

Enhancing the Sound Isolation Earphones

Sound isolation earphones, or in-ear monitors are headphones that are inserted directly into the ear canal. They offer portability similar to earbuds and also act as earplugs to **block out environmental noise**.

—Wikipedia

They are small and portable, yet provide excellent audio quality.

Outperform noise cancellation headphones in audio quality because the sound signal is not tampered.

They act as earbuds, isolating from external noise.

Sound isolation earphones can be **dangerous** for the user as they impair hearing —over 30 dB of attenuation is obtained in certain models. Accidents have occurred, having users not detected dangerous situations on time.

But a solution resides in an existing feature: the microphone.

The risk issue is product of achieving their design objective: good listening in noisy situations.

Connecting a dedicated device or a smartphone with special software that processes the audio signal from the microphone could, based on certain conditions, generate an alert for the user.

Microphone signals could be interpreted, such as noises with certain characteristics. The the user would receive feedback as sound from the earphones.

It could also be switched to a bypass mode, allowing the used to hear momentarily without removing the earphones.

