Fluxxoid v.4.1 “the liquified being of space”

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Fluxxoid is an experimental virtual media project created for Computational Design Studio Project (ITU Institute of Science and Technology Graduate Program of Design Computing) , which is an interactive model contains physical space representations and cyberspace structures. The main function of the project is a virtual art and performance museum. (still photo, streaming media and designed 3d environments)

The dimension of fluxxoid creates an alternative discourse for parallel universe and gives the opportunity of being virtual in a custom designed dimension. The approach addresses the cyberphysical concepts of the virtual object / space design and configuring the mixture of alternative media technologies as well as the material (code) and function relationship in cyberspace dimension.

Keywords. *Virtual architecture; cyberspace; liquid architecture; virtual design*

Introduction

Today, a new kind of cross-disciplinary design education is made possible by interactive design technologies and integration of digital media to the studio environment. New educational practices have virtually reversed the rhetorical paradigm of the conventional Beaux Arts atelier. A new discourse has emerged and thus, morphed architecture and design theory in which the limits of every kind of physical reality can be easily exceeded and all components from medium to material can exist in a parallel code.

Cyberspace provides a flexible and free medium for different experiments while enabling the design/production of objects that reflect their own constraints, cultures and implicit values. From this perspective, cyberspace is not a design tool but an interactive environment with endless potentials where a variety of design activities can be implemented. As Helfand (1997) states, “…it is an utopian archetype, a potentially infinite space with no geographical, political or otherwise material boundaries”. Cyberspace provides an environment or medium which is extremely liquified and dynamic, where hierarchies, boundaries and earthly laws of physics do not exist.

The experimental applications and realization of this complex state creates its own conditions and starting points that require new design decisions and initiatives.

The experiment: Fluxxoid v.4.1 Conceptual framework

Fluxxoid is an experimental virtual media project created for computational design studio in ITU Institute of Science and Technology Graduate Program in Design Computing. Briefly, it is an interactive and expanding model that contains digital space representations and cyberspace structures. The definition of the fluxxoid compo-

nents does not require any references to the conventional physical relations; hence, fluxxoid surface is created accordingly as a virtual performance gallery with dynamic and static media and designed 3D environments.

The fluxxoid medium requires the identification of subspaces to be created by potential users, and objects to define the subspaces. Every subspace possesses its own medium settings.

Background information on the participants

Fluxxoid experiment was implemented in ITU, Institute of Science and Technology Graduate Program in Design Computing. The participants are architects (B.Arch.) who are currently enrolled at different graduate programs offered at the ITU Institute of Science and Technology.

Components

Objects

The objects are consisted of many different digital structures that can define and limit the subspaces. 3 dimensional forms and multimedia components can also be integrated to digital structures. Objects can be designed to possess attributes defined by user preferences. In the Fluxxoid medium, objects are composed of VRML based dynamic 3 dimensional forms, 2 dimensional digital images and multimedia components. These components possess navigation (hyperlink), transformation and generation characteristics.

The synchronic objects that are designed in Fluxxoid can belong to different subspaces, for the objects in cyberspace can exist independent from space and their individual structures. This situation consequents in a kind of semantic gap between subspaces.

The subspace and object relation in Fluxxoid dimensions can be assumed in the concepts of a digital approach to FBS framework (Gero J.S, 1990; Gero J. S. and Kannengiesser U., 2000). According to the figure above, object sets are capable of carrying different kinds of data. The formulized object set definition index can be stated as follows:

Obj (q) [Subs (a,b,c..n), B (link,transform), M (solid / transparent…)] (1),

Semantic Framework Design

Fluxxoid is a part of cyberspace that bears the idea of emphasizing an alternative discourse and enabling a design medium independent from physical architectural assumptions and laws of Cartesian space.

The inner transformation of the integrated model allows users to perceive different components in different routes. This is a totally different, non-linear circulation system model. All hypermediatic objects provide transitions through their links.

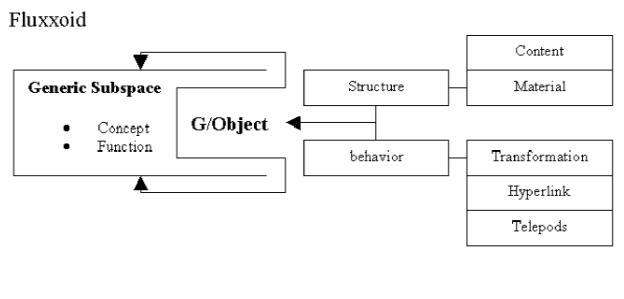

Figure 1. The relations between components

Different kinds of 3D, multimedia and graphic design can be integrated to this structure and, thus allowing a general shell that is defined by continuously expanding functions.

Design Process

A large variety of design tools and specialized software can be used in order to create virtual surfaces and mediums. Materials can be assigned to surfaces that are created using all sorts of modeling techniques and 3D mark-up languages, may consist of curves in different dimensions. For the purpose of computing complex systems, virtual transformers and generators like X-gen generator Pak (2000) can also be useful. (Generator is translated to VRML language that is chosen as 3d interface platform of the project.) Through the design process, materials with features like opacity, mapping and textures can be assigned to the objects. These textures and properties can have different imaging features.

As a result of interpretation of the material assigned and behavior-added final designs by interfaces, a medium where users can navigate through 2/3 dimensional structures is created.The different features of the interface and liquid structure open to modifications allowing continuous transformations.

Figure 3 and 4 shows a VRML application for Fluxxoid main shell. In this application, translations into subspaces are achieved with surfaces forming the shell. Inside this framework, surfaces represent both limits and subspaces beyond them.

Conclusions

The Fluxxoid experiment based on the developed conceptual framework has been implemented during a workshop at ITU. The primary objective was to search for potential cyberspace applications in design education. The experiment also aimed to highlight the impacts of a-priori assumptions and determinants in virtual and traditional design atmospheres. It has been observed that:

- The participants were more flexible in working in an (n) dimensional medium which has not been conditioned by Cartesian coordinates,
- The communication between participants during the implementation of fluxxoid enabled the formation of an expanded vocabulary,
- The dynamics of the fluxxoid allowed a time

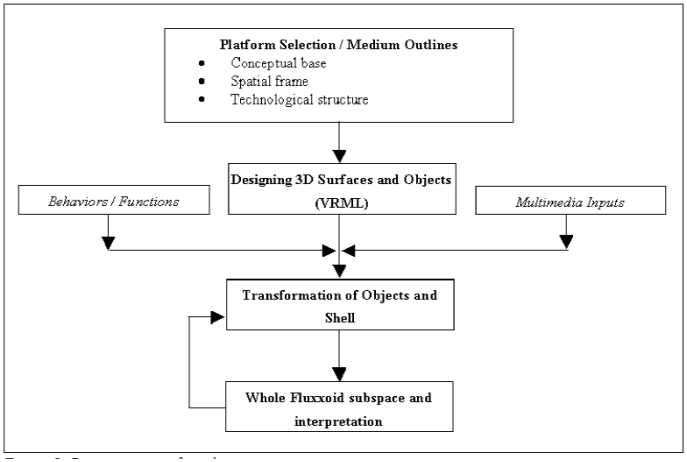

Figure 2. Design process flow diagram

Figure 3. A multimedia presentation in Fluxxoid

Figure 4. Fluxxoid main shel

independent and non-linear process,

- Fluxxoid also provided means to document all sequences of an individual's design process, thus enabling real-time and flashback critics by the instructors.

Consequently, with all these above mentioned attributes, fluxxoid possesses potentials to be applied to a variety of design situations in different disciplines.

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