

# Seni + teknologi = Mesin Muzik Botol

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MENGUNAKAN botol-botol kaca terpakai dan sebuah rak kayu yang tidak pernah digunakan, pelajar muzik elektronik dari Maktab Seni Lasalle, Encik Mohammad Fairuz Ramlan, 25 tahun, berjaya mencipta sebuah alat muzik interaktif yang boleh menghasilkan aneka bunyi.

Alat muzik interaktif itu dipanggil Mesin Muzik Botol Kaca atau *The Glass Bottle Music Machine* (GBMM).

Ia telah dicipta bersempena pameran Meshminds 2.0: ArtxTechForGood yang memaparkan karya-karya seniman setempat yang menggunakan seni dan teknologi secara kreatif untuk menyampaikan

Matlamat Pembangunan Mampan United Nations (UN SGDS) seperti aksi iklim, komuniti dan bandar mampan serta penerbitan dan penggunaan bertanggungjawab – tepat dengan visi negara, Tahun Menuju ke Arah Sifar-Sisa (*Year Towards Zero Waste*).

Pameran percuma tersebut diadakan sehingga 17 Mac ini di Muzium ArtScience di Marina Bay Sands.

Karya Mesin Muzik Botol Kaca ciptaan Encik Mohammad Fairuz bertujuan menyampaikan gol UN SGDS terhadap penerbitan dan penggunaan bertanggungjawab.

Menurut Encik Mohammad Fairuz, beliau telah mencipta konsep mesin muzik botol kaca itu selepas mengikuti modul pemrograman dan pengekodan di sekolah.

## PAMERAN MESHMINDS 2.0: ARTXTECHFORGOOD



**GUNA BOTOL:**  
Encik Mohammad Fairuz Ramlan guna botol-botol kaca terpakai dan sebuah rak kayu yang tidak pernah digunakan untuk cipta sebuah alat muzik interaktif yang boleh menghasilkan aneka bunyi. – Foto BH oleh TIMOTHY DAVID

Menjelaskan mesin muzik botol kacanya, Encik Mohammad Fairuz berkata bahawa setiap botol menghasilkan bunyi berbeza apabila dipukul, berdasarkan algorithm yang diprogramkan ke dalam sensor dan dihitungkan dari data berkenaan penggunaan global terkini.

Bunyi berbeza mengundang pengunjung untuk memikirkan tentang jumlah sisa yang kita hasilkan dan juga penggunaan mampan yang sepat-

utnya menjadi tanggungjawab semua orang.

Encik Mohammad Fairuz menambah bahawa beliau juga telah mencipta bunyi setiap botol berdasarkan konsep paras air berbeza.

Ini bermakna setiap botol di mesin muzik botol kaca itu mengandungi paras air berbeza, lantaran mesin itu akan mengeluarkan bunyi berbeza apabila botol berbeza dipukul.

“Mesin Muzik Botol Kaca ini

Menerusi projek ini, ia telah membuka minda beliau untuk menggabungkan muzik elektronik dengan penggunaan bahan-bahan terpakai untuk menghasilkan alat muzik baru.

“Saya harap mesin muzik botol kaca ini akan membuka minda pengunjung bahawa alat muzik tidak semestinya kelihatan konvensional atau tradisional sebab pengunjung boleh memainkan nota muzik berbeza dengan mesin muzik botol kaca itu. Saya harap mereka juga akan bebas bermain dengan mesin muzik ini,” kata Encik Mohammad Fairuz.

Dalam menghasilkan mesin botol ini, Encik Mohammad Fairuz telah mengumpulkan pelbagai jenis botol kaca kerana beliau ingin mencari saiz botol sesuai yang dapat menghasilkan bunyi yang beliau inginkan.

Beliau akhirnya menggunakan botol kaca terpakai Vitasoy.

Selain itu, cabaran utamanya ialah untuk memahami cara memanfaatkan pemrograman dan pengekodan untuk menghasilkan mesin muziknya.

Namun beliau, yang juga anggota band Tides yang memainkan muzik rok alternatif, berasa puas hati dapat mencipta mesin muzik elektronik pertamanya.

► *Nurmaya Alias ialah penulis sambilan.*

## **Art + Technology = Bottle Music Machine**

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UTILISING used glass bottles and an unused wooden shelf, LASALLE College of the Arts electronic music student Mohammad Fairuz Ramlan, 25, succeeded in creating an interactive musical instrument which can produce a variety of sounds.

The interactive musical instrument is called the Glass Bottle Music Machine (GBMM).

It was invented as part of the MeshMinds 2.0 : ArtxTechForGood which features the works of local artists who use art and technology creatively to showcase the UN Sustainable Development Goals (UN SDGs) such as Climate Action, Sustainable Communities and Cities as well as Responsible Production and Consumption – in line with the national vision of the Year Towards Zero Waste.

The free exhibition is being held until 17 March at the ArtScience Museum at Marina Bay Sands.

The Glass Bottle Music Machine created by Fairuz aims to showcase the UN SDGs of Responsible Production and Consumption.

According to Fairuz, the glass bottle music machine was conceptualised after he went through a module on programming and coding at school.

Explaining his glass bottle music machine, Fairuz said each bottle is able to produce a different sound when hit, based on the algorithm he programmed into the sensor, which is calculated from the latest data on global consumption.

Each different sound invited visitors to reflect on the amount of waste that we produce and also the kind of sustainable consumption which should be everyone's responsibility.

Fairuz added that he also created the sound coming from each bottle based on the concept of different water levels.

Each bottle in the glass bottle music machine contained different levels of water, therefore the machine emitted different sounds when different bottles were hit.

“This Glass Bottle Music Machine is operated using solenoid and is programmed to be interactive by using the Arduino circuit, a platform which is used to develop electronic gadgets.” explained Fairuz.

Solenoid is a relay or switch that is commonly circular in shape and is attached to the music machine.

It is the first electronic musical instrument invented by Fairuz.

Through this project, his mind was opened to the idea of integrating electronic music with the use of recycled items to produce new musical instruments.

“I hope this glass bottle music machine will open the minds of visitors to the idea that musical instruments need not look conventional or traditional because visitors will get to play different musical notes with the glass bottle music machine. I hope they will be playing freely with this music machine too.” said Fairuz.

In producing the bottle machine, Fairuz collected various kinds of glass bottles because he wanted to find the most suitably sized bottle which could produce the sound he wanted. He ended up using the used Vitasoy glass bottle.

Apart from that, his main challenge was to understand how to make the best use of programming and coding to produce his music machine.

Nevertheless, he, also a member of the band Tides which plays alternative rock, felt satisfied that he was able to invent his first electronic music machine.

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**BOTTLE USE:**

Mr Mohammad Fairuz Ramlan used used glass bottles and an unused shelf to create an interactive musical instrument which could produce a variety of sounds.

BH Photo by TIMOTHY DAVID