



FOR IMMEDIATE RELEASE

ITE Student Achievers' Awards 2021

Honouring ITE Students for their Achievements through Passion, Dedication and Commitment beyond the Classroom

ITE has honoured some **430** outstanding students for their achievements beyond their academic studies and in areas such as arts, sports and technological innovations.

Of these 430 students, **48** received the prestigious **Lee Kuan Yew (LKY) Award** – namely, the **LKY Model Student/Trainee Award**, the **LKY Co-Curricular (CCA) Award**, and the **LKY Technology Award**. These students hail from different backgrounds and have excelled beyond the classroom, demonstrating grit, passion and desire to succeed.

A brief on the Awards can be found in **Annex A**.

Recipe for Success

Koh Yan Xi has been battling such severe headaches that she had to miss out on many lessons during her secondary school days. Thankfully, after her 'N' levels, she managed to secure herself a place in *Nitec* in Western Culinary Arts course via the ITE Early Admission Exercise.

At ITE, Yan Xi gained new learning opportunities and proved to be a capable leader in her Co-curricular Activities (CCA). She has shown admirable leadership among her peers as Chairperson of the Culinary Club, Secretary of the ITE College West ACE Club and Chairperson of her Class Executive Committee. Armed with people management skills and a solid foundation in the culinary field that ITE provided, she was often tasked to rally her peers to participate in food-related community service activities, such as cooking meals for the needy elderly and underprivileged students from primary and secondary schools, as well as special needs students.

With her passion and dedication towards helping others, Yan Xi was selected as a Student Mentor to guide her classmates who needed help in their studies.

For her exemplary conduct, Yan Xi is one of ten recipients of the **LKY Model Student/Trainee Award** this year.

Avid Contributor

Ajmal Sulthan s/o Abdul Kader, has displayed great enthusiasm in both schoolwork and community service. As Chairman of the Student Council House Committee, he brought together students from different courses to work cohesively as a team and participated in several key projects, such as the Principal's Challenge Cup, Tray Return Campaign and Active Aging Festival.

During the pandemic, he led his team in developing a fully functional website for students to access upcoming events, updates on CCA-related matters, and announcements on Safe Distancing Measures. He has also volunteered as student leader for the Youth Expedition Project (YEP) 2019, for a trip to Vietnam, where he led in the building of a new soccer field for students from Khe Tre Secondary School.

Ajmal, a *Nitec* in Aerospace Machining Technology student, aspires to be an entrepreneur. He hopes to take after his father in managing a company dealing with transport or logistics.

For his active service contributions, Ajmal Sulthan is one of three recipients of the **LKY CCA Award** this year.

Piano Monitor Device

Syakira Bte Sahmawi, Nor Faraizara Asykin Bte Izam, Nur Shafiqah Bte Roslan and Dawson Lee Wee Kiat, *Higher Nitec* in Electronics Engineering students, made up a team that created a Piano Practice-Monitoring device that provides a remote monitoring of instrument usage.

The team recognised that, though pianos are designed to be durable, the instruments are made up of many fragile components, such as strings, keys and soundboards, and issues may arise over time. Besides conducting checks on pianos to ensure that they are in optimal condition, piano teachers must also monitor their students' practice rates to maximise their learning outcomes.

The installation of the piano practice-monitoring device in the piano can track play time and record temperature and humidity levels. The device is also programmed to trigger email alerts, to service technicians and owners, on the condition of the piano.

For developing a device that embodies quality, technical innovation and creativity, the group is one of ten winners of **LKY Technology Award** this year.

Profiles and Winning Projects

Profiles of the Lee Kuan Yew Model Student/Trainee Award winners, the Lee Kuan Yew CCA Award winners, and write-ups on the Lee Kuan Yew Technology Award winning projects are at **Annexes B, C and D** respectively.

For more information and arrangement for media interviews, please contact:

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About ITE

The Institute of Technical Education (ITE) was established as a post-secondary institution in 1992, under the Ministry of Education. ITE is a principal provider of career and technical education and a key developer of national skills certification and standards skilling Singapore for the future economy. It offers three key programmes - (1) Pre-Employment Training for youths after secondary education (2) Continuing Education and Training for adult learners and (3) Industry-Based and Work-Study Programmes with employers. Under its 'One ITE System, Three Colleges' Governance Model, ITE has three Colleges - ITE College Central, ITE College East and ITE College West. For more information, please visit our website at <https://www.ite.edu.sg>

BRIEF ON AWARDS

Lee Kuan Yew Model Student/Trainee Award

The Lee Kuan Yew Model Student/Trainee Award is presented to students and trainees who have performed consistently well in their courses and have displayed outstanding conduct and attitude worthy of emulation by their peers. The Award serves to inspire students and trainees to display exemplary behaviour in training, develop high moral values and show care and concern for others.

Lee Kuan Yew CCA Award

The Lee Kuan Yew CCA Award is presented to students who have demonstrated outstanding leadership and organisational skills, and have contributed significantly to the improvement and enhancement of campus life. The Award also serves to give recognition to students who have contributed and achieved excellence in sports, games and the arts.

Lee Kuan Yew Technology Award

The Lee Kuan Yew Technology Award is presented to students who have developed excellent projects that embody quality, technical innovation and creativity. The projects are also expected to have industry applications. The Award serves to inspire students to develop a zeal for challenges, creativity and competition.

**LEE KUAN YEW MODEL STUDENT 2021
RECIPIENT PROFILES**

Name: Aw Hong Wei
Course: Nitec in Finance Services
College: ITE College Central

Driven to Excel

Rebellious, uninterested in studying, having fun – these words summed up Aw Hong Wei’s secondary school life. Fortunately for him, Hong Wei is also self-motivated, ambitious and possesses a strong sense of responsibility. The Spectra Secondary School graduate got back on track in time to successfully enrol at ITE under the Early Admissions Exercise, and has not looked back since.

While at ITE, Hong Wei had to juggle part-time work, two CCAs with heavy responsibilities, volunteer in activities and his studies. Despite his hectic schedule, Hong Wei treasured each moment as it has helped him build up mental resilience. He even found time to mentor his classmates in their work. For showing great leadership, initiative and all-round excellence, his lecturers believe Hong Wei has what it takes to achieve his dreams and more.

From the Heart

“I knew I had the right attitude and mindset to succeed at ITE. Unlike in secondary school, I was hungry for opportunities and ITE allowed me to explore a wide variety. After my first semester at ITE, I was confident that I had reliable lecturers and staff who would ensure my success – all of them, including the Student Development and Finance Services departments, which have contributed in some ways, too! Because of them, I knew I could do it and was able to charge towards my goal, which was to pursue Accountancy at Ngee Ann Polytechnic.”

Life after ITE

- Currently pursuing a Diploma in Accountancy at Ngee Ann Polytechnic
- Aspires to be an accountant or entrepreneur

Top Achievements

- As President of the Investment Club, Hong Wei led his team to clinch the 1st Runner-up spot in the Citi-SMU FinLit Challenge in 2019 under the Poly-ITE category. He is also a certified Adjunct Affiliate trainer in certain finance topics and has held several virtual talks despite the onset of COVID-19.
- He was part of the ACE programme and had participated in several activities, including the US Embassy Mentoring Programme and Overseas Service & Development Programme to Vietnam in 2019.

- In addition, Hong Wei was Secretary-General of ITE College Central's Student Council and was selected to take part in the organising of several activities, such as the Mental Wellness Campaign, President's Cup Challenge and Silver Parade.
- Hong Wei excelled academically, achieving a GPA score of 4.0. He was in the Director's List every semester and earned for himself the Student Excellence Award and Halogen Certificate of Merit.
- Other awards garnered include the National Young Leader Award 2019 (Certificate of Merit), ITE Scholarship (2019), ITE Community Scholarship (2020), and a study grant with Government of Singapore Investment Company.

LEE KUAN YEW MODEL STUDENT 2021 RECIPIENT PROFILES

Name: Aaron Chin Yung Ern
Course: Nitec in Infocomm Technology
College: ITE College Central

For the Collective Good

Aaron Chin Yung Ern may be a go-getter but his goals are never more important than those around him. That is why despite a heavy workload, he is ever ready to share his knowledge, render assistance and motivate his peers when the need arises. He believes that by helping others, he is also helping himself build character and a support system to fall back on when the going gets tough.

Aaron has done more than just cultivate a spirit of teamwork in ITE. Initially reserved and unable to articulate himself confidently, Aaron feels he has grown a lot since he entered ITE. Having to lead his peers as Student Council President has built his confidence and helped develop his leadership skills. For sticking to his beliefs while obtaining outstanding achievements in and outside the classroom, Aaron is certainly a model student to his peers!

From the Heart

"I credit my achievements to the life mantra I hold on to dearly – if I want to succeed, I can't just focus on myself; I have to help others as well. In turn, my friends have inspired me to do better by supporting and reminding me that I can be what I want to be, even when I can't see it yet. On days where I wished I had prioritised myself more, I reminded myself that teamwork is more important, because when I can't find strength from within, I can find it in my friends, family and teachers."

Life after ITE

- Currently pursuing the Common Infocomm Technology programme at Ngee Ann Polytechnic.
- Aspires to use technology to help people and improve their daily lives.

Top Achievements

- Aaron developed a Student FAS Chatbot during his Industry Attachment in 2020 to help ITE students apply for Financial Assistance Scheme and answer related queries.
- As President of the ITE College Central's Student Council, he organised and spearheaded several internal and external activities.
- He was part of the ACE Programme and US Embassy Mentoring Programme, and had completed community service projects locally and overseas.

- Aaron performed well academically, scoring a perfect GPA score of 4.0. He was in the Director's List every semester and earned for himself the ITE Community Scholarship and CDC & CCC-ITE Scholarship.
- For his outstanding contributions to his CCA and community service, Aaron was also awarded the Eagles Award (2019), Yio Chu Kang Community Leadership Award (2019), Chip Eng Seng Study Grant Award, Harvard Book Prize Award and EduSave Character Award (2019).

LEE KUAN YEW MODEL STUDENT AWARD 2021 RECIPIENT PROFILE

Name : Javier Ng Jing Xuan
Course : Nitec in Finance Services
College : ITE College Central

An Agent of Change

Javier has a strong passion for making a difference to the community. As a youth anti-drug advocate with the Central Narcotics Bureau (CNB), Javier has been actively involved in drug prevention initiatives. These have included public campaigns by CNB, as well as campaigns that he spearheaded on campus with the support of his peers from the Student Council.

Keen to be more involved in community issues, Javier volunteers weekly at his constituency's Meet-the-People sessions. He also helps to coordinate community engagement activities for residents in his neighbourhood. Recognised for his contributions as a youth leader, Javier has been invited to participate in various dialogues by government agencies, which discuss matters of national interest.

Despite his packed schedule, Javier remained diligent in his studies and excelled academically. He established himself as a caring leader, who often took time to guide and support his peers in need. Javier strives to be a role model for other youths, and inspire them to do good for the community.

From the Heart

"ITE gave me a lot of opportunities to grow and live up to my full potential. Being a leader in the Student Council taught me how to show empathy for others and foster teamwork. Most importantly, I learned to always stay humble and grounded to gain respect as a leader."

"I was once a troubled youth, and I have come a long way from those days. This motivates me to help others who have gone through the same challenges like I used to, and give them the support that they need. I want to build a community that believes in people, and gives everyone a chance to turn their lives around."

Life after ITE

- Pursuing a Diploma in Community Development at Ngee Ann Polytechnic.
- Aspires to work in the social service sector, where he could help people and make a difference to the community.

Top Achievements

- Javier was one of three winners of the National Young Leader Award 2020, which recognises young leaders who show outstanding conviction in their pursuits.
- He represented Singapore as a youth advocate at the 2019 United Nations Office on Drugs and Crime (UNODC) Youth Forum in Vienna, Austria. At the Forum, he exchanged ideas on preventing drug abuse with youth advocates from around the world.
- Javier was appointed to the National Committee on Prevention, Rehabilitation and Recidivism's Youth Advisory Group (YAG), where he provides feedback on policies targeting at-risk youths.
- Excelling in his service contributions, he received the ITE Service Star Diamond Award in 2019 and 2020.

LEE KUAN YEW MODEL STUDENT AWARD 2021 RECIPIENT PROFILE

Name : Koh Ke Lin, Jonaven
Course : *Nitec* in Business Services
College : ITE College East

Fostering an Entrepreneurial Spirit

Since enrolling in the *Nitec* in Business Services course at ITE in 2019, Jonaven has set his sights on being an entrepreneur. His strong passion for entrepreneurship served as great motivation for him to lead a team - SOL-ITE - in their project. Infusing soda beverages with fruit-flavoured ice cubes to avoid dilution, the SOL-ITE's project won first place in the ITE Makerfest 2020 and ITE-NTU Startable Challenge 2020 entrepreneurship competitions.

Jonaven has also always been driven by the satisfaction of helping others. He once led and organised service-learning activities for students in the class under the National Youth Accreditation Award (NYAA), by initiating contact with non-profit organisation, Foodscape Collectives, to run activities relating to food sustainability.

He also led the group on multiple self-organised hikes, as well as sports and games within and outside of campus. Jonaven not only possesses leadership qualities, he is also a team player and is well respected by his peers.

From the Heart

"ITE has helped me tremendously in my journey by providing lots of support and great facilities. Dabbling with entrepreneurship at ITE has also provided opportunities for me to learn new skills. As a team leader at entrepreneurship competitions and a member of the Student Council, I advocate an important principle, of being humble, to everyone that I lead. I always believe that ITE stands for 'It's the Exploration' as I have gained new learning experiences during my two years of studies at ITE."

Life after ITE

- Pursuing a Diploma in Real Estate Business at Ngee Ann Polytechnic.
- Plans to embark on his own voluntary projects that are related to student entrepreneurship.
- Aspires to build a career as a lecturer to train and guide students as entrepreneur.

Top Achievements

- For his excellent contributions, Jonaven attained several awards, including a Certificate of Merit, Service Star (Gold) Award and an Edusave Character Award.
- Jonaven led a team to conceptualise a business idea in the NTU-ITE Startable Challenge 2020. The team emerged as the top prize winner. The same team participated in the ITE Makerfest Challenge 2020 and clinched the Gold Award.

- Jonaven had displayed strong leadership qualities as a member of the Student Council. He provided support in tutoring his classmates with schoolwork after school hours.
- Hardworking and motivated, Jonaven achieved a GPA of 3.909. He was also in the Director's List in 2019.

LEE KUAN YEW MODEL STUDENT AWARD 2021 RECIPIENT PROFILE

Name : Tan Shi Wei Cody
Course : *Higher Nitec in Electronics Engineering*
College : ITE College East

Pushing the Boundaries of Excellence

Cody has a strong drive to constantly improve himself. This motivated him to take part in numerous competitions throughout his time at ITE. One of them is the WorldSkills Singapore 2020 competition, where he represented ITE in the field of Electronics.

His motivation for self-improvement also shaped his approach to learning. A self-directed learner, Cody would often pick up new knowledge on his own through online research. During his internship at Temasek Life Sciences, he devised an artificial intelligence (AI) solution through self-research. His supervisor was very impressed with his independent work and initiative, which led him to achieve a strong score for his internship module.

Cody is also passionate about making a difference to society. Projects in his plans include creating an AI-based chatbot, which provides emotional support for youths with mental health issues. At ITE, Cody actively led his peers in various community service projects. These included helping to paint the gates of residents living in one-room flats, and planning a carnival for community bonding among residents. Cody was also selected to participate in the Young Singaporeans Conference 2020 and SG Perspectives 2020, where he exchanged views with youth and industry leaders on socio-political matters.

From the Heart

“When I was in primary and secondary school, I did not do too well in my studies. There were many people around me who doubted my ability to succeed. Such experiences left a deep impact on me, and motivated me to push myself to excel.

I am very grateful to all my ITE lecturers for believing in me, inspiring confidence in me, and giving me many opportunities to fulfil my potential. I will continue working hard, and strive to make my parents proud of what I can achieve.”

Life after ITE

- Pursuing a Diploma in Applied AI and Analytics at Singapore Polytechnic.
- Plans to take a degree in Computer Science after attaining his Diploma.
- Aspires to build a career in AI, with a dream of working at Google.

Top Achievements

- Cody and a classmate developed a device for improving washroom cleanliness, which clinched the 2021 Lee Kuan Yew Technology Award. The project also won the Silver Medal at the International Exhibition for Young Inventors 2020 competition.
- He was the first runner-up of the ITE College East Public Speaking Competition in 2019.
- For his outstanding service contributions, Cody received the ITE Service Star Gold Award in 2019 and Diamond Award in 2020.
- Excelling academically, Cody achieved a GPA score of 4.0. He was in the Director's List for all terms from 2019 to 2020.

LEE KUAN YEW MODEL STUDENT 2021 RECIPIENT PROFILES

Name: Vernice Tan Si Ying
Course: *Nitec* in Beauty & Wellness
College: ITE College East

A Beautiful Start

Nineteen-year-old Vernice Tan Si Ying has been interested in make-up since childhood. Since the age of nine, she has been experimenting with her mother's cosmetics and began wearing make-up for outings when she was 13. The Beauty & Wellness course at ITE was thus a natural choice for her to pursue her interest.

In secondary school, Vernice was indifferent to her studies and skipped classes at times. However, after joining a skills area that she loved, Vernice blossomed. She participated actively in community service activities, competitions and CCAs. With her excellent skills proficiency, she even achieved a Bronze medal at the WorldSkills Singapore Competition 2020.

Vernice is passionate about Beauty Therapy as she believes she can transform a person's looks and help them grow in confidence. She chose to progress to the *Higher Nitec* in Beauty & Wellness Management course to deepen her skills further in ITE.

Stepping Out and Up

"In ITE, I learned to step out of my comfort zone and take the initiative to actively seize opportunities. I am usually quiet and shy, but I grew in confidence here. In particular, my self-doubt faded away when I represented ITE for the WorldSkills Singapore Competition and achieved a Bronze medal. My Class Advisor is a WorldSkills Competition Gold Medallist and she is my inspiration. She is skilful and confident despite her young age, and I want to be like her."

Life after ITE

- Progressed directly to the second year of the *Higher Nitec* in Beauty & Wellness Management course
- Preparing to represent Singapore at the upcoming WorldSkills ASEAN Competition in the skill area of Beauty Therapy

Top Achievements

- Vernice represented ITE and achieved the Bronze Medal in Beauty Therapy at WorldSkills Singapore 2020.

- In 2019, she led 11 students to do make-up for performers of the President Star Charity Show. This was the first time she did make-up for people outside school. It was the highlight of her ITE education, as she saw how she could use her skills to contribute to the community.
- Vernice has led other groups of students in providing make-up services for Singapore Fashion Runway Grand Finale Show 2020 and the Chingay Parade 2020.

LEE KUAN YEW MODEL STUDENT 2021 RECIPIENT PROFILES

Name: Ong Jia Yuan
Course: *Higher Nitec* in IT System & Networks
College: ITE College West

Programmed to Succeed

Ong Jia Yuan's parents gave him his first laptop when he was five years old. What started as an interest in playing computer games evolved into an ability to troubleshoot IT issues. Since childhood, Jia Yuan became the go-to person for computer issues at home. He also enjoyed Computer Applications in secondary school and performed well in that subject.

To sharpen his IT skills, Jia Yuan took up the *Nitec* in Networking & System Administration course before progressing to the *Higher Nitec* in IT System & Networks programme. He actively participated in school life and achieved a perfect Grade Point Average score. Jia Yuan was President of the ACE Club, Chairman of the Fabric of Life Club, a Class EXCO Leader, and a member of the Student Volunteer Corp Club. On top of these, he took part in numerous community service activities and competitions.

Through his ITE journey, Jia Yuan built up his leadership skills and gained exposure to a myriad of experiences. He hopes to further his studies in university and start his own IT firm in future.

Discovery and Growth

"I believe it is important to seize opportunities and be involved in different activities. This way, I can try new things and discover what I like, while learning new skills. I also believe that the people around me are crucial to me succeeding. I am fortunate that I have my family members and friends to encourage me in my journey."

Life after ITE

- Progressed to Ngee Ann Polytechnic's Diploma in Information Technology course.

Top Achievements

- As President of ITE College West's ACE Club, Jia Yuan represented ITE in meeting Second Minister for Education, Dr Maliki Osman, at the inaugural Poly-ITE Staff Appreciation Day. He was a mentee under the US Embassy Mentoring Programme, and took part in numerous conferences including the Global Youth Leader's Summit 2020, the Singapore Pre-Budget 2020 Dialogue and the Young Singaporeans Conference 2020.
- Jia Yuan vividly remembers one Community Service project. He initiated the Project SG Strong 2020 project, where he led his schoolmates in showing appreciation to frontline and behind-the-scene workers for their contributions in the fight against COVID-19. He values the opportunity to meet people from all ages and different occupations during this project.

- He has won many awards, including the “Best Solution to Problem Statement” Award at the 3D-Tronic Digital Making National Infocomm Challenge 2019; the Best CCA Performance Award for the Fabric of Life Club; two Director’s List Awards; the ITE Service Star Award (Diamond); the MOE Eagles Award; and the MOE EduSave Merit Bursary in Academic Achievement Award.

LEE KUAN YEW MODEL STUDENT AWARD 2021 RECIPIENT PROFILE

Name	:	Indra Dermawan Bin Yuhanis
Course	:	Nitec in Retail Services
College	:	ITE College West

Zeal to Inspire

The epitome of an all-rounder, Indra Dermawan is not only an active team leader in the many activities organised for retail students, but also in the community work he was involved in. The exposure gained from his Retail Services course, coupled with his natural flair for communication, ignited his passion to become a prominent figure in the retail industry one day.

Beyond the classroom, Indra demonstrated outstanding leadership as President of Entrepreneurship Club and Vice-President of ACE Club, as well as Student Leader for all activities related to retail services. He led the clubs in several community service projects such as Project SG Strong and helped to seek funding from The Majority Trust, a philanthropic organisation. Together, they presented Care Packs to show their appreciation to the frontline and behind-the-scene workers who contributed towards the fight against COVID-19 pandemic. His sincerity, enthusiasm and confidence won the praises of his lecturers and the support of his peers.

Service from the Heart

“Coming from a disadvantaged background in the past, I understand and empathise with others who are going through some hurdles in their lives. Therefore, I am determined to inspire them that with everything that happened in our lives, there will always be blessings. Through lending a helping hand to the community, I can share my stories to motivate young adults to strive and put their best efforts, and not letting their past to hinder their goals for the future”.

Life after ITE

- Pursuing a Diploma in Tourism and Resort Management at Ngee Ann Polytechnic.
- Plans to continue voluntary work with relevant constituencies and agencies.
- Aspires to build a career in retail industry managing prominent brand.

Top Achievements

- For his outstanding achievements, Indra won numerous awards such as a Certificate of Merit, Service Star (Gold & Diamond) Awards, Wing Tai Book Prize and 4PM Bestari Student Award.
- A diligent student, Indra excelled in his studies achieving a perfect GPA score of 4.0. He was in the Director’s List for consecutive terms and received several scholarships and bursary awards.

- His capabilities and confidence caught the attention of Senior Minister, Mr Tharman Shanmugaratnam, who invited him to participate in Taman Jurong CC's "Back-to-School" stationery giveaway programme as Lead Volunteer.
- As Vice-President of ACE Club, he led his peers in various community activities, such as monthly visits to old folks' homes and Dormitory Sports Day for foreign workers.
- Indra initiated a community organisation - Indspire Youths - with his friends and peers. He led the team to execute the first community outreach project, a charity food drive supporting low-income families in Taman Jurong constituency.

LEE KUAN YEW MODEL STUDENT 2021 RECIPIENT PROFILE

Name: Koh Yan Xi
Course: *Nitec* in Western Culinary Arts
College: ITE College West

Recipe for Success

Plagued by tension headaches, which were so severe that she had to miss out on many lessons during her secondary school days, Koh Yan Xi was worried that she might not do well enough at the 'N' levels to get into the course she wanted. Thankfully, she secured a place in the *Nitec* in Western Culinary Arts course via the ITE Early Admission Exercise. Her keen interest in culinary skills led her to excel in her studies, scoring a remarkable GPA of 4.0 at the end of her course.

An all-rounder who is well liked by peers, Yan Xi was given many opportunities to hone her leadership skills. In her roles as Deputy Chairperson of the Culinary Club, Secretary of the ITE College West ACE Club and Chairman of her Class Executive Committee, Yan Xi was able to rally her schoolmates to participate in numerous College and community service activities, such as cooking meals for needy elderly and raising funds in support of underprivileged youths.

Despite her busy schedule and heavy involvement in CCAs, Yan Xi took on a part-time job at McDonald's to lessen her family's financial burdens. Recently promoted to 'Trainee Restaurant Manager' for her excellent performance at work, Yan Xi has proven to be an outstanding youth with resilience and determination to excel in life.

From the Heart

"I am truly grateful for the care and concern shown by my ITE lecturers. Whenever I encounter problems in school, I can approach them for advice. As a Student Mentor, I strive to emulate my lecturers by lending a listening ear and providing advice to my classmates who needed help with their school work."

Life after ITE

- Currently in her first year of the Technical Diploma in Culinary Arts at ITE
- Aspires to open her own café or restaurant in future

Top Achievements

- Yan Xi held several leadership positions during her two years in ITE. She was Secretary of the ITE College West ACE Club and Deputy Chairperson of the Culinary Club. As Chairman of her class Executive Committee, Yan Xi organised various community service activities and led her classmates in their participation.

- For her excellent service contributions, Yan Xi received the ITE Service Star Diamond Award in 2020.
- Yan Xi excelled academically, achieving a GPA score of 4.0. She was selected to be a Student Mentor to guide her classmates who needed help in their studies.

LEE KUAN YEW MODEL TRAINEE 2021 RECIPIENT PROFILE

Name: Alan Ho Wei Jie
Course: *Higher Nitec* in Service Management
College: ITE College West / YTK Corporate Secretarial Pte. Ltd.

Big Brother Triumphs

After his 'O' levels and National Service, Alan Ho took on several jobs in the Business Services sector. However, his career options were always hindered by his qualifications. Just as he was nearing his forties, his sponsoring company encouraged him to upgrade his skills. Alan jumped at the chance to join ITE's Traineeship Programme, despite knowing that he could be the oldest student in his cohort. A highly motivated Alan adapted quickly and got along well with his younger classmates. In fact, his classmates looked up to him as a role model and helpful 'big brother'.

Now, this 40-year-old is able to perform tasks using Microsoft Excel and Word, and draft correspondences to clients with ease. The practical skills, which he picked up at ITE, transformed him into a competent Admin Assistant who can shoulder a range of tasks, from administrative and secretarial work, finance and human resource, and even Infocomm Technology. With renewed confidence in his competencies, Alan aims to excel in his career.

Learning is the Fountain of Youth

"It's never too late to study again! My time in ITE made me re-discover my youth. I feel young again, and look forward to learning and having fun with my classmates. In the past, I used to drag my feet to school. Now, it is so refreshing to attend school once or twice a week. There, I can take a breather from work and gain knowledge that I can apply immediately in my job. My Class Advisor, Damien Chua, always goes the extra mile to check that we understand difficult concepts. He also guided me on managing group projects.

I feel energised when I return to office. These transferrable skills help me perform better at work. I must also credit my encouraging supervisor, Serene Kek, for providing valuable advice on how to cope with studies and work at the same time."

Life after ITE

- Alan intends to apply for a Work-Study Diploma in Business Marketing or IT in a polytechnic.
- After completing his Diploma, he hopes to use what he learnt to help his company grow.

Top Achievements

- Despite a long absence from formal studies, Alan maintained high grades in his tests and examinations and graduated with a GPA of 3.22.

- Within months of being in the company, he has taken on the role of an IT Manager, revamping and maintaining the IT infrastructure, setting up laptops for new employees and researching on solutions to IT problems. When the pandemic hit, he successfully moved the company's operations online, allowing staff to work from home; and took the lead in liaising with their Malaysia Branch on admin and IT matters.
- He is also a model employee at work, often going beyond his usual scope of work to assist colleagues, and is willing to put in extra hours during the company's peak period.

**LEE KUAN YEW CCA AWARD 2021
RECIPIENT PROFILES**

Name: Ajmal Sulthan s/o Abdul Kader
Course: Nitec in Aerospace Machine Technology
College: ITE College Central

An Exemplary Student Leader

Ajmal Sulthan bags the prestigious Lee Kuan Yew CCA Award for his outstanding contribution as Chairman of his College's Student Council House Committee. His core task was to organise and execute meaningful activities to enrich the campus lives of students on campus. This was exceptionally challenging in a year plagued by the unprecedented COVID-19 pandemic.

With no precedents to fall back on, Ajmal had to find a quick and effective way to communicate with the student body during the crisis. He took the initiative to pitch his idea of setting up a website for this purpose to his peers. With the support of his team, consisting of students with background in website design and development, he successfully launched the Student Council event bulletin website. Students can now easily access information on upcoming events, updates and important announcements online.

Ajmal also demonstrated his pro-activeness and enthusiasm in other social activities. As an active member of the Student Council, he either organised or participated in events such as the Principal's Challenge Cup, Tray Return Campaign and Active Aging Festival. He participated in community service projects, such as BRITE homes at Kampong Glam Community Centre, to clean and repaint houses of elderly residents. He also volunteered for the Youth Expedition Project 2019, which saw him heading to Vietnam to help build a soccer field for the students of the Khe Tre Secondary School.

Despite the challenges brought about by the pandemic, Ajmal's stellar academic performance and varied contributions to his CCA and College were testament to his outstanding leadership and perseverance. Ajmal's achievements stemmed from his desire to make his parents proud.

From the Heart

"ITE has given me endless opportunities to grow and has widened my network with mentors from different backgrounds and experiences. My role model, who is my father, has taught me over the years to be bold and daring to overcome challenges that come my way. I entered ITE with a burning desire to excel. Now that I have achieved it with pride and dignity, I can only be grateful to those who has made it possible for me."

Life after ITE

- Presently doing a Common Business Programme at Ngee Ann Polytechnic, in pursuit of a Diploma.
- Aspires to be an entrepreneur. He hopes to start his own transport or logistics company, just like his dad.

Top Achievements

- Ajmal excelled academically, achieving a GPA score of 3.769. He was in the Director's List (Jul 2019) and earned himself a Certificate of Merit.
- For demonstrating excellent character and conduct, he received the Edusave Character Award in 2018.
- He graduated from the SPARKS programme, a Student Talent Development Programme that gives him opportunity to be a student leader to facilitate various campus activities.

LEE KUAN YEW CCA AWARD 2021 RECIPIENT PROFILE

Name	:	Danish Sufi Usyair Bin Mohammad Sophian
Course	:	<i>Nitec</i> in Business Services
College	:	ITE College East

Striving to Lead

Stepping into ITE for the *Nitec* in Business Services course, Danish Sufi Usyair aimed to acquire skill sets that would ready him for a good head start in the workforce. Ask Danish what he enjoyed most about studying at ITE, he replied, "In addition to fueling my passion in digital media and community work, ITE also gave me a chance to develop my leadership and management skills."

As Chairman of the Publication and Communication Committee in Student Council, Danish played a key role in coordinating marketing efforts, producing promotional videos and overseeing social media posts of the Council. He also led his councilors in the production of a video for their online fundraising campaign. And through this project, they successfully raised more than \$86,000, of which a third went to supporting fellow students and their families who have been affected by the economic impact of COVID-19.

Danish's exemplary leadership qualities also shone through during his active participation in supporting ITE College East's environmental efforts to keep public spaces within the college clean. This included the Bridge Warrior Initiative and Tray Return Campaign. His enthusiasm and dedication to take on any duty assigned impressed his lecturers and peers.

From the Heart

"I believe one who strives to be a good leader has to be honest, caring, and trustworthy for people to look up to. As a student leader, I guide and coach my peers in planning and facilitating events, and encouraging them to take on the lead roles for assigned events. Everyone has his shortcomings, and I will continue to improve my skills as a leader."

Life after ITE

- Pursuing a *Higher Nitec* in Human Resource Administration.
- Plans to continue voluntary work and initiate community outreach projects with relevant constituencies and agencies.
- Aspires to be a grassroots leader and sits in a Residents' Committee.

Top Achievements

- For his excellent service contributions, Danish received numerous awards such as Service Star (Gold & Diamond) Awards, 4PM Bestari Award for CCA Excellence and Edusave Character Award.

- His team, YOUth Counts, won the Distinction Award and Best Fundraiser Award for the Citi-YMCA Youth for Causes 2020 for their excellent online fundraising campaign.
- As Chairman of Publication & Communication Committee in Student Council, he led his team in organising key events, such as CCA Fair and Student Council Investiture.
- Danish was among the 20 students from three ITE Colleges to participate in the Overseas Service and Development Programme (OSDP), in Chiang Mai, Thailand, in 2019. They exchanged ideas and knowledge with students from the Office of the Vocational Education Commission (OVEC).

LEE KUAN YEW CCA AWARD 2021 RECIPIENT PROFILES

Name: Foo Dun Liang
Course: *Higher Nitec* in Facility Management
College: ITE College West

Engineered to Excel

Dun Liang first enrolled in *Nitec* in Aerospace Avionics in 2014 and after completing the course, he went on to serve his National Service. When he returned to ITE in 2019 to pursue further studies, he was offered a spot in the *Higher Nitec* in Facility Management programme. Even though it was not his ideal choice of study, Dun Liang took up the challenge to study a different aspect in the wide field of engineering.

Dun Liang gave his all and did exceptionally well in his studies, as well as in his CCA. He joined the Civil Defence (CD) Lionhearers Club to build on his knowledge in life-saving techniques, which he first learnt through his participation in Red Cross, CCA in secondary school. He also managed to apply what he learnt about fire safety measures in his Facility Management course to his CCA.

As the President of CD Lionhearers Club, Dun Liang led his team members to participate in various public and community events and projects. He is well respected among his members as a responsible leader and a problem-solver whom they can turn to in the face of difficulties.

Brave Heart

“There is an old saying of ‘Don’t give up’. Honestly, I think it is easy to say but hard to do. My advice is to have a clear purpose that can motivate you through good and bad times. In my CCA, we are trained to prepare for the worst. That is why community emergency preparedness, first aid and fire safety knowledge are so important. Having these critical skills will enable you to think on your feet, and focus on the goal to save lives. No matter how dire the situation is, we must hold on to that goal and overcome challenges bravely.”

Life after ITE

- Pursuing a Diploma in Mechanical Engineering at Ngee Ann Polytechnic.
- Aspires to be an engineer, possibly in the manufacturing industry.

Top Achievements

- Because of his contribution to the community, Dun Liang was presented a Letter of Commendation from SCDF.
- For his excellent leadership, achievements in CCA and contributions to community service, he received the EAGLES Award and Diamond Service Star Award in 2020.

- An all-rounded student, Dun Liang achieved a perfect GPA score of 4.0. He was in the Directors' List for all terms from 2019 to 2020.

**LEE KUAN YEW TECHNOLOGY AWARDS 2021
WINNING PROJECTS**

Name of Project:	CelestITE – The Guardian for Your Garden
Members:	Chua Jia Yuan Elroy Lim Ming Jie
Course:	<i>Higher Nitec in Electronics Engineering</i>
College:	ITE College Central

Saving the Bloom!

Community gardens have sprouted in many neighbourhoods in Singapore. These green spaces promote a gardening culture among residents and foster community bonding. The fruits of the gardeners' labour, however, often become targets of theft.

To deter and solve such cases of plant theft, the team developed a monitoring device called CelestITE that can be installed near plants. When motion is detected, a flash of light will be emitted and photos will be taken by the device. The light serves as a deterrent for theft, while the photos serve as potential evidence of theft. In addition, CelestITE can capture readings of environmental conditions that affect plant growth. These include the surrounding temperature, humidity and air pressure levels.

Through its built-in Wi-Fi connectivity, CelestITE can be remotely operated using a Telegram bot. Every data captured is also sent to the Telegram bot.

Creativity Sparks

“Our personal experiences inspired us to start on this project. Elroy’s grandfather grows chilli outside his home, which were frequently stolen. My mother also grows plants in a community garden near my home. We wanted to create something that could protect plants from theft and help them thrive.

We tested the prototype in the community garden and received positive feedback from residents on its effectiveness in keeping people off their plants. We named the device CelestITE, which is a combination of ‘celestial’ and ‘ITE’. It represents how we want others to see our device – something good invented by ITE students.”

- Jia Yuan

What's So Significant

- Unlike regular video surveillance cameras, the device can be easily self-installed.
- The device uses light instead of sound as a theft deterrent, to avoid disturbing the peace of the neighbourhood.
- As it runs on a power bank that is fitted within the casing, the device has low maintenance and requires only periodic charging.
- By monitoring environmental conditions, the device helps less experienced gardeners to succeed in their gardening efforts while protecting their plants from theft.
- Being simple to use, the device can encourage older gardeners to learn and embrace new technology in their lives.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project: Contactless Sanitary Door

Members: Daniel Siew Wee Cher, *Higher Nitec* in Electronics Engineering
Yong Jun Jie, *Higher Nitec* in Electronics Engineering
Ge Jian, *Higher Nitec* in Integrated Mechanical and Electrical Engineering
Liu Jialiang, *Higher Nitec* in Integrated Mechanical and Electrical Engineering

College: ITE College Central

Touchless Entryway

The fewer surfaces you touch, the less contact you would have with germs, bacteria, and viruses. And in a world where Covid-19 has taken over, this has become more important than ever. Going contactless is now the preferred choice as it is more hygienic. But when it comes to the door handles of restroom cubicles, almost all are manual and require hand contact.

Thus, a team from ITE College Central came up with an automated door that uses sensors to allow contactless entry into restroom cubicles and indicates availability of restrooms (not unlike parking lots!). Using Internet of Things, restroom usage can be easily tracked. A simple wave of the hand is all that is needed to lock/unlock the door thanks to the in-built sensors. With the addition of this door to automated flushing, tap and soap dispenser, a true contactless experience is now possible in public restrooms!

Stepping up to the Challenges

"It took great dedication and perseverance to achieve our objectives. We had to learn about waterproof standards and requirements, electronic control to integrate and sync the sensors, and how to manage the amount of electrical current to ensure both mechanical and electrical safety. It was challenging, but we are glad that we overcame our challenges by taking small steps and systematically resolved all issues."

- Daniel

What's So Significant

- Opening and closing of doors are automated and controlled by in-built sensors.
- Safety designs were incorporated to prevent the door from hitting users and ensure that objects are not caught between the doorway while the door is closing.
- Data collection through IoT helps monitor usage frequency so cleaning and maintenance of toilets can be scheduled based on usage.
- A similar, automated door with no IoT functions is available on the market at around \$4,000. The team's sleeker design comes with IoT functions and costs a quarter of that amount to produce.
- The prototype garnered interest from Changi Airport when the project was presented to them.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project:	Mirror Mirror on the Wall
Members:	Lee Xing Yi, <i>Higher Nitec</i> in Interactive Design Chriselda Goxentia Hartanto, <i>Higher Nitec</i> in Interactive Design Leow Hua Yi, <i>Higher Nitec</i> in Mechatronics Engineering Tan Jun Han, <i>Higher Nitec</i> in Mechatronics Engineering
College:	ITE College Central

A Reflection of Health

Out of sight, out of mind. For many busy individuals, this saying holds true when it comes to monitoring vital health statistics like their Body Mass Index (BMI), metabolism and bone mass. Certain readings – for instance, a consistently high BMI – could signal a higher risk of escalating into more serious health concerns and illnesses, if left unchecked.

This observation was what prompted a group of four ITE College Central students to develop '**Mirror, Mirror on the Wall**', a smart mirror that reflects not only one's image, but also a snapshot of the individual's key health data.

Built with the capability to wirelessly extract data from weighing scales, temperature scanners and other external devices, the mirror is able to provide users with detailed measurements, such as their BMI, metabolism, visceral fat, lean body mass, bone mass, muscle mass and more. When placed in a frequently accessed place like the bathroom or dressing room, the mirror allows users to monitor their health with ease, while seamlessly blending into their daily routine. With such insights about their health readily available, there is no reason for users to not take better charge of their wellbeing!

Coded for Success

"Working on this project gave me the opportunity to deepen my knowledge and skills in coding and designing. There were times when the team faced challenges in getting the outcomes we wanted due to coding issues. However, with guidance and useful tips from our lecturers, we were able to figure out solutions to the problems. This gave us a great sense of achievement!"

- Xing Yi

What's So Significant

- 'Mirror, Mirror on the Wall' is able to pair seamlessly with external hardware like weighing scales and thermal sensors to extract relevant data for display on the mirror. This is one up from the 'smart mirrors' that are commercially available today, which mostly show only basic information pulled from the Internet, such as date and time, traffic updates and online videos, but are unable to display weight and temperature readings.
- Despite having more functions and features, the mirror is much lower in cost than those currently in the market.
- It is a convenient and hassle-free way to monitor one's health on a daily basis.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project:	Piano Practice Monitoring
Members:	Syakira Bte Sahmawi Nor Faraizara Asykin Bte Izam Nur Shafiqah Bte Roslan Dawson Lee Wee Kiat
Course:	<i>Higher Nitec</i> in Electronics Engineering
College:	ITE College Central

Music to the Ears of Piano Teachers

As the saying goes, practice makes perfect. Piano learners are expected to practise playing the piano at least 30 minutes daily. Besides conducting checks on pianos to ensure they are in an optimal condition, music school teachers must also monitor their students' practice rates to maximise their learning outcomes.

Now, piano teachers can rely on Piano Practice Monitoring, a remote monitoring device that can be installed in the piano, to track play time and record temperature and humidity levels. Armed with sensors, this device will send signals to a controller which will in turn, transmit relevant data to a remote server via Wi-Fi. With this device, the piano teacher can view the practice time chart, and temperature and humidity logs on the server website. If the device detects temperature and humidity levels beyond recommended limits, it can also trigger an email alert to the technician and owners of the pianos to take action promptly.

Tuning to the Beat

"I'm so heartened that our device has already been implemented in 24 out of 38 branches of Cristofori Music School! The school even has plans to sell our device to parents who may wish to monitor their children's piano practice at home.

Looking back, I found that the most challenging part was project development. We went through many rounds of trial and error before deciding on using an infrared sensor. I also got to apply what I learnt in coding from my course, while programming this device."

- Syakira

What's So Significant

- This device allows remote monitoring of piano play time so it is a highly useful feedback tool for piano learners and teachers.
- Once the device detects unusually high levels of temperature and humidity of the piano, a service technician can be informed quickly to fix the piano. As such, music schools can stay up-to-date in the maintenance of their pianos.
- Parents of children who are learning to play the piano can better track their children's frequency and duration of practice through this device.

- Before a learners start playing the piano, they can log in to the website to record their practice sessions. This encourages personal accountability in learners and relieves the burden of piano teachers who need to continually check on learners.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project: SMART TraceTogether SafeEntry Management System

Members: Chua Zhi Jia Joseph
Don Yeo Zhiwei
Masangkay Ralf Patrick Quintero
Mohamed Amirul Arifin B Mohamed Azan
Tan Yu Wei

Course: *Higher Nitec* in Electronics Engineering

College: ITE College Central

Students Engineer Smart Solution for SME

When Mr Jeffrey Yam, Director of Maxxmedia International Pte Ltd, attended a project exhibition that showcased works of our final-year students pursuing *Higher Nitec* in Electronics Engineering, he was left impressed with the students' knowledge and the application of Internet of Things (IoT) in their projects. Hence, when wanting to develop smart solutions for use in his company during this period, he approached the ITE.

The company wanted to improve on a kiosk in use at their premises during COVID-19. The original kiosk had basic functionalities – it could launch the SafeEntry app and dispense hand sanitiser. The ITE team was tasked to take it a notch higher - to enhance the sensor's circuit interfacing and programming, and the graphic user interface designs on the new kiosk model. The students have now upgraded the kiosk to include a proximity sensor that detects people within a radius of 50cm and concurrently takes their temperature via an inbuilt contactless thermometer. It is also able to scan the barcode on an ID card and activate the TraceTogether SafeEntry application, in case users do not have a physical token or application on their mobile device. This information will be captured and stored in the system for TraceTogether SafeEntry submission. The other benefit of this automated kiosk is the flexibility to free up manpower otherwise needed to conduct manual temperature checks at entry/check-in points.

Creativity Sparks

"This project was carried out in different phases during our internship period. Our team operated in pairs, taking on specific roles in the different developmental phases of the prototype. But there was a lot of synergy and knowledge sharing amongst us. We had very steep learning curves – we had to learn to build the software and firmware applications from scratch whilst adhering to the standards and requirements of our customer. But with guidance from our company supervisors, encouragement from our lecturers and perseverance on our part, our team was able to create a final product that we're proud which is unlike any other currently available in the market!"

– Don Yeo

What's So Significant?

- This project is a joint student – industry collaboration. The team has assisted to develop sensor interfaces, microcontrollers, graphic user interface software and firmware for the Kiosk system, while the supervisors from the Maxxmedia had provided the hardware support (kiosk) and expert advice to improve in the area of user interface design.
- The whole system is automated and the details are easily accessible for troubleshooting during maintenance. The data collected in the system can also be used for backend data analysis and subsequent manpower planning – with the integration of cloud to store the sensor data, it provides tools for users to analyse daily visitor traffic , with information presented in easy to understand bar charts on an hourly basis. Depending on the data collected, users can make decisions on deploying operation management or human traffic control into premises during identified “peak periods”.
- The mobile kiosk is suitable for both indoor and outdoor use, with access to AC power point and Wi-Fi connectivity. It took the team approximately four months to develop the enhanced kiosk system and the project was deployed at various sites within ITE College Central as well as commercial buildings, such as Nirvana Memorial Garden Singapore.
- Feedback collected from these sites were used to further tweak and fine-tune the kiosk system. The team is confident that their finished product is suitable for commercialisation.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project:	iNail Pro
Members:	Tan Yuan Tian, <i>Nitec</i> in Mechanical Technology Silwin Bintony Lingam, <i>Nitec</i> in Mechanical Technology Noah John Mitechell, <i>Higher Nitec</i> in Mechanical Engineering Lim Bo Xuan, Terrian, <i>Higher Nitec</i> in Mechanical Engineering
College:	ITE College East

Fuss-free Fingernail-trimming for Stroke Patients

One of the challenges faced by stroke patients is the recovery of motor functions to perform daily activities. Despite rehabilitation to improve their muscle strength and mobility, it is common for these patients to still require the use of assistive devices to help them perform certain basic, day-to-day tasks, such as cutting their fingernails.

Designed by a group of four Engineering students from ITE College East, **iNail Pro** is a unique contraption aimed at providing a safe solution for stroke patients who face difficulty in trimming their fingernails. Equipped with a strategically placed 'fingernail slot' and a concealed sanding stone attached to a small motor, the battery-operated device enables users to gently trim their nails singlehandedly. The product is ergonomically shaped and 3D-printed casing allows users to comfortably rest their palms, minimising the possibility of muscle strains.

Skills that Matter

"The most satisfying part of this project was to see stroke patients using the product with ease. I feel proud that I am able to use the skills that I have learnt in school, such as 3D printing, laser-cutting and electrical wiring, to make a product that can benefit others."

- Yuan Tian

What's So Significant

- iNail Pro was tried and tested by actual stroke patients, who gave feedback that the product was useful and met its objective of making it easier for people with mobility challenges to trim their fingernails.
- Users can operate iNail Pro safely and almost effortlessly with one hand, thanks to its ergonomic, fuss-free design and in-built touch sensor.
- There are some nail trimmers in the market, which use similar filing action on nails, but none has been specifically designed with stroke patients in mind.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project:	Aim for cleanliness
Members:	Tan Shi Wei Cody Ooi Ren Chen Adam
Course:	<i>Higher Nitec in Electronics Engineering</i>
College:	ITE College East

Hitting the Mark in Cleanliness

It is a well-known fact that when using urinals, not everyone aims well! Some splashing of urine onto the floor is common, creating unpleasant odours and hygiene issues.

To address this issue, the team developed a device that guides users on maintaining appropriate positioning at urinals. When installed at urinals, it detects users' positions and prompt them to shift closer to the urinal through messages on a digital display board.

The device also assess cleanliness levels in washrooms by detecting the amount of volatile organic compounds (VOCs) present. VOCs include sewer gases, such as methane and ammonia. The amount of VOCs detected can guide the assignment of manpower for cleaning washrooms.

Creativity Sparks

“Very often, we would enter public washrooms with foul smells and dirty conditions, which put us off from using them. We felt that more could be done to improve washroom cleanliness, which gets even more important amidst the COVID-19 pandemic. We also spoke to cleaners on campus, and learned that they usually spend the most time cleaning the floor area below urinals due to stubborn urine stains. All these motivated us to create something that not only improves cleanliness of public washrooms, but also helps to make the job easier for cleaners.

We faced many challenges in getting different components of the device to work as planned. We learned to not be deterred by such setbacks, and instead, to persevere and find solutions. It was very fulfilling to see everything come together in the end, and to know that our hard work has paid off. Above all, we realised our goal of creating something that can make a positive change.”

- Cody

What's So Significant

- The team's project won the Silver Medal at the International Exhibition for Young Inventors 2020 competition.
- The device has built-in Wi-Fi connectivity, which enables all data collected to be sent automatically to a cloud server for monitoring and analysis.
- If the overall amount of VOCs detected in a washroom exceeds the threshold of 50 parts per billion, the device will send a notification to cleaners on duty via a linked Twitter account for their follow-up action.
- By detecting the presence of users at the urinals, the device is able to track the usage levels of a washroom at different times.
- The device can also be installed in cubicles of female washrooms, by being modified to include only the sensors that detect VOC levels.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project:	AI4 Eco Office
Members:	Lim Jia En Ryan Asyramil Naszri B Rohani Christa Yeow Wai Fong Chan Wai San Stella
Course:	<i>Higher Nitec</i> in Electronics Engineering
College:	ITE College West

Reducing Carbon Footprint through Artificial Intelligence (AI)

Four ITE students used their AI knowledge to help Singapore reduce its carbon footprint. The “AI4 Eco Office” uses AI to sense the level of human activity in a room and automatically adjusts the temperature and lighting intensities to optimal levels. For example, with fewer occupants, the controller will adjust the air conditioner to lower its air supply rate without compromising comfort, while saving energy.

As part of the smart energy management system, the device measures energy consumption and allows users to monitor their energy consumption in a timely way. Hence, users can learn to be more energy conscious and take steps to use energy more efficiently.

The industrial and commercial sectors use the highest proportion of energy, with air-conditioning and lighting usage consuming the most. Hence, the team created the AI4 Eco Office mainly for the office environment. However, this device is also scalable to residential rooms and auditoriums.

An Urgent Problem to Solve

“Climate change is a challenging problem that we must tackle today. It has already led to dire consequences like the global rise in temperatures and sea levels. I think more people must understand these environmental issues better. Young people can play a part too. We should only use the energy that is necessary and no more. This project is our team’s way of using our AI skills to contribute to saving the earth, by reducing our carbon footprint.”

- Lim Jia En Ryan

What’s So Significant

- “AI4 Eco Office” harnesses the strengths of different technologies, including Internet-of-Things (IoT) to connect the appliances to a cloud; Message Queuing Telemetry Transport IoT Protocol, a network protocol that transports messages between devices, for sensors to share data with the controller; and Long Range Networking to send data on human activity to the smart controller.

- *Smart lighting.* The system varies the light intensity depending on the number of people in the room.
- *Consume by demand.* The AI4 Eco Office adjusts air supply based on the level of human activity.
- *Smart Energy Management System.* The device uses a smart power meter to measure and collect energy consumption data, including voltage, current and power. Users can monitor energy consumption using a software called ThingsBoard.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project:	SMART AI Sign Language
Members:	Lee Amrey Tya N D Chua Yong Kang Henry Tng
Course:	<i>Higher Nitec</i> in IT Applications Development
College:	ITE College West

Understanding the Signs

Communicating effectively is not easy; imagine how much more frustrating it can be for the hearing-impaired. After seeing a hearing-impaired senior struggle to be understood when his interpreter was not around, the team of Lee Amrey Tya N D, Chua Yong Kang and Henry Tng decided to create an app that translates Singapore Sign Language (SgSL) into words.

The team captured and stored images of SgSL to create a library from which the app draws upon. The app then translates the gestures made by the user into words, giving the hearing-impaired a way to communicate without the need for a human interpreter, and reducing their stress and anxiety of making themselves understood.

Innovators' Inspiration

"We wanted our app to really embrace the hearing-impaired and their 'language' - to break the barrier between the hearing and hearing-impaired, to teach and create awareness about Singapore sign language. Typing or writing something down makes it convenient for those who can hear. What we wanted was to make communication convenient for the hearing-impaired for a change."

- Amrey

What's So Significant

- The team captured and stored images of Singapore Sign Language (SgSL) gestures so the app has a repository of gestures to refer to. When in use, the app uses the camera to pick up the gesture formed by the user and translate it into words.
- SgSL is unique to our local community. The app will also help create awareness that our hearing-impaired community has their own sign language.

- With help from a staff, who is part of the Singapore Association for the Deaf, the team was able to accurately represent the gestures used in SgSL.
- While the translation is one-way for now, the team says the app can easily translate text to SgSL if they had the chance to tweak it.
- The work they put into the app has also spurred the team to look into implementing a comprehensive SgSL dictionary and simple tutorials, so more can pick up SgSL easily.

LEE KUAN YEW TECHNOLOGY AWARDS 2021 WINNING PROJECTS

Name of Project:	Service Utilising Intelligent Tech Engineering (sulTE)
Members:	Ian Tan, <i>Higher Nitec</i> in Mechatronics Engineering Robin Teoh Yan Quan, <i>Higher Nitec</i> in Mechatronics Engineering Emily Toh, <i>Higher Nitec</i> in Hospitality Operations
College:	ITE College West

sulTE Sensation

Need toilet paper urgently while on staycation but housekeeping says it will take 20 minutes to bring one to you? The Service Utilising Intelligent Tech Engineering (sulTE) machine can help address this and more!

The sulTE machine was created to provide a better guest experience by automating some routine housekeeping chores. This smart vending machine allows guests to collect commonly-requested items, such as bathroom towels and toiletries, any time they like with a simple tap of their access card, without needing to wait for housekeeping staff to attend to them. An accompanying app provides real-time status of all sulTE machines in the hotel so staff can have an overview of the inventory and guests' preference, allowing them to replenish items only when stocks are low.

Overall, customer experience is enhanced, and housekeeping staff have more time to focus on the upkeep of rooms!

Creativity Sparks

"During my (Emily) internship at a Government Quarantine Facility, I realised the housekeeping department is very labour intensive. The housekeeping staff would have to stow their trolley before proceeding to attend to guests' requests. With sulTE, we hope that we can relieve the load of housekeeping staff, minimise amenities consumption and reduce manpower requirements in hotels, without compromising guest experience."

Emily

What's So Significant

- sulTE uses Artificial Intelligence (AI) to collect data which is then used to predict and recommend popular items to guests based on their gender. It identifies popular items to guests visually via a LED light strip on the product selection window – blue for male guests and pink for female guests.
- Using Internet of Things, management of all sulTE machines can be done via an app. One can monitor the status of each machine and view real-time stock levels of each item at specific locations.

- Maintenance of the sulTE machines is made even easier with a digital twin app, which allows maintenance engineers to monitor the condition of sulTE machines remotely. With the digital twin app, engineers can locate, isolate, diagnose and rectify issues in the machines, if required, remotely.
- Value-added services such as showcasing in-house promotions and providing real-time weather information can be provided via the sulTE's LED information panel.
- Five hotels that have seen what the sulTE machine is capable of have indicated their interest in collaborating with the team to make this proof of concept market-ready.
- sulTE is scalable and can be programmed for wider implementation, even in areas outside the hotel industry. For example, providing tools and machine parts in manufacturing clean rooms so one need not waste time changing in and out of clean room suits to get these items.