

# Aesthetic Entertainment of Social Network Interaction: Free Network Visible Network

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**Abstract.** Free Network Visible Network is an active media system that uses the possibilities of the new technologies to create new landscapes in the public space by means of the visualization of the data that flow between digital networks. It changes our perception of the world with the “invisible meanings” that are around us. Mixed Reality Technology and Internet Traffic Listening system are adopted in this project in order to visualize, floating in the space, the interchanged information between users of a network. The people are able to experience in a new exciting way about how colorful virtual objects, representing the digital data, are flying around. These virtual objects will change their shape, size and color in relation with the different characteristics of the information that is circulating in the network. By the use of the objects exciting movement through space, users will feel fun and aesthetic entertainment at observing the social digital communications in their physical space and city streets.

## 1 Introduction

In the last 20 years the digital information has flooded the world in which we live. No matter where we are, even if we are not able to see it, we can imagine ourselves surrounded by data. The space of digital networks is also the space of *invisible meanings* that represents relations between people and a very dynamic knowledge interchange. By the metaphorical representation of these *invisible meanings*, our project here wants to establish a hybrid space where the visualization of the invisible data can help persons to understand the information society in an exciting way.

By Free Network we mean any computer network that allows free information flowing through the network [1]. Figure 1 shows how our system will represent those *invisible meanings* between the networks in a real public space.

## 2 Related Work

Our project uses visual metaphors to represent network traffic creating an analogy between natural systems and online information sets, highlighting, as Christian Paul says, *relationships between data elements that might not be immediately*



**Fig. 1.** Screenshot of our system running besides one busy street in Kyoto

*obvious and that exists beneath the surface of what we usually perceive* [2]. Our project is also related conceptually and formally with other initiatives as the “warchalking” [3], a term developed by Matt Jones that refers to the act in which people walk through the cities in search of WiFi nodes, and leaves a simple chalk drawing for others to find it without difficulty. In which is referred to the representation of invisible meanings in the real space, our project has also some relations with *Remain in Light*, a piece of the Japanese artist Haruki Nishijima [4].

Nevertheless our project is the first entertainment art project based on the real coexistence of physical and virtual objects by means of the Mixed Reality technologies. It uses art to built communities, and uses technologies to play in the street.

### 3 System Design

The first step of our project is to indicate the presence of a wireless networking node. We place visual marks wherever there is a working Free Network (Figure 2), and each node in this network becomes an urban symbol that can be easily identified.

In this project, we establish direct relations between visual physical messages placed in the street and the virtual digital information that is floating in the air. Real messages and virtual information are connected by the a software named *Visible Network Client* that converts the data captured from a network into virtual objects, and superimposes them in real time to the real space. This software is mainly based on the Mixed Reality technology using *MXRToolkit* [5] and *CarnivorePE*, a software that listens to all Internet traffic (email, web surfing, etc.) on a specific network. The union between these two technologies has made possible a new innovative system to visualize in Mixed Reality the metaphorical representation of the data that are continuously around us. MXR-



**Fig. 2.** Markers indicating Free Network access around the city.

ToolKit is used to develop the tracking part of the system, and the Internet traffic data captured by the CarnivorePE program are used for determining the different attributes of the virtual objects (the type, size, color, etc.)

As shown in the flowchart in Figure 3, the program starts from the initialization of the system. It then takes in every frame from the incoming video sequence, and searches for the predefined marker. It will then check the CarnivorePE for the data flowing on the network which this computer has connected to. We use these information to decide whether the virtual object is a cube, a cone, a cylinder, or a ring, as well as the scale of the virtual object in x, y, and z direction respectively. If we put several markers in a big space, virtual data may flow between the markers. Figure 4 demonstrates how it works.

## 4 Conclusion

In this project, a digital data representing system was successfully built and tested. Through this system, we would like to provide a more entertaining way for persons to understand the information society interacting. We have made this project software system available online under GNU public license at [7].

## References

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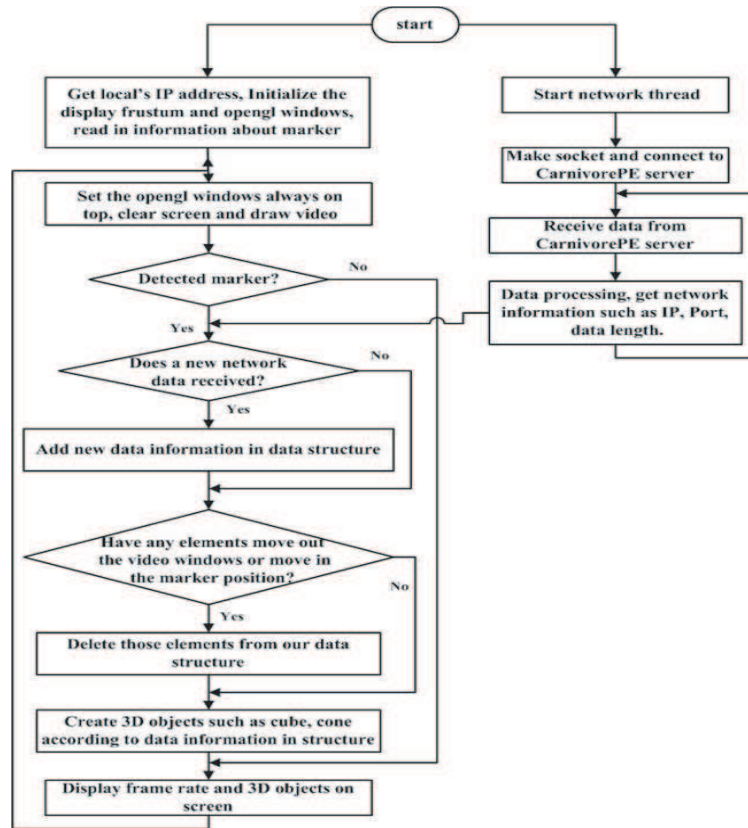


Fig. 3. Markers indicating Free Network access around the city.

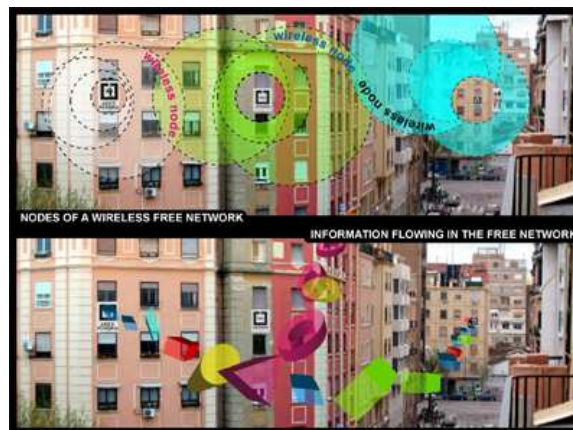


Fig. 4. Relation between markers and data visualization