OSGi-Based Context-Aware Middleware for Building Intelligent Services in a Smart Home Environment

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Abstract- Context awareness technology is a key technology of digital home that brings a more convenient life. Context awareness technology is a system that catches the information from the sensor network, which is built in environment, the network could get the environment data immediately, and through this data information that network provides, the system could do the exactly the right thing that help people's like getting better. These information data could be location, temperature or humidity. However, these data are used by context awareness system to analysis and process, so as to realize different person in different environment using every kind of devices and through any different existing network system, and still could enjoy the personality applications and services in any time they want. This thesis proposed Intelligent Context-Aware Middleware is including system core modeling, context provider, context analysis model, reasoning system, scenario analysis model and some other APIs to achieve the context awareness system that a digital home needs. Besides, this middleware collaborates with OSGi framework in paralleled. In other words, this Intelligent Context-Aware Middleware is totally associated to each other, which means every new devices could be compatible to either OSGi framework or Intelligent Context-Aware Middleware this thesis proposed immediately.

Index terms*: OSGi, Context-Aware, Intelligent Services.