

Designing human-centric communication device

MIMOS' Off-Grid Communication (Mi-OGC) has been recognised for its degree of innovation, functionality as well as symbolic and ergonomic design.

By Fairuz Mohd Shahar

Imagine you are stranded in a jungle or in a rural area where there is no signal and no network coverage. You are unable to make calls or send messages, and to make matters worse, you are all alone in the middle of nowhere.

This could be a nightmare and horrifying experience especially if you are lost, injured, facing a natural disaster or any kind of emergency.

Mi-OGC incorporates Bluetooth technology to connect to other smartphones, and uses radio transmission between the Mi-OGC units. When the connection is established, the users can communicate through an app (similar to WhatsApp) on their smartphone.

The device can be a useful tool for disaster mitigation, search and rescue (SAR) missions, emergency beacon broadcasting, and as a substitute for walkie-talkie. Another remarkable trait of Mi-OGC is its elegant and human-centric design that portrays a modern communication gadget, whilst retaining its robustness. The icing on the cake is when Mi-OGC won the 2019 Malaysia Good Design Award under the Media and Home Electronics Products category.

The award is the highest recognition from Malaysia Design Council (MDC) which endorses products that bear quality in design manufacturing. The device was selected as a winner based on several criteria including

Thanks to technology, MIMOS has invented MIMOS' Off-Grid Communication (Mi-OGC), a mobile device that connects to a smartphone to enable connectivity with other smartphones when cellular service, data network or Wi-Fi network are unavailable.

The device allows users to send and receive voice and text messages; use off-line maps and share locations with other Mi-OGC users within a range of up to 5km. The device also functions as a power bank for mobile phones.



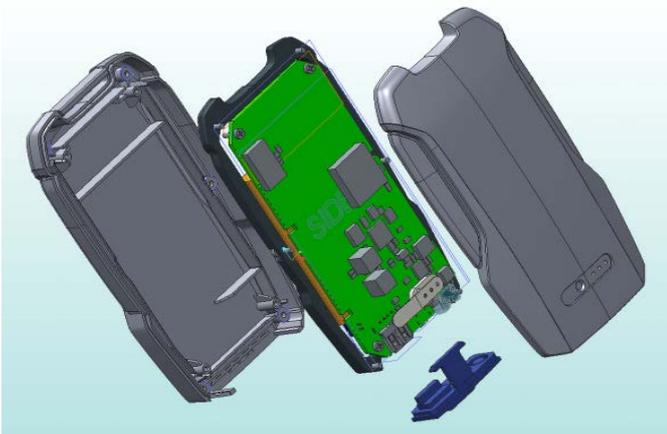
degree of innovation, functionality, self-explanatory quality, manufacturing quality, symbolic and emotive; ergonomics, durability and ecological elements.

This is the second recognition for Mi-OGC after bagging the National Intellectual Property Award 2018 (First runner-up for Design category) from Intellectual Property Corporation of Malaysia (MyIPO).

Mi-OGC was designed by MIMOS' Product Design and Digital Modelling team, with Saharudin Busri as the leader and Mohd Nizam Najmuddin as the product designer.

Applying Design Thinking approach

It all started in 2017 when a group of researchers, engineers and industrial designers from Product Design and Digital Modelling team and Wireless and System Technology Lab embarked on a wireless innovation project that focused on communications technology.



While the engineers focused on the technology applications and technical components of Mi-OGC, the industrial designers were responsible to come out with the product design and add value to the user experience (UX).

“We were given two weeks to draft the sketches. It was time constraint but we took it as a challenge,” recalled Saharudin, who is also the Head of MIMOS Industrial Design Lab.

Saharudin, who has been serving MIMOS for 13 years, said like any other MIMOS innovations, the team applied five-stage of Design Thinking approach which entails empathise, define, ideate, prototype and test.

“First, we had to put ourselves in other people’s shoes and understand their problems. In this case, the unavailability of data network or Wi-Fi connection. What can they do? What do they want or need? How can they solve the issues?”

“The second stage was to define the problem through analysis and observation. How can we enable connectivity so that people can communicate in a remote area?”

“Then we moved on to the next stage which was ideate where we generated sketches, translated it into 3D printing and produced mock-ups. Subsequently, the engineering team took over to assemble the technical parts,” Saharudin explained.

The fourth step was prototyping Mi-OGC. The prototypes were evaluated, where they were either accepted, improved, re-examined or rejected based on the users’ experiences.

At the final stage, the prototypes were tested at MIMOS in-house reliability testing facilities. The results were then used to redefine problems and to learn the users’ behaviours and perceptions. During this phase, alterations and refinements may take place.

From ‘elephant’ to award-winning innovation

Mi-OGC product designer Mohd Nizam said the design derived from a shape of an elephant’s head with its tusk to symbolise robustness.

“We had a brainstorming session between the teams and studied the features of the gadget. So basically, Mi-OGC is a high-tech, high-performance and durable device.

“That’s when I thought of an elephant as it is an epitome of robustness. So, I decided to use that as a concept,”

“I made a rough sketch of an elephant with its tusk, which was then evolved into a shape of a contemporary and rugged looking device.

“The design process was integrated with MIMOS Design DNA which covers aesthetic values, uniqueness, trendy and orthogonal elements. The final design was presented to the management and it was approved,” Nizam explained.

The teams’ determination, creativity and efforts paid off handsomely with the recognition from MDC and MyIPO, which proved MIMOS capabilities in spawning quality and innovative products. Mi-OGC is also certified by SIRIM.

For mass production and commercialisation, the device has gained interest from a geographic information system and environmental consultancy company; Geo Park and Taman Negara.

For future plan, MIMOS intends to equip Mi-OGC with more features such as improved capabilities for sending and receiving media including videos, built-in camera, and more seamless text messaging function including group chat; and extending compatibility with Apple iOS operating system.



Mi-OGC

Features and design development

Product features

- ISM 900MHz band - Enables longer communication
- Audio and text messaging - With delivery confirmation, without data charges.
- Navigation - Enables off-line map and location sharing
- Mesh networking - Extended communication range, useful in Line of Sight (LOS) & Non-Line of Sight (NLOS).
- Emergency beacon broadcast - Emits an emergency beacon broadcast during crisis
- Water resistant and dust tight (IP65) - Durable in outdoor/indoor environments for reliable communication
- Rechargeable battery - Can store up to 3,000 mAH for phone charging.
- Lightweight and portable - Measures 130.6mm x 71.2mm x 19.9mm and weighs 145g
- Android compatible - Secured and easy to use

