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Obayashi Corporation
Information Services International-Dentsu

Joint Development of App Providing Individual Guidance to Comfortable Spaces for People Using Buildings

Start of a Demonstration Experiment Using Digital Signage at Grand Front Osaka

Obayashi Corporation (Head office: Minato-ku, Tokyo; President: Toru Shiraishi; hereafter “Obayashi”) and Information Services International-Dentsu, Ltd. (Head office: Minato-ku, Tokyo; President, CEO & COO: Setsuo Kamai; hereafter “ISID”) have developed a guidance app to introduce users to comfortable spaces individually. On June 17, a demonstration experiment using digital signage^{*1} is scheduled to begin at Grand Front Osaka^{*2}.

With an orientation toward wellness^{*3} being a current focus of urban life, there is a growing demand to make overall evaluations that take into account internal factors, such as a user’s mental state and biological information, as well as external environmental factors such as comfort in indoor and outdoor spaces. Objective measures based on the calculation of temperature and other weather conditions are generally used to assess comfort in outdoor spaces, but this approach does not reflect the status of individual users, leading to the problem that individual comfort is not being assessed from a wellness perspective.

To address users’ needs for spaces, Obayashi and ISID have jointly developed an app^{*4} that assesses a user’s needs in real time according to biological, environmental and other conditions, and suggests optimal spaces and ways of spending time. We selected the outdoor space at the center of Grand Front Osaka, a commercial complex, as the location for the demonstration experiment, aiming to enhance the comfort of people using the outdoor space, establishing an evaluation method that specializes in guiding people from inside to the comfortable outdoors. This app incorporates proprietary logic, a “comfort enhancement engine^{*5},” that calculates each user’s comfort index based on three elements in addition to position: environmental information, biological information and social data. This is the first app in the world to calculate a unique comfort index by analyzing these three factors.

Features of the personal guidance app are as follows:

1. The app calculates a comfort index from three elements, and suggests an appropriate way to enjoy the outdoor space to the user.

Cameras mounted on signage terminals automatically measure^{*6} biological information, such as the heart rate of a user. Environmental information, such as temperature, wind speed and amount of solar radiation is also obtained from weather stations installed outdoors. In addition, users’ social

data, comprising their relationship with companions (friend, significant other, family, etc.), is entered into signage terminals. This information is used by the “comfort enhancement engine” analysis logic within the app to provide individual analysis and instructions on comfortable locations and a comfortable way of spending time for users.

2. Characters are used in a dialog-type approach, making it simple for anyone to enjoy using the app.

The verification app, “Spy On Me”, uses a My Spy character mounted on a signage terminal to enable dialogue-type interaction between the area and the user (Photos 1 and 2). This dialogue format helps to reduce the user’s emotional barrier toward the automatic measurement of biological information and entering social data, enabling continual use of the app.

3. A “growing index” improves precision through feedback.

Post-relocation biological information and user surveys are periodically used to assess improvements in the user’s level of comfort after moving to the recommended outdoor location, and feedback is provided to the analysis logic to allow for corrections in index calculations. In other words, unlike a general comfort indicator, the indicator itself grows.

A demonstration experiment of this technology targeting general users will begin on June 17. (The experiment is scheduled continually through autumn of 2016.) The current experiment is limited to guiding people from indoors to outdoor locations. In the future, we will aim to extend it to general indoor and outdoor use and further increase user comfort with a variety of patterns, such as indoor to indoor or outdoor to indoor.

Obayashi and ISID plan to make use of ICT technology to propose services that will enhance value by increasing comfort and invigorating spaces.



Photos 1 and 2/ “Spy On Me” screens



Photo 3/ App in use

*1. Digital signage

System for transmitting information and picture digitally in public spaces and shops using flat displays connected over a network

*2. Grand Front Osaka

A large-scale commercial complex north of Osaka Station that opened in April 2013, developed in advance of the Umekita redevelopment area

*3. Wellness

The concept of changing everyday patterns in order proactively to target emotional health and social activity, in addition to physical health

*4. Obayashi and ISID have jointly filed a patent for the algorithm used by the personal guidance app they have developed.

*5. Comfort enhancement engine

This analysis logic within the specialized personal guidance app guides users from indoors to comfortable locations outside. Obayashi and ISID worked with the Kawahara Laboratory at the Open University of Japan (Location: Mihama, Chiba Prefecture; President: Yoichi Okabe), analyzing in advance data from Grand Front Osaka, including an environmental survey (weather conditions, sound level, etc.), a questionnaire survey (attributes, subjective view, forward-backward motion of people using specific locations) and a biological information survey (degree of tension or relaxation of people using specific locations, based on their relationships with companions).

*6. Biological information sensing technology using cameras was provided by Asahi Kasei Corporation (Head office: Chiyoda-ku, Tokyo; President: Hideki Kobori).

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Note:

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