Airy Notes Project: Creating Landscape Planning Method for the Ubicomp World

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Abstract

In this paper we introduce the collaborative project with researchers of ubiquitous computing and landscape planning aiming to create design method of landscape with environmental monitoring system.

Keywords

Environmental Monitoring, Sensor Network, Citizen Participation, Collaborative Research

ACM Classification Keywords

K.4.3. Computers and Society: Organizational Impacts: Computer-supported collaborative work.

Introduction

The development of Ubicomp technology stimulates researches in various fields since it changes their way to survey the real world. With the technologies of sensors and networks, variety of real-world data such as the activity of people, the condition of the environment, and the traffic can be captured and analyzed in real-time at low cost. In this paper, we presents a research project that applies sensor network technology to the landscape design process. We developed a prototype of environmental monitoring system, called Airy Notes System, which monitors the microclimate with dense setting of tiny sensor nodes. We demonstrated the system with 165 sensors in Shinjuku Gyoen Park located in the center of Tokyo [3][4]. The system clarified the fact that the green and the water of the park were keeping the temperature of surrounding area lower to be conferrable for us. In the following, we address the research project investigating the landscape planning method that the popularization of such monitoring system enables.

Landscape Planning Method with Ubiquitous Environmental Monitoring Technology

Landscape planning is a field to design park and green to enrich cityscape by fulfilling it with green and water. It is needed to consider the effect of greening to the environment when the planning. Environment is a key factor in the recent landscape planning, since the green reduces the energy consumption, moderate heat island phenomenon, and make a comfortable environment.

Through the project, we are investigating the brand new method of landscape planning, where citizens supported by technologies participate in each process of the planning. Citizen participation [1] is a recent movement for governing local community, but it often fails because of the lack of expertise. Monitoring technology enforces people by supporting their finding of environmental phenomenon, discussion, and sharing expertise among them to help their decision-making [2].

We are developing new tools for sharing knowledge related to the monitoring. In order to utilize monitoring result, sharing the way of analysis is also important in addition to the data itself. We developed the web-based sharing system of the data, and evaluating it in the actual field trial.

Collaboration in the Project

Since our team consists of researchers from different fields, we needed to find the base line of each discipline to start the research project.

Persuasive Prototyping

It is needed to create prototype of new technology to show how it works to the collaborator in order to discuss the future design with the technology. People with less technological knowledge tend to take technology as it is, therefore, to show it is important to start discussion sharing the future of the technology. We developed and demonstrated the monitoring system, which helped to agree the possibility of the monitoring technology.

Future Work and Conclusion

This paper introduces the challenge to create brand-new landscape planning method with environmental monitoring system to accelerate citizen participation to the planning process. We are conducting experiment to share the monitoring data and the related knowledge to develop and improve the monitoring system.

Acknowledgements

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