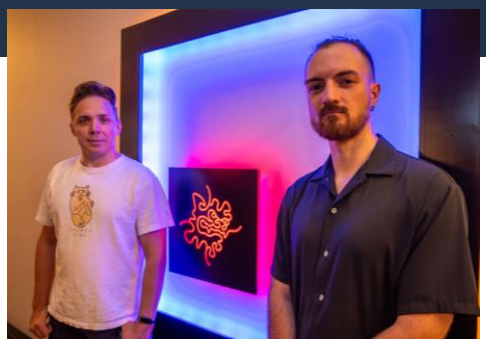

Search

Sergey Zobnin, Alexey Vylegzhanin
OIST Innovation

What is the problem?

Every day, individuals who are blind or visually impaired encounter challenges in keeping track of crucial belongings like their white cane, keys, wallet, and mobile phone. This often leads to frustration as they spend over 20 minutes searching or resort to seeking assistance. Without essential items they are limited in daily activities and due to that they experience a lot of stress. Approximately 300 million people experience vision impairment, yet the market lacks advanced products to effectively address their needs.

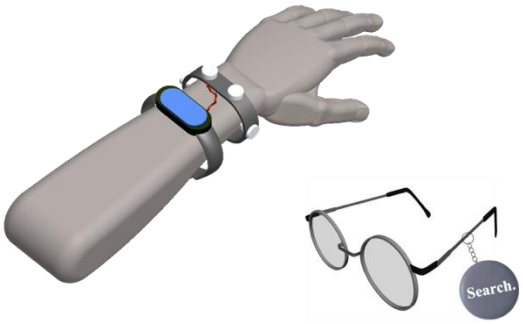

Figure 1. Estimated final product design. Wristband with the haptic bracelet, the tag attached to the glasses.

What is your solution?

We introduce our Wristband + Tag technology to address the challenge of losing items among visually impaired individuals, promoting their independence. The Wristband always remains on the wrist, while the Tag is attached to essential items like wallets, white canes, or phones. When an item is misplaced, the Wristband provides vibrational support, guiding the user towards the lost item. As the user approaches the Tag's location, vibration sequence changes in amplitude/frequency/spatial pattern facilitated by analyzing and filtering UWB signals for distance and direction estimation. Multiple haptic sequences encoded in the Wristband enhance the intuitive and learnable search process for misplaced items.

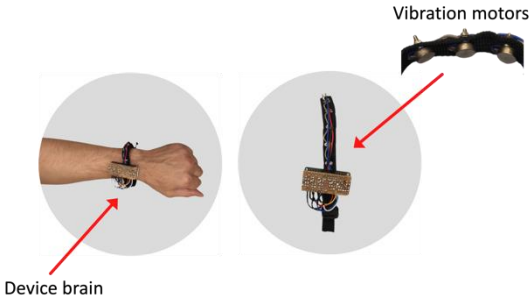

Figure 2. First working prototype of the device with six vibrational motors.

Keywords: UWB, Assistive technologies, Visually impaired, IOT

Other resources

- 17 Seeds TV program
- AgVenture Lab JUMP startup competition
- Search website

Contribution to SDGs