

SqSquare

a collaboration environment for children

Kazuki Minamitani, Masashi Umezawa
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Abstract

SqSquare is a new lightweight collaboration environment, which supports various interactive learning activities in network. The system enables users to share broad desktops. Users are cooperatively able to develop multi-media contents composed of text, graphics, sounds and e-Toy objects.

Keywords

Collaboration software, Virtual desktop, E-learning system, Multimedia authorization, Kansas, Tweak

Basic Concepts

A paper-like collaborative environment for everyone

SqSquare is the first virtual 2D desktop built on Tweak [1]. Users are able to share broad virtual “boards” through the network. In that super desktop, users freely write texts, draw pictures, import sounds, and develop scripted objects. For helping interactions, users are able to use voice-chat interfaces. We suppose up to 20 users can simultaneously access the system. It is the typical number of children in a classroom.

Kansas project has similar concepts [2]. It supports sharable broad desktop, dynamic programming environment and voice/video chat facilities. A small number of members (up to eight) can participate in the collaborative session. However, Kansas was not so broadly accepted to computer education communities. This is partly because its running platform was strictly restricted to high-performance, expensive SPARC workstations.

SqSquare should be available on any platform. It is implemented in Tweak. Since Tweak is an incoming new version of Squeak, it is free and runs on almost all operating systems. We also support Web Browser Plug-in for easy access to the SqSquare boards.

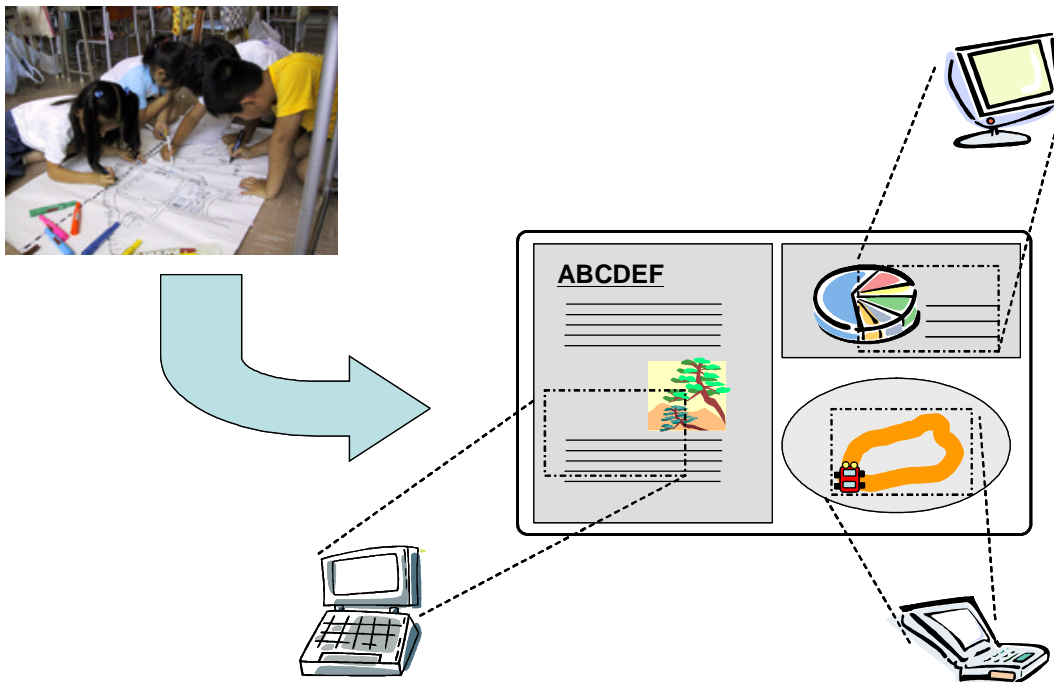


Figure 1 a large virtual desktop in a collaborative environment

Division and merge of boards, and move of contents

In a classroom, children are often grouped into small teams for learning activities, and they are merged again in order to compare their works and discuss the ideas as a whole. SqSquare strongly supports this style of learning. Boards can be freely divided or merged together.

If a board is divided, newly created smaller groups are able to do their activities separately. Users are able to copy and paste any contents on the board to other boards.

SheetPlayer

SheetPlayer is a player specially designed for SqSquare. It is more 'paper-like' than ordinary Players. Users are able to put a number of SheetPlayers on SqSquare's boards in free layout. Multimedia contents such as text, graphics, sounds, hyper-links, and e-Toy objects can be embedded on the SheetPlayer.

Lightweight

This project aims to develop a lightweight collaborative environment that runs on pretty low spec PCs (ex: \$100 laptop [3]).

Kansas displays each detailed motions of the objects in a desktop. On the other hand, SqSquare is not designed to be a highly synchronized system. It uses delayed update strategy. Only when a user completes a sequence of actions on a board, other users can see the changes. Our priority is to make a system simple and lightweight. In the next version, we will adopt TeaTime protocol for getting more responsiveness.

License Policy

SqSquare adopts MIT style, free, open-source license, which does not limit commercial or non-commercial usages. Everyone is able to develop new systems based on SqSquare even for commercial purposes.

One exception is a voice-chat part. Voice-chat module is called AkaChat. It is made by our partner - Akademia Systems Co. AkaChat has dual license. For commercial use, you should contact Akademia Systems Co. (<http://www.akademia.co.jp/>).

References

[1] Impara GmbH, Viewpoints Research Institute, Hewlett Packard., "Tweak", <http://tweak.impara.de>

[2] Sun Microsystems, Inc., "The Kansas Project A Vast, 2D Space for Realtime Collaboration", <http://research.sun.com/ics/kansas.html>

[3] MIT Media Lab, "\$100 Laptop", <http://laptop.media.mit.edu/>