

Contents Management Framework in Cellular Phone with GPS Based Learning Support System for Field Studies

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Abstract: In this paper, we describe a contents management framework in Cellular phone with GPS based learning support system for field studies. To cope with the difficulties of the contents development for the system, we propose the framework and the data structure of the contents for the system. We will apply the developed system based on the framework to the contents development for general visitors in a zoo.

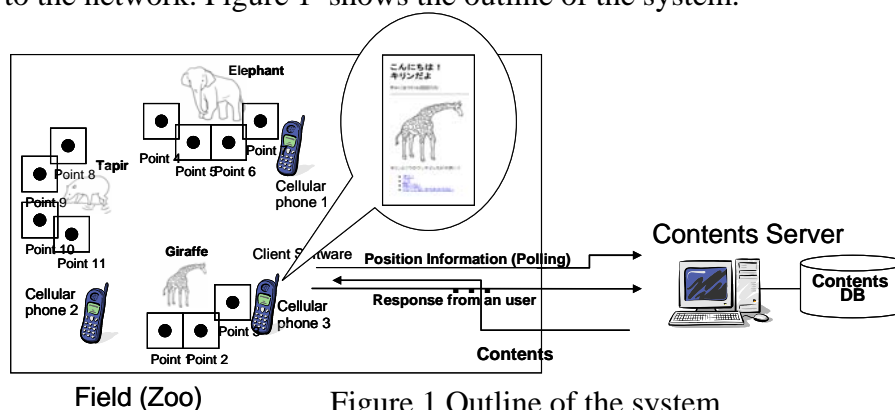
Keywords: Cellular phones, GPS, field studies, contents management, framework

Introduction

In the previous research [1], we have been developed a cellular phone with GPS based learning support system, which can display appropriate contents according to the subject of a field study, positions obtained by GPS function of cellular phones, the history of user's past activities. To evaluate the system, we developed the contents for studying "environmental diversity and evolution of animals." In the evaluation experiment, we have obtained affirmative results about how the subjects of the test have used this system in the field study. However, under the present circumstances, the administrator of the system needs to create contents. In order to make this system broadly usable, it is necessary to enable the maintenance of contents on a user level. In this paper, we propose a contents management framework for the cellular phone with GPS based learning support system in order to develop the contents management function which realizes the maintenance of contents by end-users, such as managers of the field and teachers.

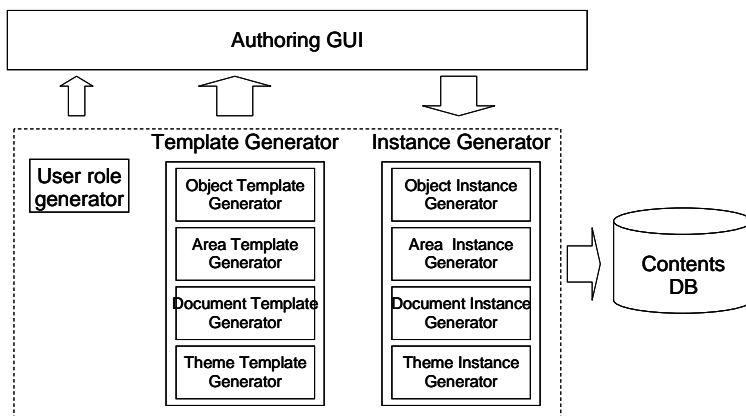
1. Cellular Phone with GPS Based Learning Support System for Field Studies

This system consists of contents servers and cellular phones with GPS which are connected to the network. Figure 1 shows the outline of the system.



2. Contents Management Framework

Contents management framework proposed in this paper consists of template generators, instance generators, and user role generator (Figure 2). In the framework, all contents are assumed to be generated from four kinds of data templates: (1) object templates, (2) area templates, (3) document templates, and (4) theme template. When a contents developer input the contents by using the authoring GUI(Graphical User Interface), an appropriate data template is generated by the template generator and the input form translated from the generated template is displayed. The instance of the data template is generated from the data template and the data input by the contents developer in the instance generator.



Contents Management Framework

Figure 2 Contents Management Framework

Figure 4 shows an example of the data structure of contents in a zoo. In this example, the object, area, and document instances are assumed to be developed by the animal handlers. The theme instance for the field study is assumed to be developed by teachers can easily by selecting the document instances

related to “Learning of evolution and circumstances.”

Conclusions and Future Works

In this paper, we proposed the contents management framework for cellular phone with GPS based learning support system for field studies to cope with the difficulties in contents development for the system. By applying the framework, the contents management function is partially implemented. After completing, we will apply the system into the contents development for general visitors in a zoo. Furthermore, we also apply that into the contents development for the science class in junior high school based on the contents for general visitors.

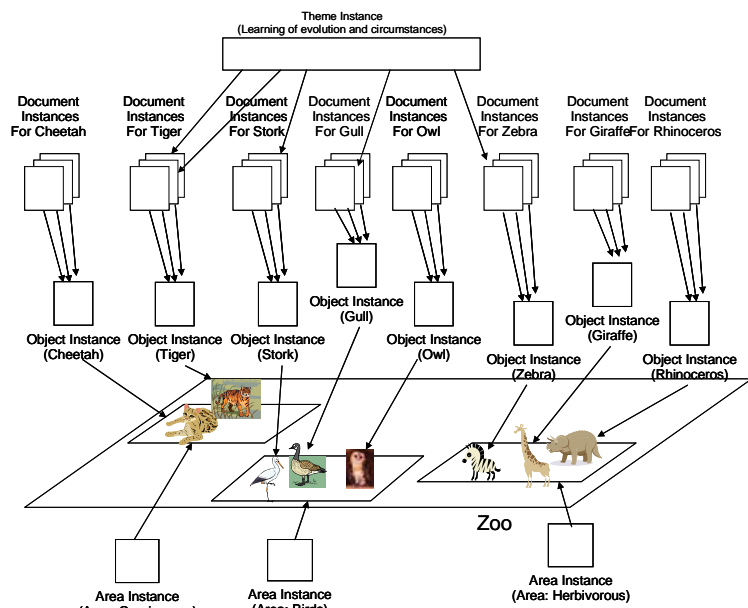


Figure 4 An Example of Data Structure of the Contents

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References

- [1] Ogino, T., Suzuki M. Kusunoki F., Hatono, I. (2008) Cellular Phone with GPS Based Learning Support System for Field Studies, Proceedings of ED-Media 2008.