Barrier-free Kiosk

A barrier-free kiosk is a device that provides various services such as voice guidance, a braille keypad, and height adjustment functions to enable people with disabilities to use kiosk services.

The appearance and operation of kiosks can be standardized in a barrier-free manner to ensure usability regardless of disability, gender, or age.

▲ Busan Station has installed a barrier-free kiosk to provide services for the transportation vulnerable.

Issues to Tackle

- Increased demand for contactless services after COVID-19.
- Limited kiosk usability for children and people with disabilities.
- Digital divide issues for vulnerable groups, such as the elderly and people with disabilities.

Expected Benefits

- Creating a digitally inclusive environment where information service providers can reduce disadvantages and increase benefits for digitally vulnerable groups.
- Resolving the digital divide by protecting information access rights for socially vulnerable groups such as the elderly and people with disabilities.

Key Services

· Height adjustment using sensors for wheelchair users, infants, and the elderly.

· Tactile and braille guidance to improve accessibility for people with visual impairments.

· Sign language video provision and AI cameras capable of recognizing sign language gestures for people with hearing impairments.

· Video consultation guidance for people with disabilities and digitally vulnerable groups.

Use Cases

· In 2023, the National Museum of Korea installed barrier-free kiosks in the museum, creating an environment where everyone can enjoy culture by providing exhibition commentary content and navigation guidance through images, voice, and sign language videos for people with visual and hearing impairments.

· In 2021, Busan Metropolitan City installed barrier-free kiosks at Busan Station, creating a barrier-free transportation environment by providing optimal travel routes and transfer routes for mobility-impaired users.

Key Components

Configuration

Barrier-Free Kiosk

World's first intelligent kiosk designed for socially vulnerable groups

1. Automatic height adjustment according to user's height
2. Contactless air touch
3. Face recognition
4. Braille guidance
5. Avatar sign language guidance
6. UV sterilization

Technology

1. Kiosk screen height adjustment, automatic face recognition by camera

· The sensor detects users and adjusts screen height accessibility, while the camera provides customized guidance through facial recognition and eye tracking.

2. Easy user interface and digital tactile map for improved accessibility

· Text enlargement, high contrast for low vision, lower screen placement for easy UI, and a tactile cell pad.

3. Supporting people with speech disabilities using AR

· Integration of augmented reality and voice recognition technology for visualizing guidance and gesture-based sign language recognition.

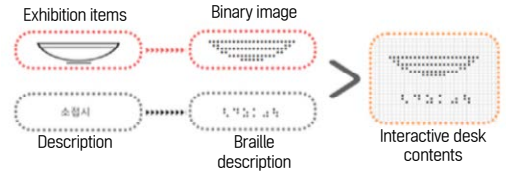
4. AI voice recognition: Natural Language Understanding (NLU) Technology

· Generating response results by combining grammar-meaning rules and potential features through machine learning, identifying the meaning and keywords of voice-recognized content.

Barrier-free Kiosk at Cultural Facilities

· The number of tactile cells and pins delivers the tactile sensation of protruding parts to users through the up-and-down movement of tactile cells arranged in a two-dimensional array of rows and columns.

· Composed of two-dimensional binary images of exhibition items, with resolution determined by the product driven by each tactile cell.



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