

TZUKA

Redefining product design and assembly methods to revolutionise durable sports earbuds



THE CHALLENGE

Tzuka was founded by Tom Jelliffe, a keen sportsman and gym goer. In his final year of university, with nine pairs of broken earphones between him and his gym partner, Tom discovered this was a far-reaching problem. Market research revealed that 10.4m pairs are broken in the UK during sport every year, with £192m spent on replacement sets.



This has been a fantastic project to be a part of; Tom came to us with a great idea, and we've been able to evolve the design to incorporate even more features and expand the product's target audience. The Tzuka collaboration is a great example of how the MTC can support entrepreneurs and start-ups.

Reiss Harvey
Advanced Research Engineer – Product Design Group, the MTC



With most sports earphones targeted towards runners and aerobic sports, Tom spotted an opportunity to design and manufacture durable sports earbuds that are engineered to withstand use in challenging conditions. Investigations found that product assembly methods across various brands differed very little, regardless of price, and that these methods were not resistant to impact or exposure to water.

Armed with ideas and in the early stages of concept design, Tom established Tzuka, and sought to procure support for product design and assembly. A former student of Loughborough University, Tom was introduced to the MTC's Product Manufacturing Incubator (PMI) by the university's graduate enterprise hub, The Studio.

MTC'S SOLUTION

Tom approached the MTC with a brief to design and manufacture durable wireless sports earbuds, capable of taking impact as well as being totally shock, dust and waterproof to enable use during water sports, without compromising high-quality sound output.

At the start of the project, the PMI team conducted a series of ideation workshops which included a detailed analysis and review of other products on the market. This helped form the basis of the project's development plan.

The MTC's Product Design team were tasked with designing the casing and used 3D printing techniques to produce prototypes. With durability a key USP for the earbuds, the product designs targeted an IK Rating (Impact Protection Rating) typically associated with larger products, and therefore had to adapt the design accordingly. In doing so, the MTC worked in collaboration with Newbury Electronics who are responsible for the electronic layout.

The product was also originally designed with a capacitive button to reduce the requirement for mechanical movement within the casing. However, feedback from the first round of user testing found that this was difficult to use in conditions where the button's responsiveness was compromised e.g. underwater or in sports where chalk is used for grip e.g. weightlifting/climbing. This resulted in the requirement for a mechanical switch, so the product design was adapted ahead of a second testing phase.

THE OUTCOME & BENEFITS TO THE CLIENT

The project is now in its final phases and the product, the TZ7 Armour, is set to launch in autumn 2021. The collaboration between Tzuka, the MTC, and Newbury Electronics, is set to result in the design and production of the first earbuds ever to have an impact resistance certification.

Key product features:

- ▶ IK Rating (Impact Protection Rating – targeted IK9)
- ▶ 4GB built-in flash storage (up to 60 hours) allows the user to activate MP3 mode and listen to audio without requiring a Bluetooth connection, including underwater
- ▶ IP67 Ingress Protection
- ▶ Bluetooth 5.0, aptX HD sound quality and 6 hours of uninterrupted play time

For more information about REACH match funding, visit <http://www.the-mtc.org/pmi-reachfunding>.

Click [HERE](#) to learn more about Tzuka.





As a start-up, to have access to the MTC and its teams of people with their knowledge and expertise is invaluable. The early-stage work packages helped us secure two rounds of equity funding and without the 50% REACH funding that was available to us through the MTC and Innovate UK, we would have really struggled to raise the capital needed to start the project.

From our first meeting, the MTC were very engaged and passionate about the project – when it's your own ideas being presented, this is really important. They have been instrumental in the product design and engineering and have helped us improve and refine our product, which has enabled us to incorporate functionality that we didn't believe would be possible.

Tom Jelliffe
Founder and Managing Director - Tzuka

