

Study on Support System for Daily Outdoor Activities in the City

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1. Background and Purpose

Many developed countries including Japan are experiencing a wide variety of urban problems accompanying the falling birthrate and aging population. For example, an issue in developing a town of aging society is the creation of a social infrastructure that allows elderly people and/or people of the child-rearing generation with infants to go out with peace of mind and enjoy the strolls and shopping. Activity in the town is a fundamental element of the life in the city, and in modern times where the increase of nuclear family or single household are going on, it will help people not to be isolated from the local community. Additionally, accompanied with moderate exercise it will also help people to have healthy life. Having these things in mind, this research team focuses on physiological needs and health management needs during people's activities in the town, and promotes research for providing support for actions such as provision of necessary facility information.

Here, we will introduce a survey of the needs accompanied by the activities in the city, a proposal of solutions for the needs, and the technical aspects for realizing the system.

2. Method

We made a hypothesis that the elderly people and the child-rearing people should feel a lot of inconvenience and anxiety during their outdoor activities. And we asked in the questionnaire on the Internet what they are seeking in the urban environment when they walk around the city. Based on the results, we built an idea of the support system for their activities by providing facility information of the urban environment being requested. Now, we are making efforts to realize the system.

3. Research Result

3.1 Results of questionnaire survey of needs

A part of results of the above-mentioned questionnaire is shown in Figs. 1 and 2. Figure 1 shows the result of demands of elderly people when walking around the city. We can see here that many elderly people are seeking to secure a rest space due to concerns about climate and physiological conditions, and then the demands for a safe street environment and a sufficient number of toilets follow. On the other hand, Figure 2 shows the result when asking to people of child rearing generation. Parents have anxiety at the time of going out with their infants with respect to both health management and physiological desire of accompanying children, and most people pointed out the necessity of the place to change diapers and for nursing. Next, requests were issued in order of street which is easy to push baby carriage, and then eating restaurant which is suited to go with children. From the results of a series of questionnaire, we are able to confirm the concerns that elderly people and child rearing people have when going out as well as the needs for resolving them.

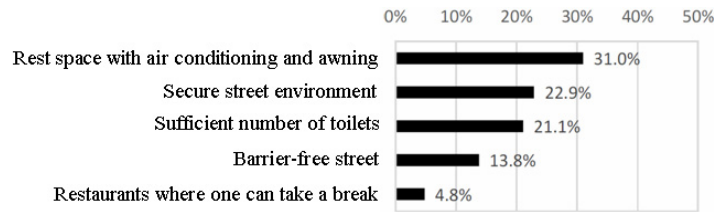


Fig. 1 Items that the elderly people need as the urban environment when walking around the town.

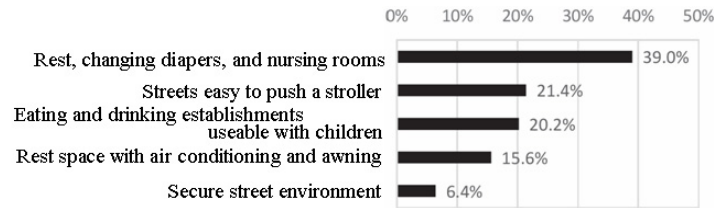


Fig. 2 Items the child-rearing parents with infants seek from the urban environment when walking around the town.

3.1 Proposal of a solution for supporting outdoor activities

It might be a relief from anxiety to know in real time what kind of facilities are available and where you can use suitable space when you need a little break in the city, when changing diaper for baby, and breastfeeding, etc. In order to give a solution to these needs, our research unit proposes a support system for outdoor activities in the city as shown in Fig. 3.

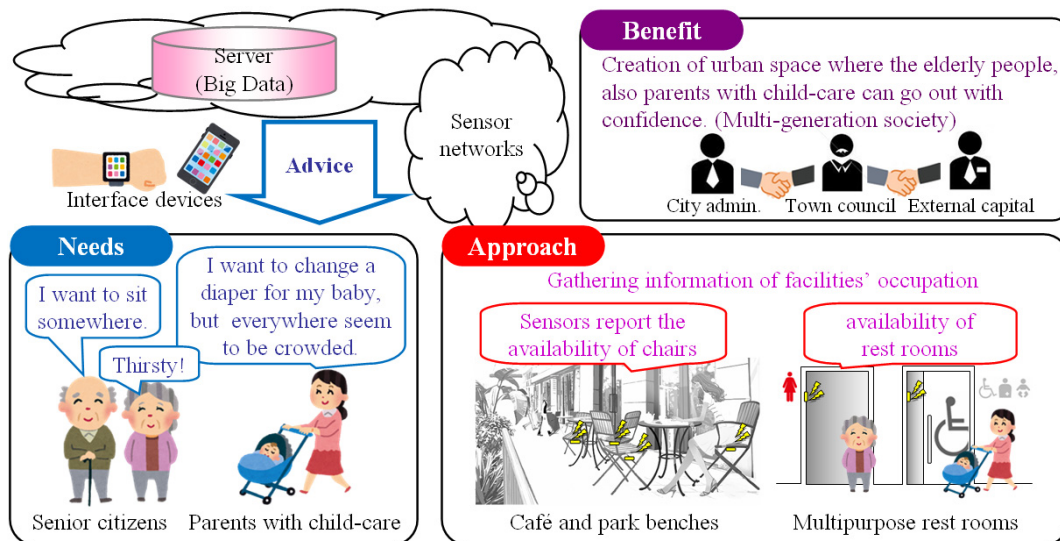


Fig. 3 Action support solution to resolve anxiety when walking around the city.

The idea is to provide information of availability of a variety of facilities via the Internet to people who need to use. We plan to utilize a sensor network that is expected to rapidly spread everywhere in the future in order to collect vacancy information of facilities. Visualization of frequency and situation of usage of this kind of facilities using huge number of sensors can be expected not only to enhance convenience of users, but also to contribute to facilities' operators to grasp demand of facilities and improve the environment. We are promoting technological development and the system verification to disseminate such a concept of the support system for the multi-generation society. Figure 4 shows an image of the system configuration. Currently, we are examining the following three points as a key point of this solution.

- 1) Easy installation and maintenance-free of sensor nodes, particularly assuming sensor installation in public facilities.
- 2) The method of sensing people's needs.
- 3) Information and actuation method to users and system operation method.

We will continue to extract problems of systemization through technical experiments for verification in campus.

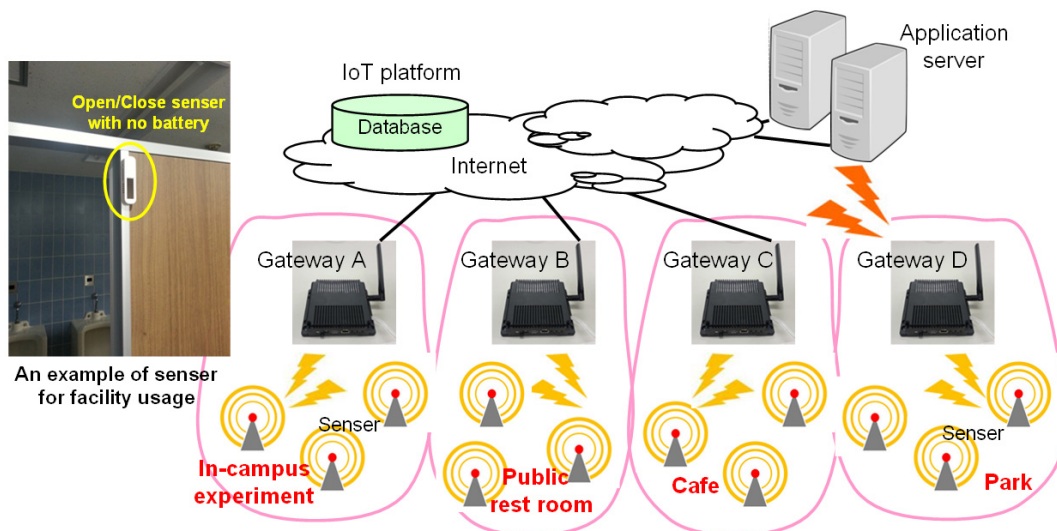


Fig. 4 An image of system configuration of the action support solution.

4. Conclusion

In the Healthcare Unit of this project, we focused on the anxiety factors of elderly people and child-rearing people at the time of going out to the city as an issue in the urban development in the era of declining birthrate and aging society. We have grasped the anxiety factors and needs of people by using the Internet questionnaire survey. Based on the obtained knowledge, we have proposed the outdoor action support solution that provides users in real time information of facility's vacancy such as rest spaces and diaper changing spaces in the city. We will continue to examine technologies as well as method of operation and related social systems for utilization of the support system in the future.

Representative Reference

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