

ANNEX A - REALISING THE LUSH LANDSCAPING AND 'DIGITAL ECOSYSTEM' OF THE SINGAPORE PAVILION

EXTENSIVE LANDSCAPING



To achieve the lush multi-layered landscaping at the Singapore Pavilion, various plants have been procured from Dubai nurseries for pre-growing since 2019. In all, more than 150 trees and palms were transplanted on-site.



Zephyranthes
'Pride of Singapore'



Ardisia elliptica



Ficus deltoidea



Alpina aquatica

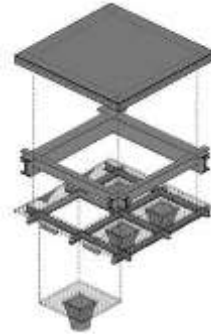


Leea rubra

A selection of plants native to Singapore was also provided by NParks to enhance the richness and diversity of the Singapore Pavilion's greenery.



Currently being installed by abseiling workers, the selection of plants has been carefully curated to accentuate the curved wall draping effect and the visual experience of the thematic cones.



Removable floor system for maintenance inspection

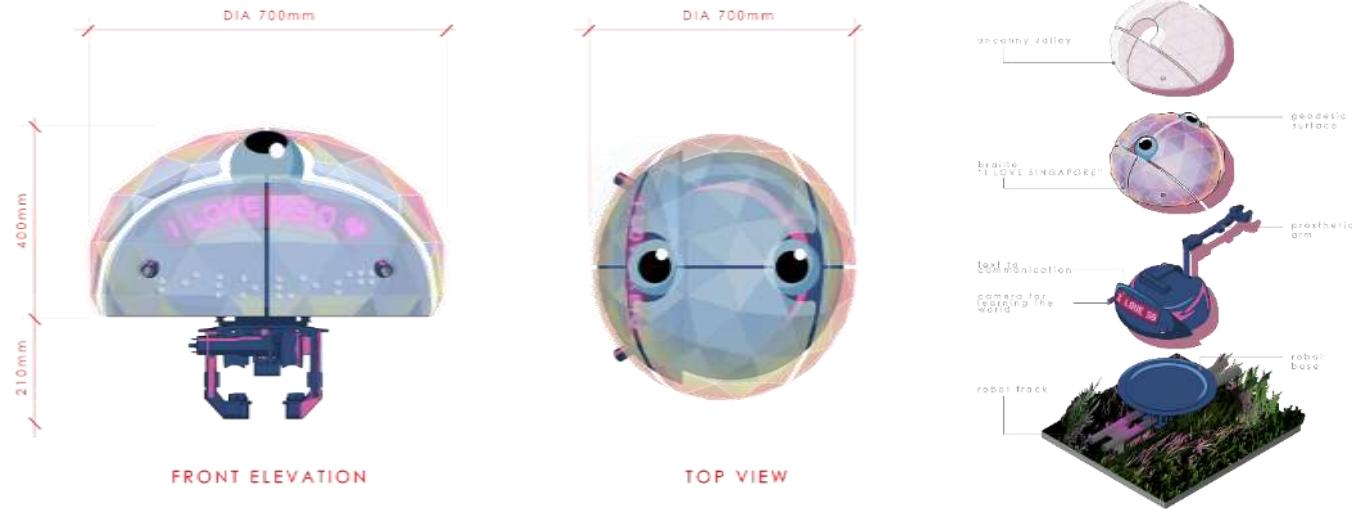
Removable modular planter pots

Other customised installations include modular planter pots with a removable Sky Market floor system. The maintenance team would thus be able to upkeep the hanging garden by easily replacing plant pots from the Sky Market without the need for additional equipment.



Four terrariums are set against a wall of orchids of more than 50 varieties in the darkened exhibit in the Flower Cone, with propagation apparatus and native orchid varieties within. The pool of glistening plant gels reminds visitors of the scarcity of water used for irrigation, produced by the in-pavilion solar desalination process. Through a creative play of light and the vivid colours of the orchids, the Flower Cone celebrates Singapore's innovation and co-creation with nature.

CLIMBING ROBOTS



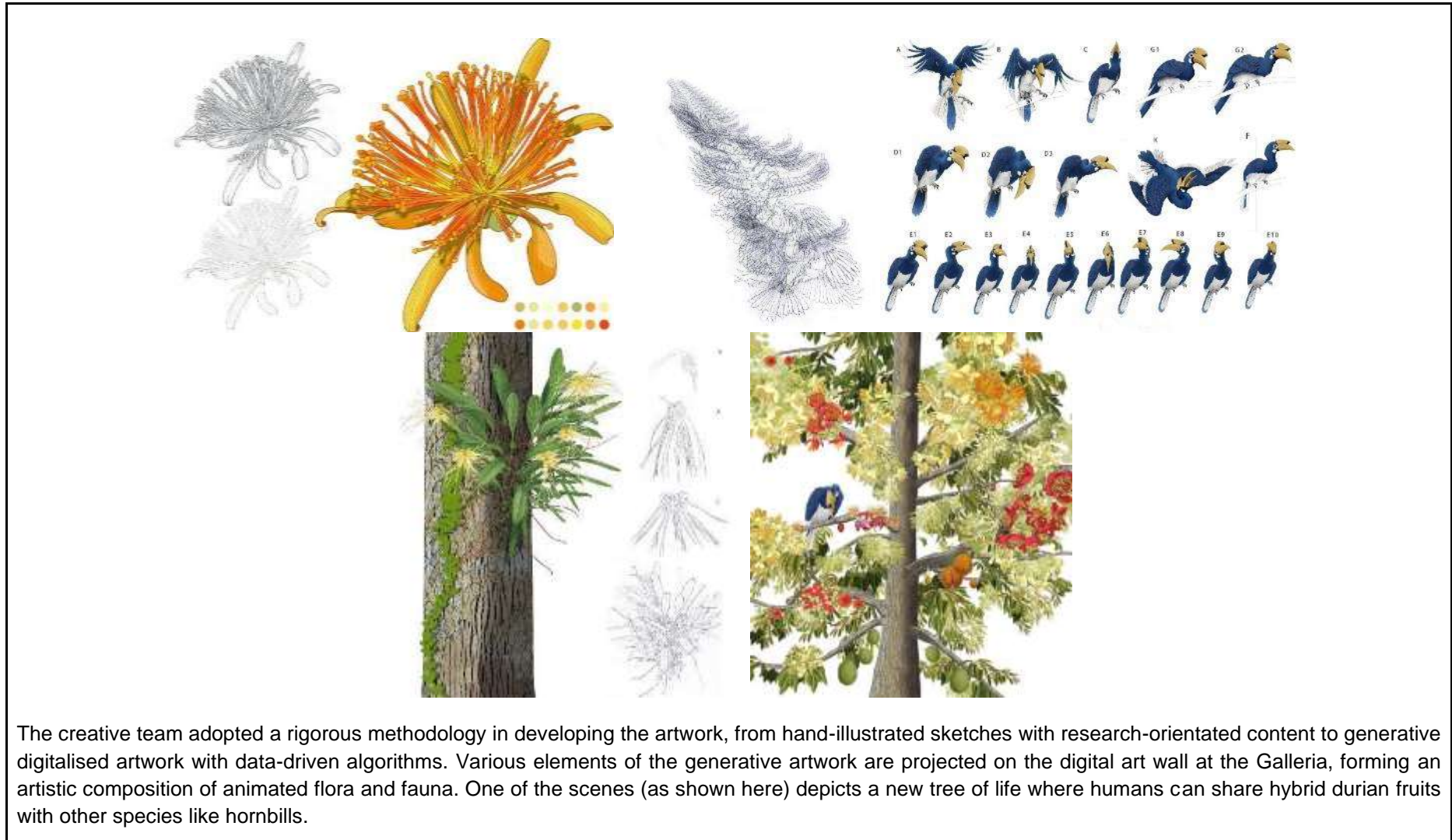
Measuring about 70cm in diameter, the three climbing robots weigh 40kg each, and will be deployed to traverse the vertical green walls of the Pavilion's thematic cones. Equipped with cameras and sensors, the robots monitor plant health and measure temperature, humidity, carbon dioxide, oxygen, and PM2.5 levels in the Pavilion. Using machine learning, Oceania Robotics trained the robots with thousands of images of plants to distinguish between healthy and unhealthy plants. This allows the robots to monitor plants, even those on the curved vertical green walls.

'DIGITAL NATURE': GENERATIVE ARTWORK & GAMEPLAY



This generative artwork exhibit is a result of overlaying the environmental data collected from the Pavilion, and visitors' participation through a digital game. The narrative and artistic representation of fragile ecosystems is intended to let visitors appreciate the challenges in realising the Pavilion aspirations and how everyone plays a part in achieving its sustainability targets.

In the interactive mobile game, each player will receive a different game board for their turn, which is generated based on the data collected within the Singapore Pavilion, such as the number of visitors, the energy usage by the Pavilion, and the micro- and macro-climates at any one time. Through the game, players can "nurture nature for the future" by harnessing solar energy to power the desalination process that will produce potable water to water the virtual saplings, which grow into trees to remove pollutants in the air.



The creative team adopted a rigorous methodology in developing the artwork, from hand-illustrated sketches with research-orientated content to generative digitalised artwork with data-driven algorithms. Various elements of the generative artwork are projected on the digital art wall at the Galleria, forming an artistic composition of animated flora and fauna. One of the scenes (as shown here) depicts a new tree of life where humans can share hybrid durian fruits with other species like hornbills.