

## CUTTING EDGE

# Where tech and art collide

BY VANESSA GOMES

If you had been driving along Jalan Sultan Azlan Shah (formerly Jalan Ipoh) in the middle of August, you would have noticed a recent addition to the side wall of Wisma Tan Kim San — a mural painted by Albert for Bosch Malaysia.

“I believe that public spaces do not have to be static and monotonous. It is my mission to keep people alive outside their homes ... keep people looking ... looking around to find new ideas ... to find surprises around the corners you thought you knew so well,” says Albert.

Albert does not have a surname because it is not a person. Albert is a robot muralist that weighs about 23kg and is roughly the size of a child’s car buggy. Mihkel Joala, an Estonian, developed Albert about two years ago along with his company, SprayPrinter.

Joala, who has a background in technology, specifically product development in 3D modelling and mechanical design, has always considered himself an inventor. Growing up in Tartu, Estonia, he noticed that the area had a strong street art scene, with artworks on every street corner. Some of his friends were street artists, but he was always awful at drawing, he says.

“I still considered myself an artist because I felt that inventing was also a form of art. But one day, my friends gave me this idea to create a machine that could deliver unique art pieces on walls, just to bring a breath of fresh air to the street art scene,” Joala recalls.

“I liked the idea very much. Maybe deep down, I also wanted to be a street artist. But as I cannot draw, this would be my way of doing so.”

He views Albert as a painting tool, equating it to a brush because it essentially prints a digital image on a wall. “The robot itself does not create the art. It needs a human being to supply the mural image. So, the robot does not take away an artist’s job. It complements it,” he says.

There are two parts to Albert — one is a printing pad, where the spray paint is installed to scale the wall, and the other is a box that controls the movement. The printing pad is dangled from the roof using pulleys and is connected to the control box, which is on the ground with Joala.

“All the programmes and algorithms are in the boxes on the ground and the images are digitally uploaded to that. It will then control the movement of the whole printing pad, moving along the wall to make prints,” he says.

When Joala gets a digital image, he runs it through custom-made software that turns the image into a file comprising numerical coding. “It is basically a form of code called G-code, which is very common in the computer numerical control (CNC) industry. CNC is how manufacturing robots are controlled,” he says.

“So, the computer reads these numbers and executes the motion. It has position coordinates. So, the robot moves to that position and the print pad executes the painting. This process is repeated over and over again. But it happens so fast that it looks like it does not really stop.”

Albert’s painting technique is a mixture of RGB (red, green, blue) and CMYK (cyan, magenta, yellow, black) layering. The robot is fitted with five spray paint cans — red, blue, yellow, black and white.

“CMYK printing is very similar [to the process used here], but CMYK consists of the primary colours and black. There is no white for printing because the paper is already white and they do not need it. But walls are not white, so we added that in,” says Joala.

Albert’s print speed is 20 sq m per hour. So, Joala estimated that it took 10 hours to complete the dig-

ital image supplied by Bosch Malaysia. As for the paint, one can was needed to cover 2 sq m, which is considered a small amount when compared with what is needed for a manually painted mural.

The completed mural is 15.313m wide and 13.399m high. SprayPrinter’s only requirement was for the digital image to be of a specific resolution: 100 pixels per meter.

“There is no limit to the size we can print. In the whole world, I do not think there is a wall too big to print on. It is just a matter of length and height. So, the business is very scalable. My dream is to break the world record for creating the largest image on a wall,” says Joala.

Albert is the only robot muralist in the world. However, SprayPrinter’s business model is not to develop and sell such robots. It aims to provide mural painting services around the world. The company currently employs nine people, but the travelling team consists of Joala and his partner.

“I am building a bigger team because I cannot keep



Before an image can be 'painted' on the wall, Joala converts the digital image into a file made up of numerical coding. The code has position coordinates, which tells Albert where to move and what colours to paint.



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> Song



KENNY YAP/THE EDGE



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doing these printing jobs myself. We need to scale our team of travelling SprayPrinters, which we refer to as ninjas," he says.

The company started with a different product four years ago — a small hand-held painting tool with technology similar to that used in Albert. The device had four wheels and could move along walls, but it could only carry one spray can at a time.

"This was a consumer product and we did campaigns on Kickstarter and Indiegogo. We managed to become world famous and were featured in international media such as BBC and Reuters. We got a lot of attention because everybody liked it," says Joala.

Although the product was a viral sensation, with millions of likes and shares on social media, no one bought it. "There is a big difference between liking it with your thumb and liking with your wallet," he says.

The company pivoted as it needed something else to extend its reach. So, it changed its business model to a service-based one. "We did this mostly because the robot is so unique that selling it would mean losing out on a huge opportunity as there is only one in the world and we are the only team that can use it," says Joala.

SprayPrinter's mural painting services cost between €100 and €200 per sq m if the digital image is provided by the client. "If the client does not know what to print, we have a catalogue of artists around the world whom they can commission to design something. We are hoping to empower artists and give them more exposure for their work," he says.

Business has been good and the company receives requests from people all over the world. It has even received requests to paint walls white, which seem counterintuitive for a company that specialises in mural painting. But Joala shrugs philosophically. "If the algorithm is precise enough and we can completely avoid windows, why not?"

#### USING TECHNOLOGY TO PRODUCE ART

The collaboration with SprayPrinter was a natural one, says Bosch Malaysia managing director Simon Song, as the company prides itself on constant innovation. He says the country was chosen as the canvas for Southeast Asia's first robot mural because there is good infrastructure and it is easy to find an

empty wall suitable for a large-scale mural painting.

The mural was designed by local artist Mohd Zaki Nordin, also known as EscapeVA, whom Song says likes to experiment and is able to turn anything into art. The ultimate goal of the mural is to demonstrate to the public that technology and innovation should not intimidate them.

"We want to let people know that technology can be warm and accessible. Using technology to produce art allows people to have a connection with it," says Song.

Artists who work with other mediums also have access to mural painting, says Joala. "Even a photographer can be a mural artist without touching a wall. Now, their work can touch more people and communities."

However, there has been much debate since Albert was born, particularly on the value it could bring and the disruption it may cause to art scenes around the world. "Every day, we see this debate online and even when we are presenting ourselves and the robot. There are lovers and haters of this technology and it is great because people are expressing their emotions and the conversations are something good in themselves," says Joala.

Song believes that this technology will not diminish the value of mural artistry. "The essence of art is in the idea behind it and the artistic expression. Now, there is a new tool to make art more accessible to the public," he points out.

Murals are also able to leave a lasting impression and tell stories, he adds, as he recalls the first time he visited Malaysia, specifically Penang. "The one thing that really stuck with me when I left Penang to go back to Hangzhou, China, were the murals there. I told all my friends about this and it stuck with them too. So, I learnt that good art leaves lasting impressions.

"So now, if we use technology with art, we can make it more accessible and create a positive impact in communities, especially when the artwork carries a very positive or important message. I hope it also evokes a sense of curiosity among the younger generation, that they will be inspired enough to want to learn more about it when they grow up. Hopefully, we can help build a generation of children who will be interested in technology and innovation." ■