

PRESS RELEASE

1 October 2019

Singapore team wins entrepreneurial challenge for “smart construction site” pitch

Participants of the InCube Innovation Challenge in Singapore emerged champions, after spending 96 hours to develop a pitch on the theme of “Smart Construction Sites for a Smart Nation”. In the past four days, three students from NUS and two from SUTD have been living and breathing innovation in a glass cube beside the URA Centre. In response to the theme, the team’s answer is “Omnisight” – a 3D visualization platform to boost labour productivity with dynamic real-time worker allocation. Their pitch won them the first prize in the challenge, which was announced in the early morning of 1 October.



The winning team. Front: Christos Gountis (faciliator from ETH Zurich); middle row (left to right): Vishnu Udayagiri from NUS, Aravind Kandiah from SUTD ; back row (left to right): Jonathan Ng from SUTD, Victoria Faber from NUS, Jonita Chew from NUS.

The winning pitch: Optimizing manpower allocation at construction sites

The construction industry is a sizeable one worth US\$17 trillion. However, productivity in this industry has fallen over the years. “Why?” asked Jonathan Ng (25), a Engineering Product Development student at the Singapore University of Technology and Design. “Because 63 percent of direct labour time is spent waiting. For a US\$100-million project, delays can cost US\$100,000 a day.”

In an industry where delays are costly, workers have been known to be either waiting for materials, equipment, transport, weather, or instructions. In four days, the team not only found the pain point for the construction industry, but also a solution to make real-time task allocation at construction sites possible. Their proposed software, Omnisight, digitalises the construction site, analyses worker activities and provides smart recommendations to supervisors to improve productivity on their sites.

The software tracks the productivity of workers with activity recognition cameras installed on the workers' vests. The data is visualised on a 3D model of the work site, where supervisors can get an overview of the number of workers on-site, the tasks they are working on, and if productivity is maximised. Supervisors will be prompted to reallocate workers if the allocation is not optimal, or if there are other areas that require additional manpower. Commands will then be issued to the workers in real-time, and the real-time movement of the workers will be reflected on Omnisight. At the end of the day, the product does not replace humans at the worksite, but rather, offer real-time information to the site supervisor of who is doing what, where and at what time.

The pitch can be viewed here:

<https://www.youtube.com/watch?v=VKr9baQ3eq4&feature=youtu.be> (time stamp: 1:26).

From university to a Swiss resort to a glass cube

The winning idea came about after interviews with practitioners in the construction industry, representatives from Hilti Corporation and workshops offered by veterans in the construction industry and by local incubators such as SGInnovate. What made this possible is that fact that they were not working behind closed doors, but out in the public, in the spirit of innovation being open, transparent, engaging, and inviting. To equip them for the challenge, the participants spent a weekend in Crans-Montana in Switzerland, where they attended workshops on design thinking, rapid prototyping, mock-ups, business models, interview techniques and definition, pitching, and lean canvas.

The student-led initiative by the ETH Entrepreneur Club at ETH Zurich (Swiss Federal Institute of Technology Zurich) began in 2017 and is brought to Singapore for the first time with the support of the Singapore-ETH Centre, Swiss Embassy in Singapore, and Hilti Corporation. The four teams in Switzerland and Singapore were given different themes, including smart construction sites; energy conservation; intelligent, connected and sustainable cities; and embracing consumer needs for product R&D. The challenge culminated in the final pitches late night of 1 October and the winner was announced at about 2am Singapore time.

While the competition is an exercise in entrepreneurship for students, it is more than an academic exercise. Although most of the Singapore participants are undergraduates, they already have had rich experience in the entrepreneurial world. The pitch came complete with a pricing strategy and the economic value of their product, competitor analysis and a commercialisation roadmap. In their interviews with the head contractor of Shimizu to define their problem, the team seems to have already found a ready customer for their product.

-- END --

Media contact:

Geraldine Ee, Communications Manager, Singapore-ETH Centre
Geraldine.ee@sec.ethz.ch | +65 9856 0166

Wee Xinyi, Communications Executive, Singapore-ETH Centre
xinyi.wee@sec.ethz.ch | +65 9710 8177

ABOUT

The participants

1. **Aravind Kandiah** (26 years old)
Singapore University of Technology and Design Information Systems Technology and Design, AI Track)
2. **Jonathan Ng** (25 years old)
Singapore University of Technology and Design (Engineering Product Development)
3. **Victoria Faber** (18 years old)
National University of Singapore (Business Administration)
(Exchange student)
4. **Jonita Chew** (21 years old)
National University of Singapore (Mechanical Engineering)
5. **Vishnu Udayagiri** (25 years old)
National University of Singapore (Material Science)

ETH Entrepreneur Club

www.incubechallenge.com

The ETH Entrepreneur Club is a non-profit student-run organisation at ETH Zurich, aiming to bring entrepreneurial-minded people together and foster entrepreneurship. Founded in 2011, the club has consistently enjoyed rapid growth and currently counts over 50 active members and over 16'000 social media followers, and has developed a deep network within the Swiss startup ecosystem. Besides organising more than 20 yearly events, the ETH EC runs a coworking space and currently hosts 25 early-stage start-ups. Although it primarily targets students of ETH Zurich, the ETH Entrepreneur Club welcomes everyone with entrepreneurial zeal, the mindset of a future shaper and an interest in creativity and innovation.

Singapore-ETH Centre

www.sec.ethz.ch

The Singapore-ETH Centre was established in 2010 by ETH Zurich and Singapore's National Research Foundation (NRF), as part of the NRF's CREATE campus. The research hub brings some 200 researchers from diverse disciplines under its programmes: Future Cities Laboratory and Future Resilient Systems. The centre sets out to tackle some of society's most pressing challenges, such as transport, energy, liveability, social resilience, and sustainability. As ETH Zurich's only research centre outside Switzerland, the centre is set in the rapidly urbanising Asian region, where it is well-placed to confront emerging challenges. Researchers work closely with universities, government agencies, industry and the community to develop practical solutions to meet the needs of the society.

IMAGES

High resolution images available at: <https://polybox.ethz.ch/index.php/s/ioJ8u5uOpUmyKtB>



File Name: InCubeChallenge_1

Caption: (From left to right) Chief Planner and Deputy CEO of URA, Ms Hwang Yu-Ning; Swiss Ambassador Fabrice Filliez; and Minister of State for National Development Mr Zaqy Mohamad in the cube to learn about the participants' prototype



File Name: InCubeChallenge_2

Caption: Keywords surrounding the theme of "Smart Construction Sites for a Smart Nation"



File Name: InCubeChallenge_3

Caption: (From left to right) SUTD student Aravind Kandiah and NUS alumnus Vishnu Udayagiri generating ideas for the theme of "Smart Construction Sites for a Smart Nation" with lego blocks



File Name: InCubeChallenge_4

Caption: SUTD student Aravind Kandiah reviewing the processes to refine the team's prototype for the challenge on the theme of "Smart Construction Sites for a Smart Nation"



File Name: InCubeChallenge_5

Caption: (From left to right) NUS exchange student Victoria Faber, NUS alumnus Vishnu Udayagiri and SUTD student Aravind Kandiah working on the challenge on the theme of "Smart Construction Sites for a Smart Nation"



File Name: InCubeChallenge_6

Caption: The InCube Challenge on the theme of "Smart Construction Sites for a Smart Nation" at The URA Centre



File Name: InCubeChallenge_7

Caption: The participants spent a total of 96 hours in the cube as part of the InCube Innovation Challenge on the theme of “Smart Construction Sites for a Smart Nation”



File Name: InCubeChallenge_8

Caption: The InCube Innovation Challenge on the theme of “Smart Construction Sites for a Smart Nation” takes place in a glass cube at The URA Centre



File Name: InCubeChallenge_9

Caption: SUTD student Jonathan Ng explaining their challenge to chief planner and Deputy CEO of URA, Ms Hwang Yu-Ning; Swiss Ambassador Mr Fabrice Filliez; and Minister of State for National Development Mr Zaqy Mohamad



File Name: InCubeChallenge_10

Caption: Swiss Ambassador Fabrice Filliez and Minister of State for national Development Mr Zaqy Mohamad speaking with the InCube participants



File Name: InCubeChallenge_11

Caption: (Back from left to right) Charlotte Nicod and Sebastian Pinegger from the ETH Entrepreneur Club, Ambassador Fabrice Filliez, Minister Zaqy Mohamad, Wai-Meng Lee and Alexander Wieneke from Hilti, Ms Hwang Yu-Ning, Christos Gountis and Matteo Guscetti from the ETH Entrepreneur Club. (front from left to right) Jonathan Ng, Vishnu Udayagiri, Jonita Chew, Victoria Faber and Aravind Kandiah



File Name: InCubeChallenge_12

The winning team. Front: Christos Gountis (faciliator from ETH Zurich); middle row (left to right): Vishnu Udayagiri from NUS, Aravind Kandiah from SUTD ; back row (left to right): Jonathan Ng from SUTD, Victoria Faber from NUS, Jonita Chew from NUS.