1. Background and Objective

In architectural design education, timely referencing visual materials is important for stimulating students’ imaginations and design activities. In a lecture or design studio, teaching staff generally present various materials to students, such as photographs of cityscapes and architecture, environmental design handbooks, sketches drawn by famous architects or past works from the design studio.

Most laboratories are filled with reference materials such as numerous photographic papers, books, drawing papers or colour slides. Because of the spread of digital cameras or scanners, the storage space required for reference materials has recently begun to decrease. However, the hard drives on the PCs used by each member of the teaching staff have generally been filled with huge amounts of image data files instead. With the increase in the volume of image data, handling such huge amounts of image data has generated the following problems.
TABLE 1. Problems of handling huge amounts of image data

1) It requires times for the teaching staff to retrieve useful image data which they intend to refer from the huge amounts of image data available on their PC. This prevents the timely and dynamic referencing of images in a lecture or design studio.

2) It is difficult to share the huge amounts of image data administered individually among the teaching staff, because each of them cannot grasp the type of image data possessed by the others.

3) Students voluntarily fail to refer images shown by the teaching staff in a lecture or design studio after the lecture.

The purpose of this paper is to design the Image Data Archive System which has an original system of keyword to elevate retrieval effectiveness and develop a part of the Image Data Archive system as a prototype.

2. Procedure of Archiving and Retrieval of Visual Materials

In designing the system, we adopted the following procedure of archiving, retrieval and reference of visual materials.

<table>
<thead>
<tr>
<th>TABLE 2. Procedure of archiving and retrieval of visual materials</th>
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<tbody>
<tr>
<td>1) Entry of visual materials</td>
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<tr>
<td>2) Attachment of keywords for retrieval</td>
</tr>
<tr>
<td>3) Data Up-Load to Archive Server</td>
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<td>4) Reference in the class</td>
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</tbody>
</table>

3. Functional Future and Evaluations of the Prototype System

We designed the Image Data Archive System. It consists of two major units named Image Data Organizer and Image Data Browser. The system enables teaching staff or students not only to refer useful image data timely and dynamically in a lecture or design studio with rapid and efficient retrieval, but also to share huge amounts of image data via the Internet.

In the first step of the development, we developed Image Data Organizer as a prototype system. The prototype system supports the arrangement of image data on the PC, particularly the attachment of prepared keywords. It can also be operated on a stand-alone PC. It is mainly written with HTML,
Action Script and Java Script. Macromedia Flash technology is introduced into it. Its database is written with XML.

To discuss necessary refinement in the next version, we conducted a practical test of the prototype and issued a questionnaire to its participants. The result of the practical test was that the adequacy of keywords created in advance was showed, and also the answers to the questionnaires was that operational ability of the prototype was generally satisfactory for subject’s needs, even though it had some problems about time lag in operation.

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