



## The Farm Inside a School

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IDC Smart City Asia Pacific Awards  
**2020 WINNER**

**Smart Unmanned Aerial Vehicle  
Enhanced or SUAVE  
Singapore Land Authority  
Singapore**

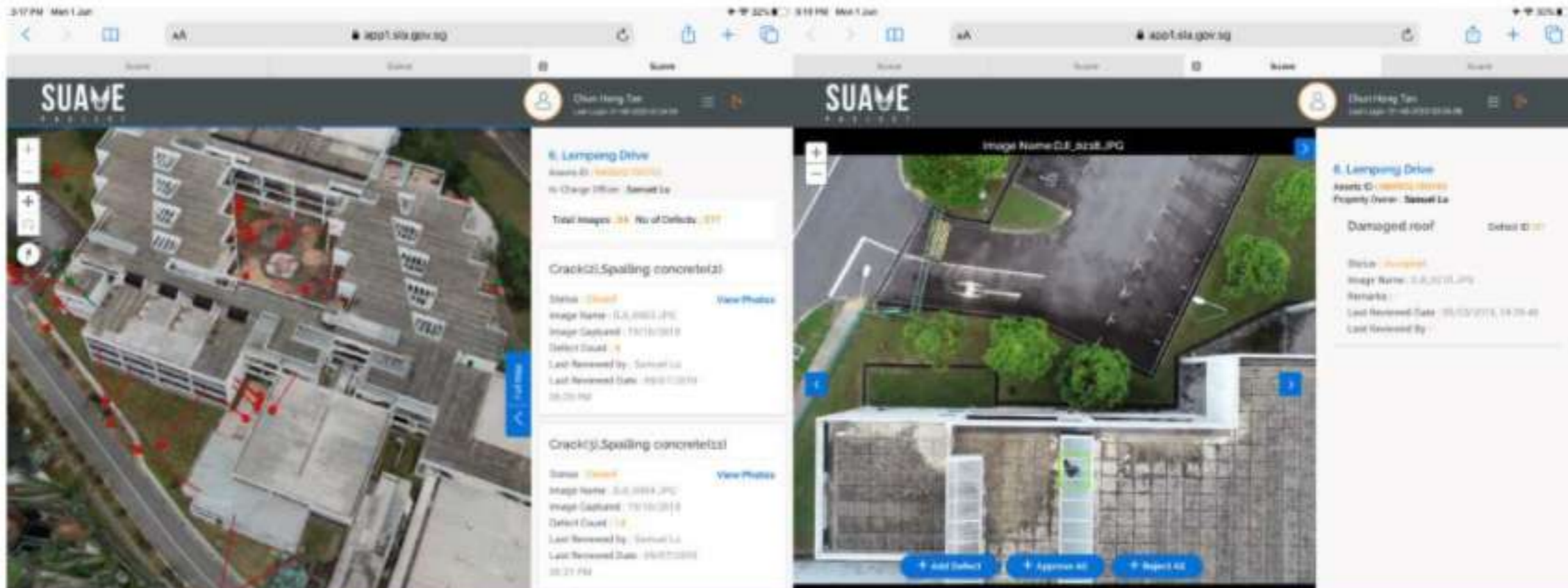


**URBAN PLANNING  
AND LAND USE**

**SLA's SUAVE Clinches  
Smart City Award**

The Singapore Land Authority (SLA) is proud to announce that the Smart Unmanned Aerial Vehicle Enhanced (SUAVE) project has been chosen by IDC (International Data Corporation) Government Insights as the best Asia Pacific Smart City project under the "Urban Planning and Land Use" category of IDC's 2020 Smart City Asia Pacific Awards (SCAPA).

SUAVE is a machine learning algorithm that analyses images captured by drones to automatically identify building defects requiring maintenance. Together with the "SmartLAMD" app that was developed by SLA, SUAVE helps to maintain and improve building conditions through the early identification of potential maintenance issues, from cracks and debris to water ponding and even plant growth, thus enabling the speedy handling of these minor issues.



**SUAVE uses drones to conduct checks on facilities and capture images for analysis**

At the same time, SUAVE provides tremendous time and cost savings. Officers now use only 12.5% of the original conventional inspection time to review and address potential maintenance issues. Given the early detection of defects, repairing and resolving the maintenance issues in advance will also save up to 80% more time, since minor defects can be fixed significantly faster compared to major defects.

Aside from saving time, SUAVE has also significantly reduced inspection and repair costs. Deploying drones for building inspection only uses 60% of the cost required for a conventional physical inspection that uses boom lifts. Roof and property repair costs are also estimated to have been reduced by 40% since early detection of potential maintenance issues by the SUAVE system also means a reduction in the frequency of costly major defects in the properties under SLA's care.



**SUAVE is capable of detecting a wide range of conditions and its automation capabilities have helped reduce both cost and manpower**

Now into its sixth year, the annual SCAPA recognises outstanding Smart City initiatives in the Asia-Pacific region through a rigorous six-stage benchmarking framework called IDC Smart City Development Index, and covers 14 Smart City functional eServices in categories such as Civic Engagement, Digital Equity and Accessibility, Smart and Sustainable Infrastructure and Urban Planning and Land Use.

SUAVE represents yet another milestone in SLA's digital transformation journey, and is testament to SLA's efforts to drive digitisation and digitalisation in its work processes. Congratulations once again to the Systems and Support/Land Management team!

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## Meeting COVID-19 Challenges Head-On

The COVID-19 pandemic has meant that everyone, from businesses to individuals, has had to adjust to new norms and establish new protocols as we make changes to our lives and livelihood. Our communities in Singapore, too, have had to find ways to adapt in the way we live our lives.

The food and beverage (F&B) sector was no exception. Dining in at eateries were prohibited from 7 April till the start of the phase two reopening on 19 June, when dining in was allowed but only in groups of five or fewer. Safe distance measures also have become an established norm amongst us so as to ensure the safety of the community.

It is indeed true then that when the going gets tough, the tough gets going. Several F&B operators who are tenants in properties managed by the Singapore Land Authority (SLA) have since adapted, improvised and innovated to ensure that business not just continues, but would be able to thrive, even in such trying circumstances.

Businesses reacted swiftly to the new measures by establishing social distancing measures as well as setting up the SafeEntry app for contact tracing. SLA staff also engaged our tenants at State properties to explain the current regulations and helped with the process of setting these measures in place. Working closely together, SLA as well as its tenants ensured a safe environment for both patrons and staff, while keeping customers' experiences seamless and enjoyable. To brighten things up, some establishments, such as Da Paolo Dempsey at Tanglin Village, have also shown great resourcefulness and creativity by making full use of its existing decor to demarcate the one metre distance between individuals.



Using the floor tiles as markers for safe distancing measures is an awesome example of combining aesthetics with social responsibility

Besides social distancing measures, our tenants also adapted by undergoing a rapid process of digitalisation. With food delivery quickly becoming a new norm, online ordering has become a common tool with almost all F&B businesses. These include even stores offering traditional classics, such as the Tiong Bahru Bakery, located in Chip Bee Gardens as well as several other locations across the island.



QR codes are now placed at the entrances of businesses to aid contact tracing efforts via the SafeEntry app

Several tenants also turned to digital assets such as websites and social media platforms to communicate with customers. Many took this time to "level-up" their photography skills, and have started to display their newfound expertise on their various platforms.



Digitalisation means that these mouth-watering offerings can be delivered to you at the touch of a button

The road towards recovery may be a long one, but day by day, we are getting there. With the successful measures being taken to control the spread of virus, more services in addition to those in the F&B sector will open up in the months ahead. Even so, it is likely that social distancing measures may not be going away anytime soon. However, with some indulgence—as well as everyone's cooperation in adhering to safe distancing measures—there is nothing to stop us from indulging in our favourite meals while still observing the rules and being socially responsible.

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## The Farm Inside a School

In ultra-modern Singapore, it is sometimes easy to take basic needs, such as food security, for granted.

It is therefore refreshing to see a group of youths coming together to establish "City Sprouts", a social enterprise which seeks to reconnect people with food. More than just an urban farm, City Sprouts aims to be a "food social hub" by seeking to encourage a community-driven sustainable lifestyle in a highly-urbanised Singapore.



Community involvement is an integral part of City Sprout's movement to be a "food social hub"

Given the traditionally land-intensive nature of agriculture and Singapore's space constraints, one may be surprised to learn that City Sprouts is actually located right in the heart of Redhill, at the former Henderson Secondary School. The team proudly envisions the space, named the "Sprout Hub", as a food and social hub that will promote urban agriculture as well as learning and a sense of community.

We speak to one of the co-founders of City Sprouts, Mr Chee Zhi Kin, 26, to find out more about just how they were able to transform the school and convert the existing infrastructure to fit the needs of not just an urban farm, but also a place where people can share knowledge and build communities.

**1) Let us start with the question on everyone's minds: Why a school? Why not a location that is more traditionally suited to farming (e.g. large open lands for agriculture, especially in the west of Singapore)?**

Our focus was on creating a community-driven farm that brings farming closer to the people. Hence, we did not look at traditional spaces for farming that would be more production- and yield-oriented. Furthermore, we were really drawn to the concept of having an urban farm in a co-located space – in this case, between a childcare centre and nursing home – to show that farms can be set up anywhere with a little creativity!

Ultimately, we saw the potential to develop robust solutions for modern agriculture, while connecting people to food production.



Using a bit of creativity to transform the former school's parade square into a farming space

**2) What were some of the biggest challenges moving into the school? What were some of the major changes you had to make to make Sprout Hub a reality?**

One of the biggest challenges was infrastructure. First, we had to understand how we would adapt or modify our initial concept and offerings to fit the existing space. Secondly, we had to equip the space with all the necessary utilities such as electricity, water and telecommunications to transform an old school building into a facility that would be able to accommodate our needs.

**3) On the other hand, which parts of the building were kept as it was?**

Interestingly, we actually kept most of the existing space the way it is.

We decided to preserve the structure and overall look of the school because one of our main goals, after all, is to educate. For example, we repurposed the old school hall into an indoor agriculture platform as well as a knowledge centre for modern farming.

At the same time, most of the school was in perfect working condition anyway—we just had to be creative with the space to make it suit our needs!



Before and after photos of the school canteen, with much of the old architecture preserved, as new life is breathed into it

**4) What is your vision for City Sprouts and the Sprout Hub? What is the team's vision for the next five to 10 years?**

We definitely have a few goals for Sprout Hub.

First, we want to breathe new life into this forgotten space—and I think we've done just that! Next, we aim to develop solutions that we hope will educate and bring people closer to food. We also want to bridge the intergenerational gap between the young and the old through our programmes.

Should this pilot project prove successful, our long-term vision for City Sprouts is to replicate and scale this model of farming to other underutilised spaces in Singapore.

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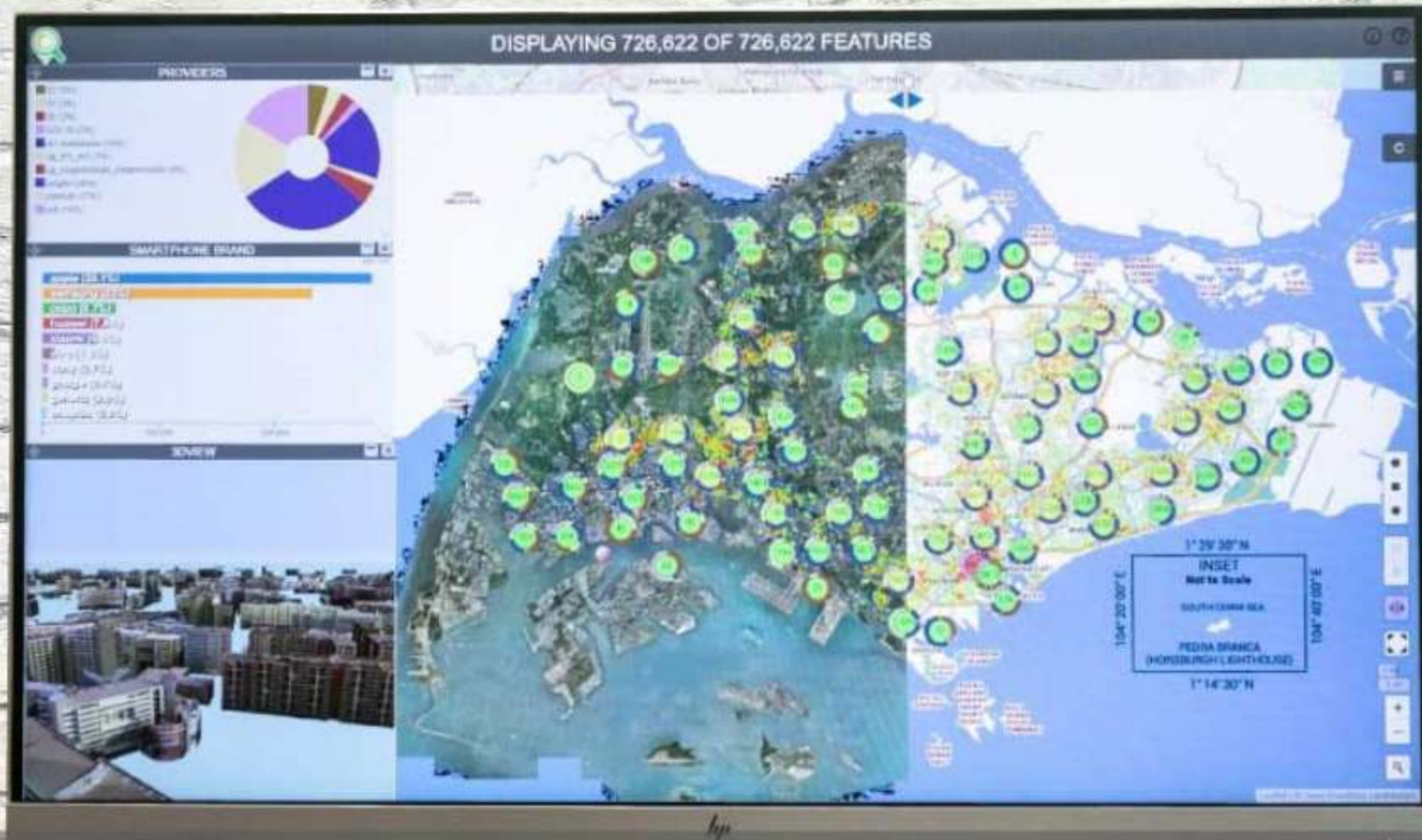
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## 3D Sandbox Singapore

Recognising the immense potential of geospatial technology, as well as its impact on industries and even our daily lives, the Singapore Land Authority (SLA) launched the 3D Singapore Sandbox (the "Sandbox") in March 2020. The initiative provides a collaborative environment for technology industry partners and developers, and aims to encourage the use of 3D city models and geospatial data to develop and test new applications and services that can benefit both the public and private sectors.

The Sandbox will also mark the first time that nationwide 3D geospatial data will be made available for testing innovative solutions. With unprecedented access to SLA's 3D geospatial data, including 3D models of over 160,000 buildings mapped nationwide, the Sandbox is expected to help industry partners who wish to leverage 3D geospatial data to support better decision-making and to develop smart solutions to drive operational efficiencies and value for business end-users.



The Sandbox will provide unprecedented access to SLA's 3D geospatial data, including 3D models of over 160,000 buildings mapped nationwide

The Sandbox is also heavily supported by established industry partners such as Autodesk, Bentley Systems, Esri Singapore and Hexagon Geospatial, as they contribute geospatial solutions to this burgeoning platform. SLA too, has also collaborated with global data analytics provider LOTaDATA to provide access to "people movement intelligence" data for geo-analytics.

Stated Mr Kaushik Chakraborty, Vice President of Southeast Asia and India, Bentley Systems: "As a forward-thinking nation, Singapore has always pushed the boundaries in terms of setting up best-in-class infrastructure across transportation, utilities, housing and so on, so as to improve the quality of life for citizens and residents. Bentley Systems is pleased and proud to join Singapore Land Authority's 3D Singapore Sandbox initiative, to collaborate with the infrastructure ecosystem partners in delivering value to the citizens."



This marks the first time that nationwide 3D geospatial data will be made available for testing innovative solutions, with the Sandbox expected to help industry partners who wish to leverage 3D geospatial data to drive operational efficiencies and value for business end-users

The architecture, real estate, construction and logistics industries have already been identified as potential first movers on this platform. Sandbox will not only help to create innovative solutions that can transform their business operations and processes, but also empower them to improve conditions in Singapore. For instance, real estate developers will be able to now make use of the available geospatial data, models and tools to visualise how a new building can synergise with the surrounding urban environment and as such, improve the overall environment for the neighbourhood.



The architecture, real estate, construction and logistics industries have already been identified as potential first movers which can be transformed by Sandbox

"By making available 3D city models that we have built, as well as other geospatial data through the Sandbox, we hope innovators, entrepreneurs, industry partners and the technology community can develop and test new services and solutions that will add to Singapore's effort in becoming a smart city," said Mr Ng Siau Yong, SLA GeoSpatial & Data Director and Chief Data Officer.

Interested parties may visit [www.geoworks.sg](http://www.geoworks.sg) for more information on how they can become a first-mover with 3D Singapore Sandbox.

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# FT FIRMA TECHNOLOGIES

## New Faces at GeoWorks

GeoWorks, the geospatial industry centre first set up by the Singapore Land Authority (SLA) in 2018, aims to bring together geospatial businesses, sectoral users, research institutions and government organisations to foster a vibrant geospatial ecosystem. With that goal in mind, GeoWorks is always on the lookout for new partners to collaborate on the use of geospatial technology and information.

Firma Technologies is one such partner – an AI-based infrastructure management company that aims to develop safe and efficient digital solutions with new technologies. We speak to Mr Benjamin Wong, the Key Account Manager of Firma Technologies, to find out more about how geospatial technology is a key component in helping the organisation to deliver its promises to clients, as well as what the experience has been like as the latest addition to the GeoWorks family.



**Mr Benjamin Wong, Key Account Manager of Firma Technologies: "We have enjoyed being part of the GeoWorks family and are grateful for the many opportunities available here!"**

### 1) Tell us more about Firma Technologies.

Firma Technologies aspires to be a global leader in AI-based analytics, and aims to solve highly complex and large-scale engineering problems in the infrastructure asset sector.

We currently have two main solutions - one is a platform which allows users to host and share their 3D models, while the other is our AI service which we built to detect and assess defects on infrastructure assets using imagery datasets.

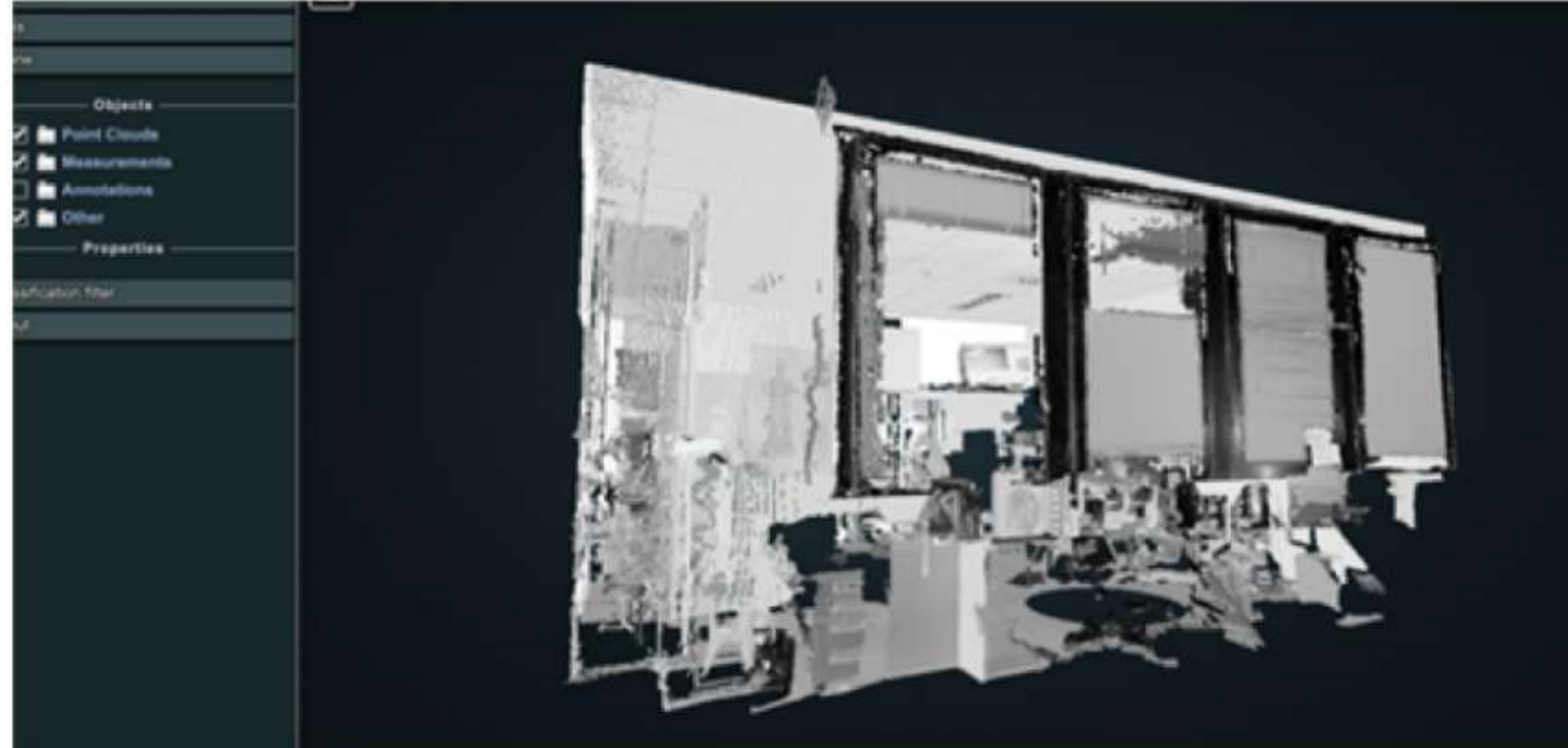


**Users can host and share 3D models for collaboration**

### 2) What are some challenges you have faced in your work?

Many projects in the industry are typically long-term and require heavy logistic commitments, which is a challenge for a young company.

However, the largest challenge for us is that many engineering firms are still not fully comfortable or confident leveraging on AI and/or geospatial solutions. We usually have to spend a fair bit of time educating these clients on the potential of these solutions – sometimes without much success! Even as a young company, we do our best to navigate client expectations and coordinate with our partners to be able to fulfil our contracts.



**Firma Technologies allows users to utilise AI to detect and assess defects on infrastructure assets using imagery datasets, and aims to solve highly complex and large-scale engineering problems in the infrastructure asset sector**

### 3) How has your experience with GeoWorks been?

Although we have only been here for three months, we have truly enjoyed being part of the GeoWorks family! The atmosphere here is great, and we are always grateful for the many opportunities to showcase our work. At the same time, it is exciting to think about how we can potentially collaborate with the other GeoTechs at GeoWorks – it really feels like being part of a larger geospatial ecosystem.

### 4) How does geospatial technology help you in your work?

When it comes to our solutions, detecting defects is just one part of the challenge. We use camera sensors, radar, GPS, satellite data and other software to constantly improve the accuracy of mapping defects. Geospatial technology is crucial in helping us trace and map these defects back to their specific locations accurately.

### 5) Are there any challenges that come with working with geospatial technology?

Definitely! Mapping defects can be challenging at times – for example, trying to pinpoint a crack in a wall in a big building is no mean feat! We need extremely accurate coordinates to ensure maximum operational efficiency, and we are often constrained by technological limitations.

To achieve this, we need to juggle multiple technologies together with our geospatial capabilities.

### 6) In your opinion, what skills are needed to work in the geospatial industry?

Apart from having to be familiar with certain software and other related technologies, there is always room for creativity on our team – sometimes, we need to think out of the box to solve problems.



**The Singapore team in 2019**

### 7) Do you have any advice for aspiring entrepreneurs?

Always be ready to go where the wind blows!

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## Former Admiralty House

One house, many names. The Old Admiralty House, located in the heart of Sembawang, has quite a history!

Built in 1939 by the British architect Edwin Lutyens, the design of the house was heavily influenced by the Arts and Crafts movement prevalent in the late 19th-century and early 20th-century. The structure comprises a two-storey brick building and one-storey wing on its northwest side. Its roof is high-hipped and clad with French terracotta tiles. While the first storey is heavily stuccoed and painted white, the second storey features exposed brickwork, lending the building its distinctive look.

Located on a small hill in what was the former Sembawang Naval Base, the house and the base it was built on reflected the escalating situation in the 1940s, as Britain attempted to fortify Singapore in preparation for a Japanese offensive in World War II. The house takes up a commanding position on the hill, and was used as the strategic planning headquarters of the British armed forces during World War II.



**The Admiralty House has gone through numerous name changes, but the design of the house, influenced by the Arts and Crafts movement, remains unmistakable**

It was the second in what was to have been a trio of large residences intended for each commander of the armed services. Completed in 1940, two years after the opening of the naval base, the house would only see its first occupants in 1941, when it housed Rear Admiral Ernest John Spooner.

Following the end of World War II, the house became the residence of the flag officer of the Malayan Area and was named the "Nelson House", before then assuming the name "Admiralty House" in 1958 when it became the residence of the Far East Station commander-in-chief.

Later on, it became the residence of the commander of the Australia, New Zealand and the United Kingdom (ANZUK) forces when the British withdrew their forces from Singapore in 1971, and was renamed yet again, this time as the "ANZUK House".

Following the disbandment of the ANZUK force in 1975, the house has seen use as restaurants, guest houses and country clubs, before it was gazetted as a national monument in 2002. It was last utilised by Furen International School between 2011 to 2019, with the school working closely with the Preservation of Monuments Board to restore the grandeur of the house and its grounds.



**The house was gazetted as a national monument in 2002, and Furen International School worked closely with the Preservation of Monuments Board to restore the building**

Today, the Old Admiralty House is set to be renamed again. This time, it will be known as the "Canberra House Library" – a public library where visitors will have access to a good collection of titles on nature, history and gardening.

With a new name comes a new lease of life – the next exciting chapter of this heritage State property awaits!

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*Old Admiralty House* | NLB Infopedia e-resources

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