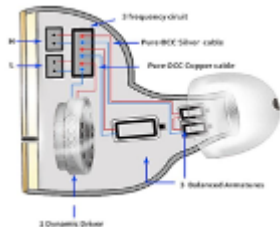




## 3-D Printed Multi-Unit Earbuds

Technology number: 2024-437



Technology ID

2024-437

Category

Medical Devices

Further information

Ashwathi Iyer

[ashwathi@umich.edu](mailto:ashwathi@umich.edu)

Learn more



### OVERVIEW

Customizable 3D-printed earphones for superior fit and sound quality

- Combines customized fit with high-quality sound at a reduced cost
- Useful for music professionals, audiophiles, frequent travelers, noisy environments

### BACKGROUND

Finding comfortable, high-quality earphones has long been a challenge for many consumers. Traditional earphones often lack customization options, leading to discomfort and inadequate fit, which can result in pressure points, fatigue, and poor user experience over extended wear. Additionally, high-end earphones that offer advanced audio technology and superior sound quality are often prohibitively expensive for the average consumer. Existing solutions fail to effectively balance comfort, noise isolation, and sound quality at an affordable price. Therefore, a need exists for inexpensive earphone solutions that can be personalized, that fit well, and that provide exceptional audio performance.

### INNOVATION

Researchers have developed 3D-printed multi-unit earphones that address customer pain points by leveraging 3D printing technology to create highly customizable devices. Users can tailor the earphone structure to achieve a perfect fit, enhancing comfort and reducing pressure points during prolonged use. This fit significantly improves noise cancellation and isolation, making the earphones ideal for use in noisy environments such as on public transit or in workspaces. Additionally, the design incorporates multiple speakers and drivers, elevating the overall sound quality by providing better bass, clarity, and balance. The innovation merges high-quality sound with customized comfort, offering professional-grade earphones comparable to existing products at nearly half the price. Real-world applications include usage by music professionals, audiophiles, frequent travelers, and individuals in noisy environments seeking a

premium listening experience.