SoundMist

: novel interface for spatial auditory experience

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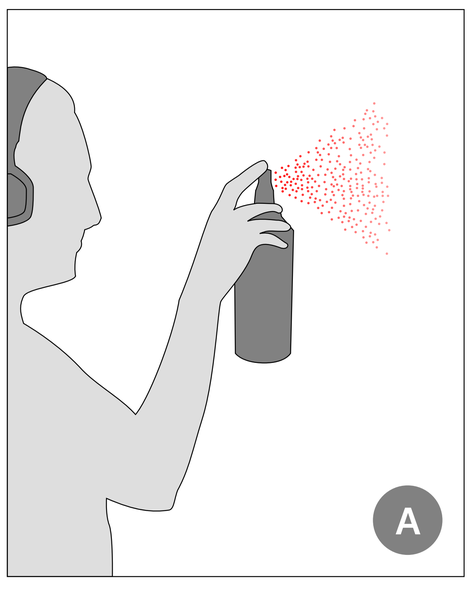
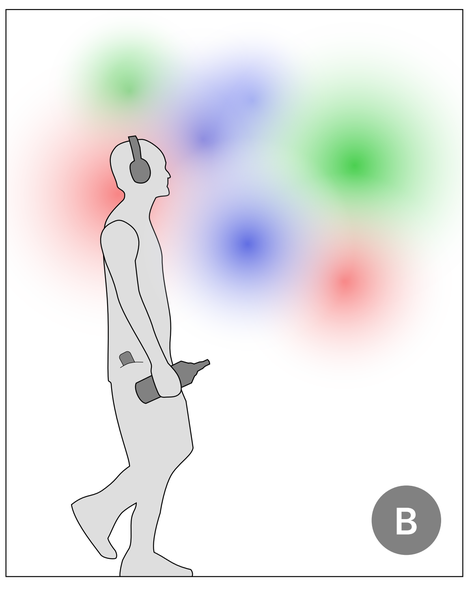
SoundMist creates immersive spatial and auditory experiences, by novel interaction of spraying sound into the surrounding space, enhancing immersion and spatial perception for users.

This research contributes to presenting the concept of ‘spraying sound’ as a novel sound-space interaction, and utilizing it to expand auditory experiences into spatial dimensions.

Users can spray sound like fragrance and enjoy sound-space experience.

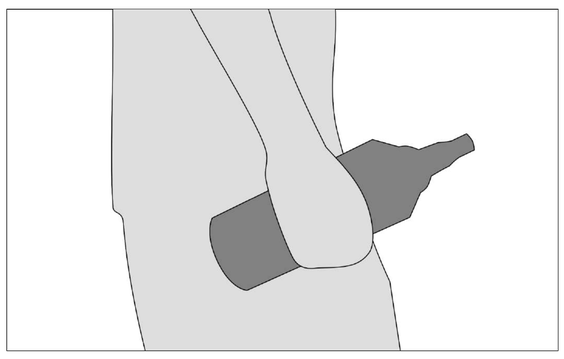


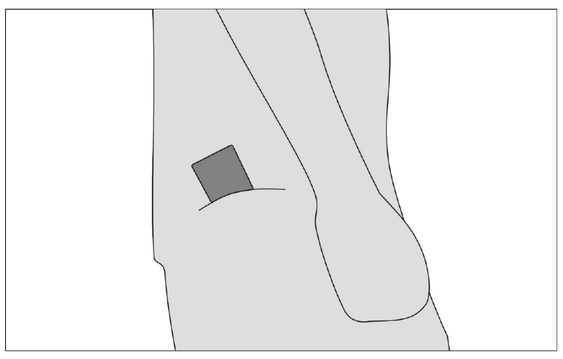


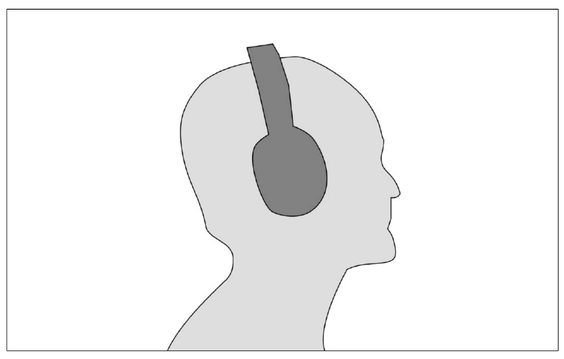
A. Users locate sound in space by spraying liquid in the surrounding air, generating sound that lingers. The volume decreases as users move away from sprayed location and increases as they get closer.

B. Users enjoy auditory experiences in a space where different sounds are blended, with different liquids producing distinct sounds. The sound gradually disperses over time, like a fading fragrance.

SoundMist comprises different parts that are wirelessly connected.







Spray prototype

Determining the sound’s identity from the liquid that it contains, and sending it to server computer

Bluetooth Low Energy communication with server computer

Android application

Continuously sending user’s real-time GPS information to server computer

Wi-fi communication with server computer

Server computer

Calculating the volume of each sound according to the collected information

Bluetooth headphone

Playing sound that user can hear at current location, calculated and sent by server computer

Bluetooth communication with server computer

User studies revealed SoundMist offered novel spatial auditory experience.

To assess the effectiveness of this method, user studies (N=11) were conducted, including questions focused on the novelty of system, the perception of sound floating in space while moving within it, and possible application areas.

"It was interesting to create new space by not just listening to the sound but also spraying it.”

“Hearing multiple sounds sprayed in different locations simultaneously heightened the spatial perception”

“This system has potential of further application in developing multi-sensory experiences.”