

PROPOSAL OF A SERVICE DESIGN PROCESS MODEL BASED ON SERVICE ENGINEERING

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EXECUTIVE SUMMARY

Manufacturers at present face new circumstances, such as servicification of consumers' behaviours and the seriousness of the environmental problems. An effective avenue is pursuing qualitative satisfaction rather than quantitative sufficiency. This paper aims at demonstrating the effectiveness of the methods and tools of Service Engineering (SE), including the service design process model, to increase the level of customer satisfaction. Redesign of a service offered by a hotel in Italy was taken as an example for application of methods and tools of SE. After the service was modeled by those methods and tools, five redesign options such as introducing various goods rental were generated. Through this, the effectiveness of SE is demonstrated.

It is expected that the solution space of the service design can be much broader than that of the conventional product design. This makes the derivation of design solutions difficult. In this paper, a computer-aided design system for service design, called Service CAD (Shimomura, Y. et al., 2003), is introduced to support the service design with a computer.

In general, employed design methods and knowledge of a designer have a large influence on the results of a service design, including the quality of the solutions and efficiency of the service design.

These issues about management of design have been discussed in general design fields: A research on knowledge-based computer-aided design (for example, (Tomiyama, T. et al., 1996)) is one of the research fields where such issues have been tackled. According to those researches, knowledge of design is important when using CAD systems to derive creative design solution. In other words, it would be desirable for a computer-aided design tool to support the design of a completely new solution that could not be conceived by only one designer resorting to his knowledge and experience. If the Service CAD could support service design by providing design knowledge based on existing service cases and realizing a partially automated design operation, it would be considerably effective for the realization of competitive service design and development.

The Service CAD presented in this research is programmed to collect the existing service cases. In addition, the Service CAD will be used to reuse design rules that derived from the design procedures of previous service design cases and registered as the knowledge to operate and modify other service design cases in a database. By applying those design rules to the whole or a part of a service in a partially automated manner, the time required for ser-

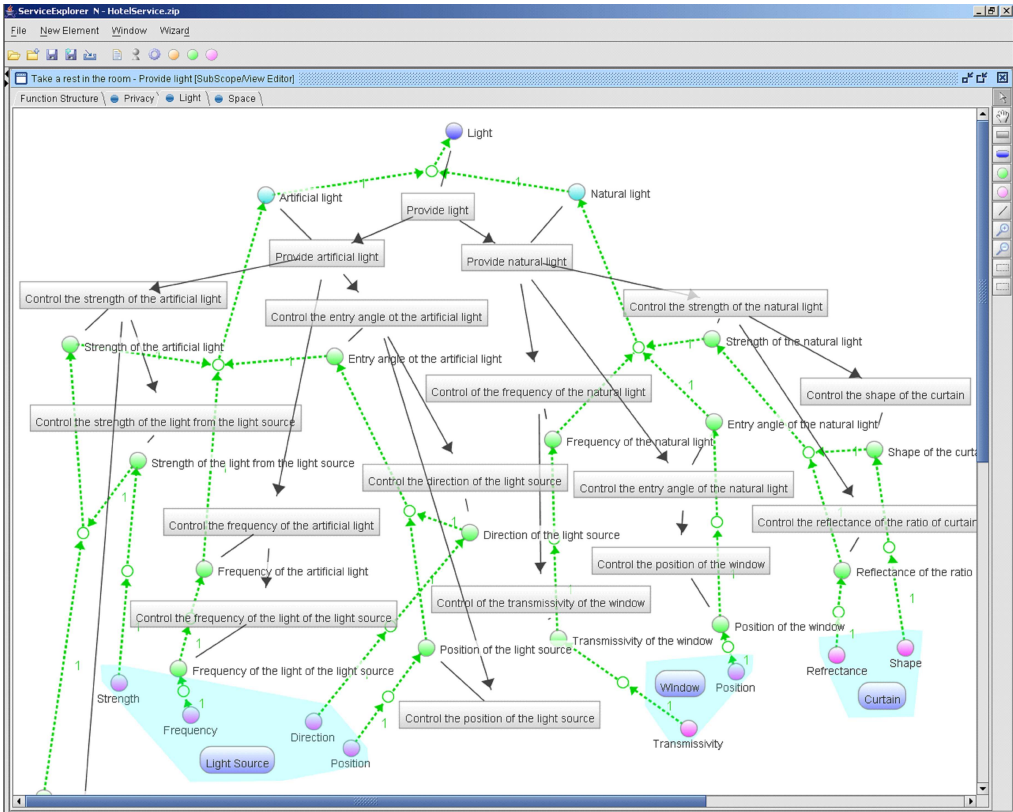


Figure 1 A prototype system of the Service CAD

vice design can be reduced. In other words, one of the methods to design a new solution is to apply various sets of design rules to existing service cases. This research suggests a reasoning mechanism using service case databases and several reasoning engines to realize various design operations as a fundamental element of the Service CAD.

To realize the Service CAD system, a service modeling method to describe and operate a service in a computer is needed. In addition, it is also necessary to clarify the requirements for the design aid with the Service CAD by clarifying the service design process and its sub-processes. In this paper, the service modeling method and a service design process are also explained.

Figure 1 shows the prototype system of the Service CAD currently under development.

In this paper, the concepts of service design, the

service modeling method for the service design and the design aid, and the service design process model were proposed. The above concepts have been verified by application to an actual service case. In our future research, the problems explained above should be solved.