

## **ARCHITECTURAL HERITAGE AS A FORCE IN NETWORKED CAAD EDUCATION**

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**Abstract.** This paper aims to present a project being currently in progress. The task is to describe a concept for future access to information resources which cover the Polish (in wider international context) architectural and urban design, architectural heritage, applied arts in form of drawings, images, 3D models and VR along text explanations. In this way the database would enable access to huge resources and didactic packages. The proposed database would be primarily addressed to students of architecture, who in addition would be involved in creation of the collection, e.g. through building 3D models.

### **1. Introduction**

The majority of nowadays architectural tasks are buildings within urban context, often of rich historical and esthetical values. Concurrently there is growing importance such jobs as re-modelling and re-use of existing structures. It is, therefore, not surprising the importance of increased knowledge of architectural heritage and its history is growing.

Another feature of present architectural practice is the lack of suitable easy-accessible and, what is more, comprehensive reference material on: architecture, urban planning, interior design, arts, building science.

### **2. Description of the project idea**

The vision of the multimedia architectural library rests upon the concept of interoperability. The described database is to be providing indexed searches

and specialist interfaces, across which users will be able to search simultaneously, and what is probably more important extend and develop the database. This is an important feature of the project as the power of multimedia message is due to the way people retain information. Researchers have found that people retain only 20% of what they hear, 40% of what they see and hear, and 75% of what they see, hear and do (Reisman, 1994).

Taking the above statement into the consideration the team from the Institute of Architecture and Urban Planning at the Technical University of Lodz, Poland has undertaken a project where students are both creators and users of the multimedia library on the Polish architectural heritage. What is more, because an image can tell more than a thousand words, it is clear that such multimedia databases and systems with a more enhanced set of interactive features provide more appealing results in terms of learning effect.

The students work on the 3D models of architectural monuments in Poland. They also prepare all necessary fact files to be included in the database. The students' models along with prepared factual material is in due course put into the database. The database can be explored in the number of different ways. For example user selects the building of his interest from the list. This links her/him to the 3D model that provides access to the further information: archive photographs, plans, measured drawings or textual information on the object. There may be also links to similar objects or to the buildings done by the same architect. Concurrently user can take virtual tour of the building (both, exterior and interior) and point the elements of her/his interest – e.g. apse or cornice. If they are active there is more information on the chosen subject as well as links to other buildings using the same architectural element. Alternatively user can start searching from an architectural term or an architect which will lead her/him to the textual explanation with links to the examples in collection of 3D models (Figure 1).

The further task is to make the database available on-line to form a web-based assistant for students or professionals in the field of architecture, and through the integration with other digital initiatives to create an e-learning environment.

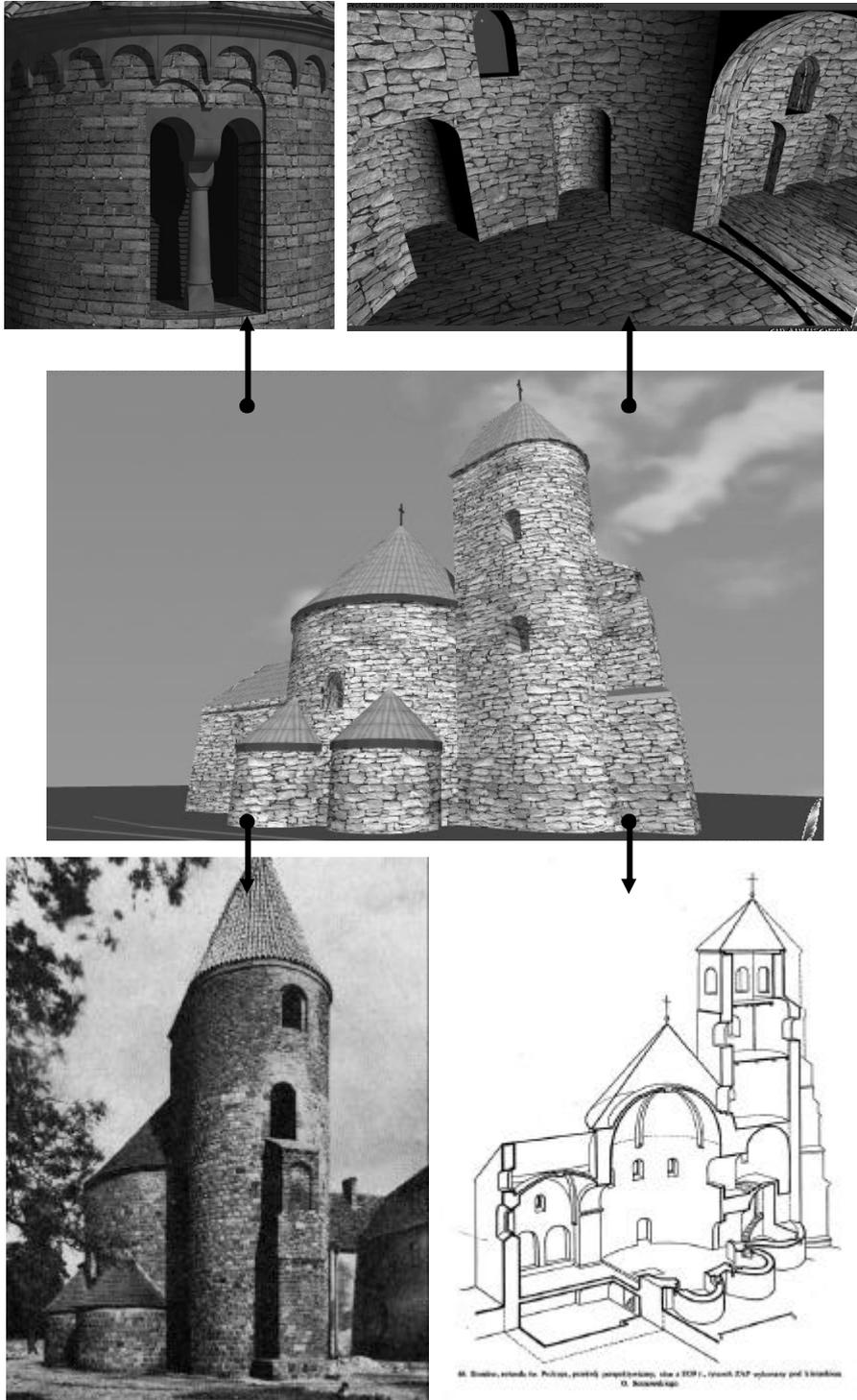


Figure 1. The example of database entry - a Romanesque church in Poland

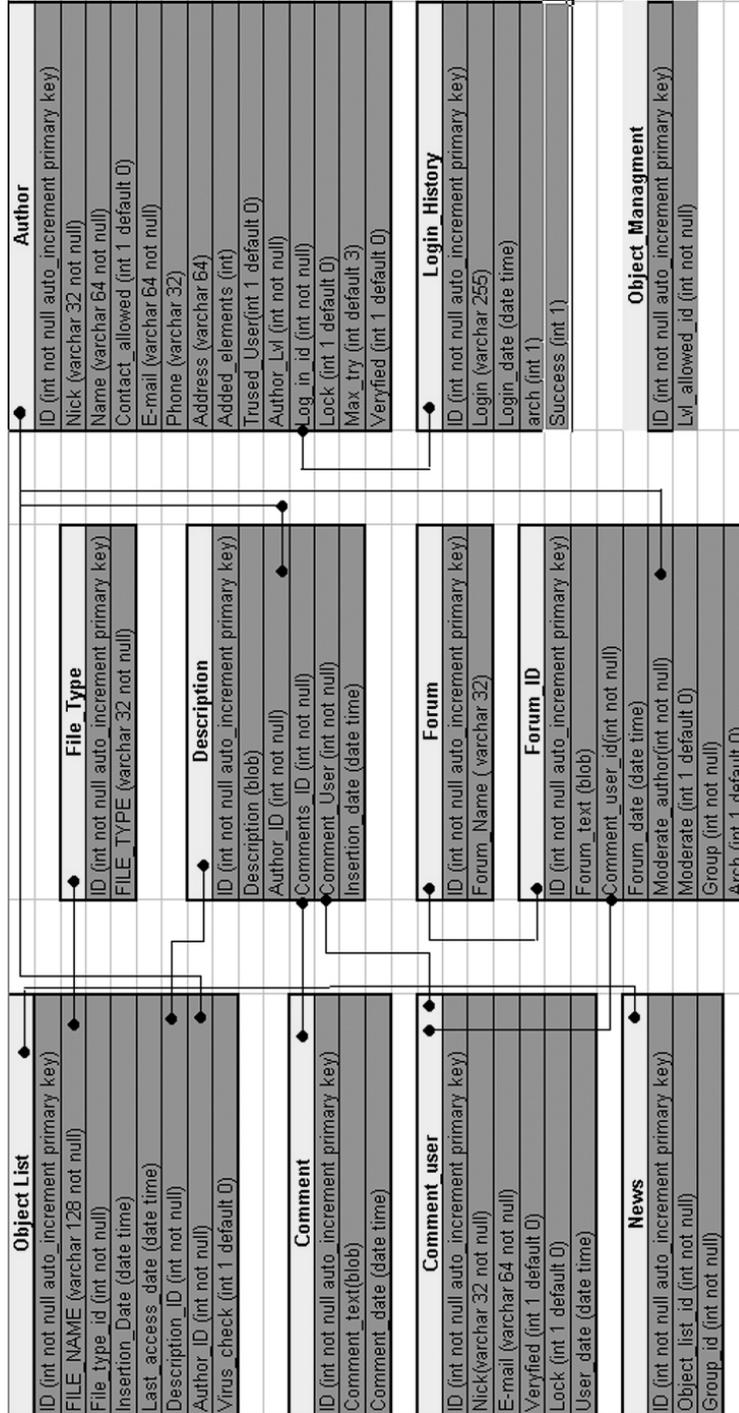


Figure 2. The general model of the proposed database.

### **3. Technical issues and development**

The aim of the project is creation of scalable, structural database available on-line, which could be constantly extended and developed by its users. At the preliminary stage the database is available only for students and teachers from the from the Institute of Architecture and Urban Planning. In future it is, however, expected that other institutions of tertiary education from Poland and abroad could become both users and contributors to this multimedia architectural library. This can be a step towards the on-line education of architects.

Currently the project is being developed by the team from CAD Unit in close co-operation with programmers and database creators. The database in question is based on the PHP and SSLv3, while the presentation of multimedia contents uses VRML and Flash technologies. The investigations of opportunities to make interfaces in order to have VRML and Flash as attractive interfaces are currently underway. Such interfaces can become conceivable through special functions in PHP scripts. The key issue is to make the database interface very simple and easy to operate. The general model of the of the database can be seen on the Figure 2.

### **4. Conclusions**

The project is based on Polish circumstances and needs, but it is consistent with approaches being developed within an international setting, across a wide range of disciplines. It is, therefore, hoped that the vision and the experience will be of interest to a global audience. Indeed, the effectiveness of future access to cultural resources will depend upon a shared approach.

What is more, e-education remains high on the agenda in Europe and such a virtual collection which embraces all information resources used by the Higher Education community for teaching, learning and research would be a remarkable step towards web-based course of architecture. The databases can become 'knowledge bases'. This, however, requires heir proper introduction within the educational curriculum, creating opportunities to obtain the advantages of the variety of databases applications.

Such an integrated access to architectural information resources can indeed be the key for unlocking the full potential of computer technology in architectural education, interpretation, design and reconstruction.

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