

ARCHITECTURAL CONTENT SYSTEM - ACS INTERNET BASED SUPPORT FOR ARCHITECTURAL PLANNING PROCESSES

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Abstract

As building projects become increasingly more complex, the number of project participants increases as does their spatial distribution. An effective decentralised work process and co-operation is of increasing importance. The global computer network, the internet, has great potential and recent times have seen the development of a variety of techniques in this field. The project proposal described here is based upon this approach and also takes it a step further. A specific analysis of the subject and the subsequent identification of potential approaches formed the basis for an architectural application that brings the architect in contact with other project participants using the internet as a powerful yet simple and easy to use medium.

Resumen

Así como los proyectos de construcción se vuelven crecientemente más complejos, así también crece el número de participantes y su distribución espacial. Un efectivo proceso de trabajo y cooperación descentralizados es de creciente importancia. La red global computacional internet, tiene gran potencial y tiempos recientes han observado el desarrollo de una variedad de técnicas en este campo. La propuesta de proyecto descrita aquí está basada en este criterio y además lo lleva un paso más allá. Un análisis específico del tema y la subsecuente identificación de criterios potenciales, formaron la base para una aplicación de arquitectura que pone al arquitecto en contacto con otros participantes en el proyecto, usando la internet como un poderoso medio, todavía simple y fácil de usar.

Motivation and Context

As building projects become increasingly more complex, the number of project participants increases as does their spatial distribution. An effective decentralised work process and co-operation is of increasing importance. The global computer network, the internet, has great potential for improving information provision, communication, cooperation and coordination between project participants.

Current Situation

General approaches to the problematic are manifold and have in recent times spawned a large number of internet-based applications based on a variety of widely differing techniques and scientific approaches.

For the architect, the current situation appears nevertheless ambivalent:

On the one hand there are systems based upon 'Internet Based Project Management' (IBPM) which offer easily comprehensible benefits and performance improvement measurable in cost and time savings.

On the other hand, risks and uncertainty hamper this, in particular with regard to the slow consolidation of the branch and the resulting difficulties in the readjustment of roles.

It is clear to see that the potential offered by the medium of the internet remains not only unused by planning professions but also unrecognised.

At present the most common use of the internet is for personal presentation in the form of a homepage. Beyond this, architects are yet to make use of networked methods which support the planning activities of the architect in practice.

Internet Based Project Management - IBPM

Currently available internet based project management systems are characterised by two central aspects: The provision of a central database for all project participants that can be viewed and edited by all participants according to their respective rights of access. Principal aims are cost and time savings in comparison to traditional dispatchment methods and a more efficient project development through reduced redundancy and data which is continually up-to-date. The second central aspect is the integration of workflow and process modelling systems. The aim here is to simplify complex notification and communication processes through automation.

IBPM systems enable primarily an efficient exchange of information and documents, whereby the format the data takes plays a secondary role – the administrative handling of data is identical whether the data in question is text, a spreadsheet or a geometric drawing.

This fact also demonstrates a shortcoming of current IBPM systems with regard to their use in the building branch: the central information database for all those participating in a design and planning process is of geometric nature and is at present poorly supported with regard to its presentation and manipulation in the internet.

Plan-representation and editing at the internet

The idea to show and to edit geometrical planning data directly via an internet-browser is 'nt new. To manifold are the eventual potentials thru collaboration and interaction to enhance the efficiency that the big CAD – producer would not to attempt to find



own methods of resolution. Important criteria for real fit-for-internet representation of geometrical planning data (and therewith for the selection of the right technics) are:

- possibility must be given to lookup geometrical planning data directly via an internet browser
- exchanged data-volume must be small
- linking to other documents (hyperlinks) must be feasible
- ideally the option to edit the data interactively should be given

Open standards

In face of the dissatisfying situation that most well-known CAD – producer try to develop their own formats with market power to establish them as a quasi-standard there exist efforts to define and to prevail open independent formats as spanned standards.

In the end data-exchange is the central idea of the internet and can best be work out best by employment of open neutral standards. The occupation with a relatively young format constitute one of the focal points of this research project .

The favourite format of the W3C SVG (Scalable Vector Graphics) differs in various points from other common formats:

- The format as from the W3C developed and specified is free of particular interests of producers
- SVG has broad support by the industry
- In contrast to other formats the possibility to display SVG directly in the browser will be given in new generations of internet – browser. Thereby the display of vector graphics becomes so self-evident as today the display of images. The mechanism of plug-ins would be needless.
- Beside vector-informations SVG may contain images and text. Text stays editable, able to be referenced and searchable.
- SVG is at the outset designed for interactivity. Entire user-interfaces can be configured in SVG. For the representation of geometrical planning data at the internet this means that they can be as a matter of principle edited interactively.

Architectural Content System - ACS

A new project at the InfAR Chair for Computer Science in Architecture at the Bauhaus-Universität Weimar (Hansen, 2002) is oriented towards new requirements placed on planning tools as the spatial distribution (decentralisation) of planning participants increases. A specific analysis of the planning process, an investigation of development possibilities of currently available systems and the subsequent identification of potential approaches formed the basis for an architectural application that brings the architect in contact with other project participants using the internet as a powerful yet simple and easy to use medium.

The system provides a client-server application whose user front-end can be used with any normal internet browser. The core of the application is centred around the communication and administration of planning decisions through a central digital database in SVG format. The application currently supports the two-dimensional abstracted representation in plan-form as the central information database (central model) as this still plays the central role in the planning process.

The application is naturally centred around this central database and the projection/presentation of its content is dependent upon the respective user's requirements:

The role and view principle

The system employs, much like most other IBPM systems, an authentication procedure with password to determine the individual users' viewing rights. Through the assignment of roles (e.g.

administrator, architect, third-party specialists, guests...) a series of user groups are defined by the project administrator. In simpler projects this role is assumed by the architect. A user can have different roles in different projects.

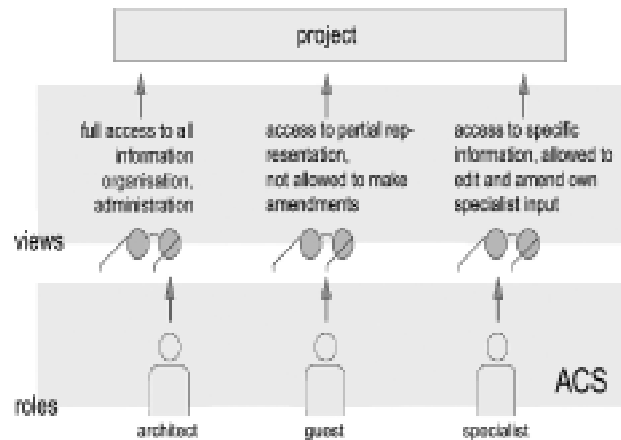


Fig 1 - Roles, views and access rights in ACS

Each request by a user, who through his or her password has been assigned a certain role, is presented according to a particular view. A view determines both access rights to the information as well as the form in which it is presented and is configurable by the project administrator.

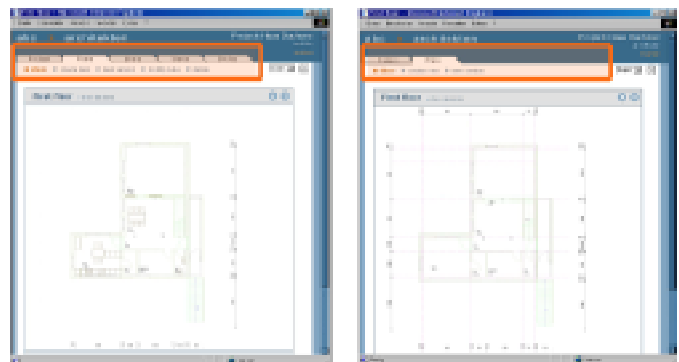


Fig 2 – Views and access rights; e.g.: architect –specialist

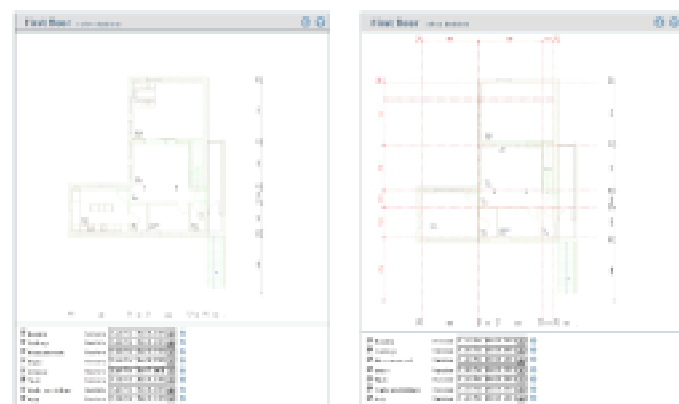


Fig 3 – Roles and Views; view role architect – view role specialist

