# WELL-BEING INDEX SYSTEM

Center of excellence for Ubiquitous System, Ajou University.

**Objective**

In this project, we propose an automatic diagnostic method for detecting metabolic syndrome, by utilizing a collaborative community computing approach in conjunction with a well-being index.

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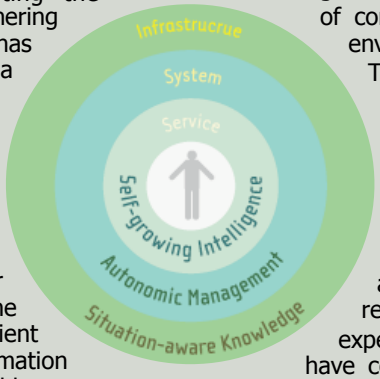
## Human-centered Health Care System to Invent a Better Future

**Introduction** - The subject of personal health care has been given considerable attention in recent years by both medical and computer engineering areas. Many medical research institutes are attempting to gather the personal health information by utilizing questionnaires or tele-consultation as forms participative inquiry. However, there has been substantial evidence indicating the discomfort that such traditional information gathering methods produce. For example, if the patient has metabolic syndrome, she or he needs to provide a large amount of personal information related to the disease. Furthermore, she or he is forced to answer complicated questionnaires which can be difficult to answer for a lay person. Only after a long drawn process involving significant patient participation required for successful diagnosis of the disease, the attending physician is able to prescribe the required medication or physical therapy for the patient. Unfortunately, the feasibility of this process is not limited to patient discomfort as the expense of gathering this information is also becoming prohibitive. To solve those problem, we attempted to research numerous approaches with respect to the diagnosis and treatment of metabolic syndrome with the Ajou University Hospital. As a result of this research, we developed a specialized 'Well-being index model' for treatments of metabolic syndrome, and also designed a context-aware system to deploy the index model in the real-world by utilizing community computing technology.




**Metabolic Syndrome** - The metabolic syndrome is a particularly complicated disease whose cause is still not exactly known. However, a number of expert groups such as the WHO, the EGIR, and the NCEP ATP, have determined the core components of the metabolic syndrome: obesity, insulin resistance and hypertension . Since lifestyle is closely related to many of these core components, lifestyle management system is considered significant component in the prevention of metabolic syndrome.

**Well-being Index System** - We designed a well-being index system that has the capability to process a lot of context data such as vital signs, human activity, environment information and expert data.

The system is divided into three parts: context acquisition, context processing and providing proper services. In this project, 'community' means a set of devices and services that cooperate to achieve common goals

Well-being Index - A diagnosis method for the well-being index system is required that automates the decision making process and reduces the involvement of a physician by utilizing expert systems. To make the well-being index, we have conducted a lot of clinical trials with respect to disease of living habit during two years. Based on the experiments, we divided the diagnosis basis into five categories. We have given weight-factor to each category based on questionnaires given by medical professionals to participants. In the submitted paper, table II shows part of a well-being index table that utilizes to diagnose the metabolic syndrome.

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| CORE SYSTEM | WELL-BEING INDEX | SERVICE | SENSOR DEV | NOVEL I/F |
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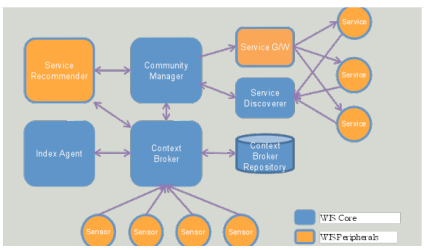
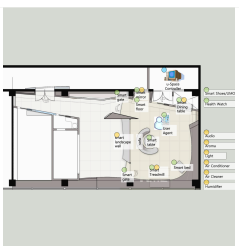
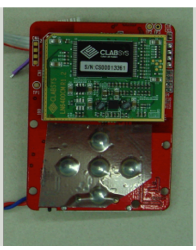
|  |  |  |  |  |



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