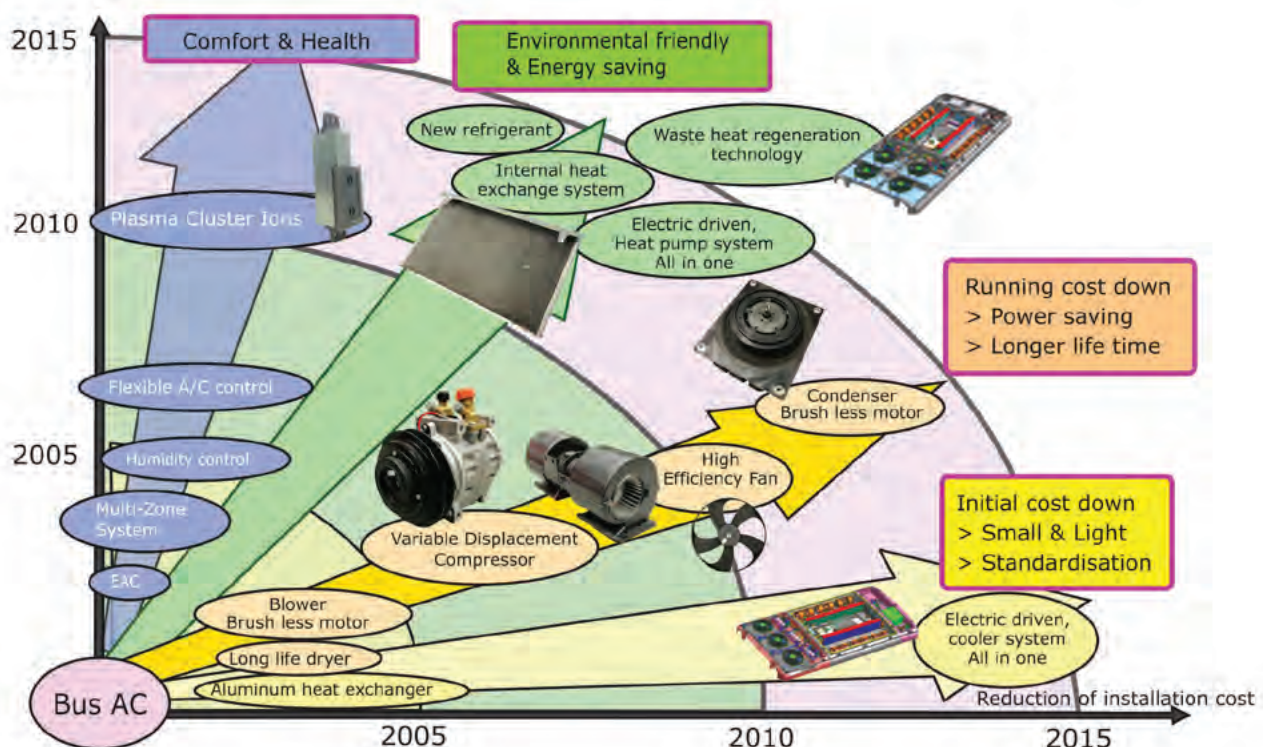
"Contributing to a better world by creating value together with a vision for the future."

Our vision is for a safer and more eco-friendly future with fewer accidents.

### Our Core Values (DENSO Spirit)

- Foresight:** Surprising and improving our customers with our vision for the future and pioneering spirit
- Credibility:** Providing quality & reliability beyond customer expectation
- Collaboration:** Achieving the highest result by working as a team

## Our Product Technology





# TOWER TRANSIT SINGAPORE

Appreciation for public transport workers has been on the rise, and rightly so.

The pandemic has shown that our frontline transport workers play a key role and are deserving of respect as they brave the pandemic to keep our buses and our city moving. Yet there are other roles in the public bus sector that are less visible but no less important.

Today, we celebrate one such unsung role - the vehicle technician (VT) who, though not often seen by commuters, does a job that has a big impact on the timely arrival of their bus services, the comfort of their ride and their safe arrival at their destination.

The VT contributes significantly to whether mileage that has been scheduled is also operated, and whether LTA's bus assets are well stewarded. The VT even has a hand in sustainability as a well-maintained bus is often friendlier to the environment and causes less waste than a poorly maintained one.

The BusTech Grand Challenge shines a light on the valuable skills of our VTs. It will push the public bus sector towards greater professionalism in the area of vehicle maintenance and spur VTs to upskill and strive for excellence.

Tower Transit Singapore is proud to be supporting and participating in the inaugural BusTech Grand Challenge. Our congratulations to the LTA, Singapore Bus Academy (SGBA), the Employment and Employability Institute (e2i) and all participants on this milestone and for drawing attention to the all-important work that VTs do.



(Left to right)

- Hoo Lai Kwang
- Karthik A/L Krishnan
- Aye Min Aung



(Left to right)

- Sundaramoorthy S/O Nadarajan
- Seah Chung Hung
- Yuen Wei Kit



**Established Automotive Training & Facilities**

# **Hybrid & Electric Vehicles**

Join us in this exciting journey towards a future zero-carbon transport!



**NGEE ANN**  
SCHOOL OF ENGINEERING

**Ngee Ann CET Academy**  
[www.cet.np.edu.sg](http://www.cet.np.edu.sg)



# GO-AHEAD SINGAPORE

The Singapore BusTech Grand Challenge is a welcome initiative that provides a platform for our technical specialists to showcase their skills and increase their professional exposure. We believe that the cultivation of healthy competition within the industry will motivate participants to strive to do their best whilst influencing each other in accelerating within their respective fields.

Our teams are very excited to participate in the different segments alongside their industry counterparts and have full access to their supervisors who are available to support them in their preparations for the challenge.

We hope that our technical colleagues enjoy this opportunity to demonstrate their capabilities and the process in completing the challenge. The bonus of attractive prizes is icing on the cake to this inaugural experience



(Left to right)

- Thuan Soon Teo
- Lozano Romilo Piguro
- Simon Goh Mao Sheng



(Left to right)

- Antonino Armando Caballero
- Bathen Larry Rivera
- Tay Thian Jun

# SCHOOL OF ENGINEERING

MORE INNOVATION · MORE SOLUTIONS  
BE SO MUCH MORE



## FULL-TIME PROGRAMMES

### Diploma in

- Aerospace Engineering
- Aviation Management
- Engineering Design with Business
- Electrical & Electronic Engineering
- Engineering Systems & Management
- Sustainable Built Environment
- Supply Chain Management
- Industrial & Operations Management

## LIFELONG LEARNING PROGRAMMES

### Diploma in Engineering

- Operations and Engineering Management
- Electrical and Electronics (WSP)
- Vehicular Technology and Operations (WSP)

### Specialist Diploma in

- Supply Chain Management (WSP)
- Aviation Management and Services (WSP)





# TEAM CHAMPION SBS TRANSIT

**SBS Transit**



**Tiew Chong Lin**



**Chong Kah Lok**



**Chan Jinghan**

“We thank SBS Transit for believing in us and giving us the opportunity to represent the company locally at the highest level. Special thanks to Mr Mak Kok Nam, Mr Tan Meng Kiang and Mr Choo Heng Nam for coaching and guiding us. Thank you all who have supported us too!”

## Innovation in Design

SMC has been supporting Singapore's Public Transport sector since 1997. We have supplied over 3,200 door systems to various bus types such as diesel-powered, hybrid and electrically powered with a wide range of robust Transit Door Systems that have proven successful in public transportation.

SMC Transit Door design is developed based on the operating needs and understanding of the physical environment of its customers. We aim to provide an efficient, reliable, and cost-effective Transit Door Package; by applying extensive application knowledge, equipment, employee training and process improvement. Our Transit Team continues to embrace change, innovation and development of our technical knowledge and manufacturing process. SMC apply advanced design tools and stringent testing to assure lifelong, reliable products and low cycle costs in Today's demanding Transit environment.



*Photos have been reproduced by courtesy of the LTA*

## Safety Features of the Door System:

- Inside the bus : A sensor detects the door's edge has hit an obstacle and signals to reopen the door.
- Outside the bus : A sensor detects the door's edge has hit an obstacle and sends a signal to stall the re-opening of the door.
- Above the door : A sensor detects commuters at the door and sends a signal to prevent the doors from closing.
- Ramp is deployed : The system does not allow the exit door to close when the ramp is deployed.
- Bus in motion : The system disallows the doors from opening when the bus is on the move.
- In an Emergency : The emergency dump air control valves located on both the interior and exterior of the bus allow the doors to be opened.
- Accelerator Interlock Function : The bus accelerator is disabled when any of the doors are opened.

## Door To A

## Safer Ride

### Full Technical Support

- Assist onsite installation & pre-delivery inspection.
- Provide 24/7 onsite warranty breakdown service.



*Competent Technical Team*



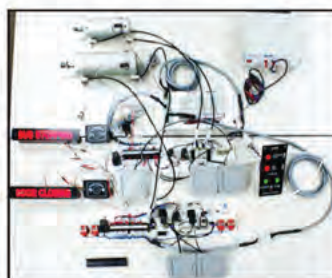
*Onsite Field Service*

### Stock Support

SMC keep and deliver spare parts such as Complete Door and Ramp Set to assembly site, installation, and commissioning to the satisfaction of Buyer and Bus operators.



*Complete Door Set & Spare Part Support*



*Bus Door Control System*

### Training Support

Keeping a bus operation running smoothly is extremely important. To minimize breakdown and to have a fast recovery time, it is crucial to have a competent technical team. SMC provides training that covers all aspects of the Bus Door Control System. The training provides an opportunity for the technical team to be hands-on during troubleshooting and maintenance sessions.



*Training for SBS Transit*



*Training for LTA*



*Training for Tower Transit*



*Training Materials*



# 1<sup>ST</sup> RUNNER UP **SBS TRANSIT**

***SBS Transit***



**Phoon Yoke Onn**



**Gan Kok Leong**



**John Roy Joseph**

“It has been a great privilege competing alongside technicians who are among the best in the industry. This entire experience is truly eye-opening and has motivated us to keep exploring and learning to be better at what we do. We would like to thank SBS Transit for providing us with this amazing opportunity and everyone who has helped and supported us along the way!”

# SAFE, RELIABLE and SUSTAINABLE Mobility Services

Buses, Coaches, Trucks and Vans



Electric Commercial Vans and Trucks




Electric Buses  
Electrification of Diesel Buses



Linkker

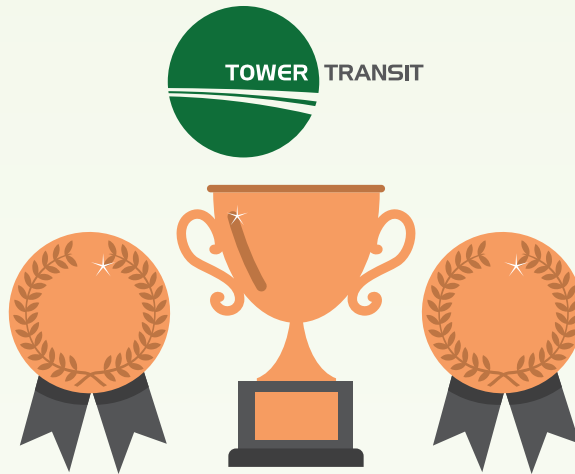
Maintenance and Parts Support  
Passenger Vehicles MRO  
Heavy Vehicles MRO  
Military Platforms MRO



 **ST Engineering**



# 2<sup>ND</sup> RUNNER UP TOWER TRANSIT SINGAPORE



**Sundaramoorthy  
S/O Nadarajan**



**Seah Chung Hung**



**Yuen Wei Kit**

“We were surprised to be considered for this award. We humbly express our utmost gratitude to Tower Transit Singapore, our families and everyone who has one way or another provided their continuous support and sacrifices to help us be where we are today. ”



# DRIVE

## Alternative drives are without alternative. Drive New Ways.

Together with our customers, we are driving the resource-saving mobility of tomorrow. To this end, we have been offering low-emission innovations in hybrid and electric drive technology for years. As a constant partner in times of change, you can rely on our systems expertise and competent advice – for an uncomplicated changeover to future-oriented drives.

**VOITH**



# BEST INDIVIDUAL AWARD



## ELECTRICAL



**Sundaramoorthy  
S/O Nadarajan**

Tower Transit Singapore

"Thank you very much for this award. I humbly express my utmost gratitude to everyone who has helped me be where I am today. It would never have been possible without you. Thanks a ton!"



## MECHANICAL

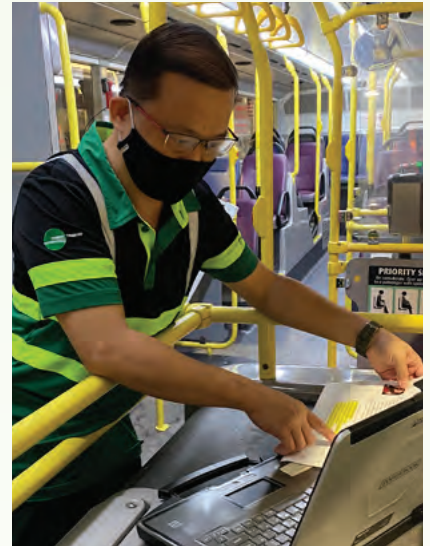


**Tiew Chong Lin**  
SBS Transit Ltd

"It's amazing to see that our hard work has paid off and I am very encouraged by the results! It was a great experience putting my skills to the test. I will continue to work hard to develop my skills and become even better at what I do."

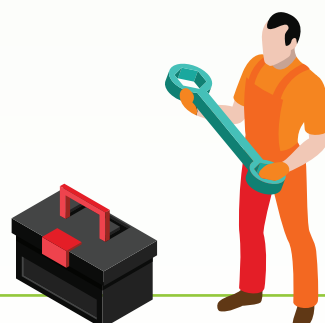
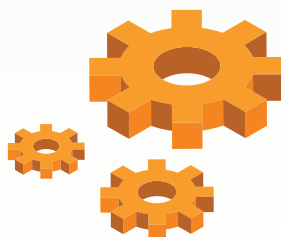


## DIAGNOSTIC



**Seah Chung Hung**  
Tower Transit Singapore

"Thank you very much for this award. I am truly honoured to receive it. It is a greater honour to compete side by side with my fellow colleagues, all of whom have made contributions to our roles as Vehicle Technicians."



## COMPANY OVERVIEW

Volvo buses is one of the largest bus manufacturers in the world offering complete bus and chassis. Our global strength and local presence make us the preferred and reliable partner for customers around the world. Based on our core values, we work to drive our industry and society forward through innovative solutions that improve everyday life for the people and for the entire city.

We are active in more than 85 countries all over the world.

## PARTNERING WITH SINGAPORE

In November 2018, Volvo Buses delivered the first of 50 Volvo Self-Charging Electric Buses (Volvo B5L Hybrid Bus) to the Land Transport Authority of Singapore.

In March 2019, Volvo Buses collaborated with Nanyang Technological University (NTU) and launched the world's first 12-meter fully autonomous electric bus in Singapore.

In 2020, Volvo Buses launched the Volvo BZL full electric chassis, suitable for tropical markets like Singapore.

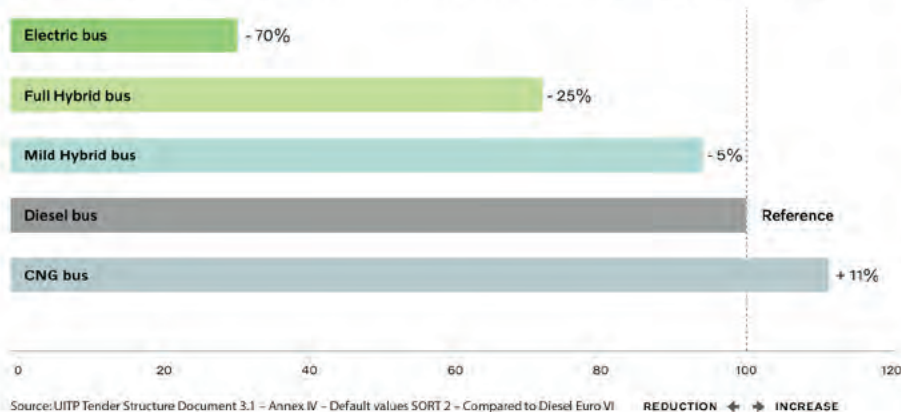


Volvo Self-Charging Electric Chassis  
Volvo B5L Hybrid

## WHY FULL HYBRIDS ARE THE NEXT-BEST ALTERNATIVE TO ELECTRIC BUSES

### CO<sub>2</sub> EMISSION REDUCTIONS (WELL TO WHEEL)

Full hybrids allow significant CO<sub>2</sub> reductions and are the second-best alternative to full-electric buses.



The future of public transport is electric. However, due to several constraints, the large-scale, robust, and cost-effective implementation of electric buses will be a progressive journey rather than an overnight transition. This means that in the years to come, fleet renewals will need to include alternative technologies alongside electric buses. When compared to diesel buses, the typical reduction in greenhouse gas (GHG) emissions of full hybrids is

around 25%. However, on routes that allow superior energy recovery, it can even be as high as 40%. As a result, depending on the mileage, operational conditions, and SOC level in the ESS, a full hybrid reduces CO<sub>2</sub> emissions by as much as 20 to 50 tonnes over the course of a year. If combined with biofuel, such as B100, a full hybrid can offer a reduction of around 60% when compared with a diesel bus.

Embracing the latest technologies, notably connectivity and geofencing, full hybrids can utilise recovered energy in a much better way, enabling more electric drive in noise and emission-sensitive areas. So, while the electric market will continue strong growth in the coming years, there will still be solid demand for full hybrids as the “second-choice” and next-best alternative.



# STATION WINNERS FOR ELECTRICAL CATEGORY



From left:  
Steven Xu (NP) and Sundaramoorthy S/O Nadarajan (TTS)



**Station:** High Voltage Battery  
**Sponsor:** Ngee Ann Polytechnic


**Winner:**  
**Sundaramoorthy S/O**  
**Nadarajan (TTS)** 



From left:  
Sundaramoorthy S/O Nadarajan (TTS), Cheng Wanlin (RP)  
and Mohamed Yoosuf (RP)



**Station:** Vehicle Lighting System  
**Sponsor:** Republic Polytechnic

**Winner:**  
**Sundaramoorthy S/O**  
**Nadarajan (TTS)** 



From left:  
Irfan Syahmi (SMC) and Phoon Yoke Onn (SBST)



**Station:** Door System  
**Sponsor:** SMC Corporation  
(Singapore) Pte Ltd

**Winner:**  
**Phoon Yoke Onn (SBST)** 



# STATION WINNERS FOR MECHANICAL CATEGORY



From left:  
See Beng Hui, Company Rep (SMRT), Mr Nicholas Loh  
(Denso) and Gan Kok Leong (SBST)

**DENSO**  
Crafting the Core

**Station:** Aircon System  
**Sponsor:** Denso International Asia  
Pte Ltd

**Winner:**  
**Gan Kok Leong (SBST)**   
**Leong You Fai (SMRT)** 



From left:  
Ivan Pang, Company Rep (SBST) and Leong Sek Hoe (Voith)

**VOITH**

**Station:** Transmission  
**Sponsor:** Voith Pte Ltd

**Winner:**  
**Tiew Chong Lin (SBST)** 



From left:  
Tan Chee Chong (Bridgestone) and Ivan Pang, Company Rep  
(SBST)

**BRIDGESTONE**

**Station:** Tyres  
**Sponsor:** Bridgestone Tyre Sales  
Singapore Pte Ltd

**Winner:**  
**Tiew Chong Lin (SBST)** 



SINGAPORE BUSTECH GRAND CHALLENGE 2021

# STATION WINNERS FOR DIAGNOSTIC CATEGORY



From left:  
Marcus Mak (Volvo) and Seah Chung Hung (TTS)

**V O L V O**

**Station:** Volvo B5LH/B9TL,  
Single Deck Diesel Hybrid  
**Sponsor:** Volvo Group Singapore  
(Pte) Ltd

**Winner:**  
**Seah Chung Hung (TTS)** 



From left:  
Eric Zhuang (C&C) and Mark Hegarty, Company Rep (TTS)



**Station:** MB Citaro, Single Deck Bus  
**Sponsor:** Cycle & Carriage Industries  
Pte Ltd

**Winner:**  
**Hoo Lai Kwang (TTS)** 



From left:  
Tan Hwee Hua (STEMoS) and Tan Ching Kuang (SMRT)

 **ST Engineering**

**Station:** MAN A95, Double Deck Bus  
**Sponsor:** ST Engineering  
Mobility Services Pte. Ltd

**Winner:**  
**Tan Ching Kuang (SMRT)** 

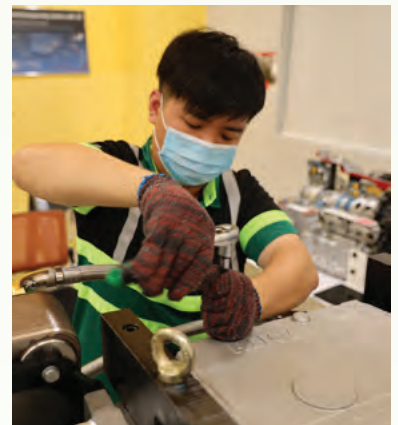


# EVENT HIGHLIGHTS





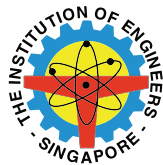
## SINGAPORE BUSTECH GRAND CHALLENGE 2021



## Organisers



## Event Partners



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