

# Research on Virtual World

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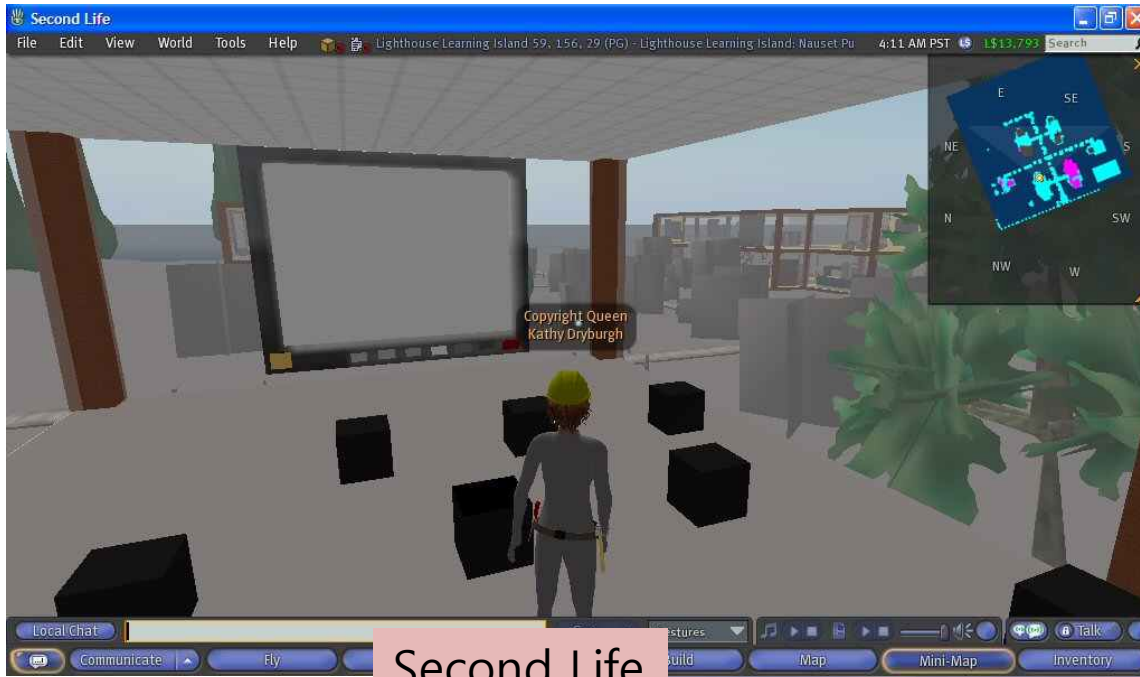
# Talk Issues

- What is Virtual World
- Application of Virtual World
  - Tangible Baseball in Virtual World

What is Virtual World

***Emerging of Virtual World  
( '08 ~ )***

# Introduction – Virtual Worlds



Second Life



Wonderland



Croquet

# Virtual World

- [http://en.wikipedia.org/wiki/Virtual\\_world](http://en.wikipedia.org/wiki/Virtual_world)
- **virtual world** is *a genre of online community* that often takes the form of a **computer-based simulated environment**, through which users can *interact with one another* and use and create objects.
- **Virtual worlds** are intended for its users to *inhabit and interact*, and the term today has become largely synonymous with **interactive 3D virtual environments**, where the users take the form of *avatars visible to others graphically*.

# Main Features of VW

- ***Virtual World***
  - Social Space (Social Media)
  - Avatar
  - Interaction among Users
  - **Persistent\*** Virtual Environment

*Persistent:* 지속되는

Second Life<sup>®</sup>



# Second Life

<http://secondlife.com/>

[http://wiki.secondlife.com/wiki/Main\\_Page](http://wiki.secondlife.com/wiki/Main_Page)

The screenshot shows the homepage of the Second Life website. At the top, there is a navigation bar with the Second Life logo on the left and several menu items: "What Is Second Life?", "World Map", "Shopping", "Buy Land", "Community", and "Help". On the far right of the navigation bar is a prominent orange button that says "Join Now >>" with the subtext "It's fast, free and easy!".

The main visual is a 3D-rendered scene from the virtual world. In the foreground, a female avatar with blonde hair and red eye makeup stands in a red, floor-length gown. In the background, a male avatar in a dark suit and a female avatar in a purple dress are visible. To the left, there are mannequins displaying colorful dresses. The scene is lit with a purple and pink glow.

Below the main image, there is a white text overlay that reads: "Escape to the Internet's largest user-created, 3D virtual world community." Below this text is another orange "Join Now >>" button. In the bottom right corner of the main image area, there is a "Welcome To Second Life" message with three small icons.

At the bottom of the page, there is a "Featured Destination" section. It contains three promotional tiles:

- The first tile is titled "The Maze (Curse of the Maya)" and includes the text: "One maze. Five levels. One exit. Can you break the Maya King's curse and escape this".
- The second tile is titled "Join the Party!" and includes the text: "Music in Second Life".
- The third tile is titled "Ready for a New Look?" and includes a "Shop now" button.

# Second Life<sup>®</sup>

- Second Life<sup>®</sup> is an on-line 3-D virtual world created by its Residents.
- Since opening to the public in 2003, it has grown explosively and today is inhabited by billions of Residents from around the globe.
- **Linden Research Inc.**

# Why Develop in SL ?

- <http://develop.secondlife.com/whysl/>
- **The Virtual World Market Is Growing Rapidly**
- A recent report from market research firm [Strategy Analytics](#) predicts that the adult social virtual world population will grow from **11.5 billion in 2009** to 32.5 billion in 2015.

# SL World Map

The screenshot shows the SL World Map website interface. At the top, there is a search bar with the text "Search for Anything in Second Life" and a dropdown menu set to "SL Places". A green "Search Map" button is to the right. Below the search bar, there are examples: "Orientation Island, Ninjas, or Shop". To the right of the search bar, there is a link "Build Your Own SLurl!" with a sub-link "What is a SLurl?".

The main content area is divided into two sections. On the left, under the heading "Destination Guide Picks", there is a sub-heading "Take a look at some of the best places we've found in Second Life". Below this are four featured locations, each with a small image and a description:

- Chouchou**: Japanese music group Chouchou bring their creativity to Second Life in several photogenic and atmospheric regions, including "Memento..."
- Silver King Grill**: Step back in time and visit a '50s style hangout. Roller-skate around the vehicle-friendly parking lot, or enjoy some live music at...
- Goth City**: Bring your darkest, deepest secrets to Goth City, and share them with your fellow role-players! This growing combat community has many...
- Strawberry Hunt**: Find 13 gift-filled strawberries between August 3 and September 3 and celebrate the grand opening of fantasy fashion boutique,

On the right side of the interface is a large, detailed map of Second Life. The map is a top-down view of a large island with various terrain features, buildings, and water bodies. A hand icon is visible on the map, indicating a specific location. The map is powered by Google, as indicated by the "POWERED BY Google" logo at the bottom left of the map area. There are navigation controls (arrows and a zoom-in button) on the left side of the map. A small inset map is visible in the bottom right corner of the main map area.

At the bottom of the screenshot, the Windows taskbar is visible, showing the "완료" (Done) button, the "인터넷" (Internet) icon, and the system tray with a volume icon and a "100%" zoom level.

# Second Life

- Server
  - Not Open Source
- Viewer
  - Version 2.1 (Beta Version), Jul 7, 2010
  - Version 1.23
  - Open Source

# Secondlife - What Are Virtual Worlds - Intro to Second Life

- <http://www.youtube.com/watch?v=O62GHcIVKS4&feature=related> (2:36)

OpenSim

# OpenSim

- [http://opensimulator.org/wiki/Main\\_Page](http://opensimulator.org/wiki/Main_Page)
- OpenSimulator is a **3D Application Server**.
- It can be **used to create** a **virtual environment (or world)** which can be accessed through a variety of clients, on multiple protocols.
- OpenSimulator is released under a [BSD License](#), making it both **open source**, and commercially friendly to embed in products.



# OpenSim Server Download

- The current release is **0.7** (released on 22nd July 2010).
  - Windows, Linux
- In case of Mac OS, Version **0.6**
- <http://opensimulator.org/wiki/Download>

# OpenSim

- OpenSimulator is written in [C#](#), and can run under the [Microsoft .NET](#) runtimes.

# Viewer

- **Hippo OpenSim Viewer**
  - The Hippo OpenSim Viewer is a modified [Second Life](#) viewer, targeted at [OpenSim](#) users.
  - The current version is based on the official Linden Lab release **1.23.5**.
  - [http://opensimulator.org/wiki/Main\\_Page](http://opensimulator.org/wiki/Main_Page)
- **Second Life Viewer**

Croquet

# Croquet Consortium

[http://www.opencroquet.org/index.php/Main\\_Page](http://www.opencroquet.org/index.php/Main_Page)



search

- [Main Page](#)

technology

- [Overview](#)
- [Screenshots/Videos](#)
- [Cobalt](#)
- [Croquet SDK](#)
- [Downloads](#)
- [FAQs](#)

documentation

- [The Croquet License](#)
- [Croquet SDK Docs](#)
- [Tutorials](#)
- [Lists/Blogs/Wikis/Links](#)

community

- [About the Consortium](#)

## THE CROQUET CONSORTIUM

- [News](#)
- [Download](#)

### Welcome!

Croquet is a powerful [open source](#) software technology that, in the form of the [Croquet Software Developer's Kit \(Croquet SDK\)](#), can be used by experienced software developers to create and deploy deeply collaborative multi-user online virtual world applications on and across multiple operating systems and devices. Derived from [Squeak](#), the Croquet system features a peer-based messaging protocol that dramatically reduces the need for server infrastructures to support virtual world deployment and makes it easy for software developers to create deeply collaborative applications. [Cobalt](#) is a National Science Foundation-sponsored effort to develop an open source virtual world browser and authoring toolkit application based on the Croquet technology.

### How to Help

- [Become involved in the effort to build Cobalt](#)
- [Contact us](#) and let us know how you'd like to help.



# Open Cobalt

<http://www.opencobalt.org/>



**Open Cobalt<sup>™</sup> Alpha**  
open source virtual world browser & toolkit

Search this site

- Home
- ▼ About Open Cobalt
  - Features and Benefits
  - Uses
  - Programming Environment
  - Synchronization Architecture
  - History
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  - Administrator Guide
- ▼ Community
  - Connect
  - Upcoming Events
  - Contributors/Volunteers
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Open Cobalt Virtual Workspace

Welcome

Google groups

**Open Cobalt**  
[Visit this group](#)

Open Cobalt Alpha is the first step in a long term project to make available to all people a free and open source platform for constructing, accessing, and sharing virtual workspaces for research and education. This 3D multimedia

# Features of Open Cobalt

- **Peer-to-Peer System**
- Open Source (MIT License)
- Multi-platform (runs on Mac OS, Windows, and Linux)
- Navigable 3D hyperlinking between virtual worlds !
- Integrated text chat (Jabber)
- In-world voice chat (speak with other users through VoIP)
- In-world web browsing

# MIT License

- **MIT 허가서**(MIT License)는 [미국 매사추세츠 공과대학교](#)(MIT)에서 자학교의 소프트웨어 공학도들을 돕기 위해 개발한 허가서다.
- MIT 허가서를 따르는 소프트웨어를 개조한 제품을 반드시 [오픈 소스](#)로 배포해야 한다는 규정이 없으며 [GNU 일반 공중 허가서](#)의 엄격함을 피하려는 사용자들에게 인기가 있다.
- 이 허가서를 따르는 대표적 소프트웨어로 [X 윈도 시스템](#)이 있다.



# Open Cobalt Alpha (2009)

- <http://www.youtube.com/watch?v=1s9ldlqhVkM> (3:43)

Wonderland

# Open Wonderland

<http://www.openwonderland.org/>

[http://en.wikipedia.org/wiki/Open\\_Wonderland](http://en.wikipedia.org/wiki/Open_Wonderland)



Open Wonderland is a 100% Java open source toolkit for creating collaborative 3D virtual worlds.

[learn more...](#)

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Documentation; Tutorials

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the Module Warehouse

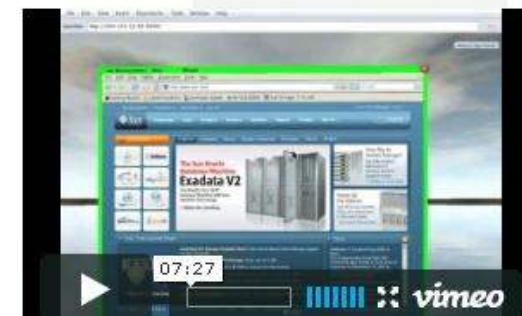
**Download**  
Installers; Source Code; System Requirements

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Use Open Wonderland to build your virtual world! Create dynamic learning environments, collaborative business applications, or interactive, multi-user simulations. Start with a blank slate, or modify an existing world. While some types of worlds can be created by end-users or 3D artists, this toolkit is designed primarily for developers familiar with the Java programming language. As a developer, you can extend any part of the system and add functionality by creating modules, the Wonderland version of plugins. Click the Browse button above to explore the extensions currently available in the Wonderland Module Warehouse.

[support us...](#)

## Wonderland Showcase



# Open Wonderland

- Java-based open source toolkit for creating collaborative 3D virtual world.
  - **Version 0.5**
- Within those worlds, users can communicate **with high-fidelity, immersive audio**, share **live desktop applications**, and collaborate in an **education, business, or government context**.

# Introduction to Virtual Worlds

- <http://www.youtube.com/watch?v=1s9ldlqhVkM> (5:36)

# Application of VW

# Role of Virtual Worlds in Real World

## Business



### POLICIES & GUIDELINES

- Privacy
- Community Standards
- Terms of Service
- DMCA

## Shopping Safety

### Shopping Safety

Shopping has become one of the most popular activities in the Second Life world. Many Residents like to use Linden™ dollars to purchase property, to furnish their own homes or even to enhance their avatar's look with the latest fashions!

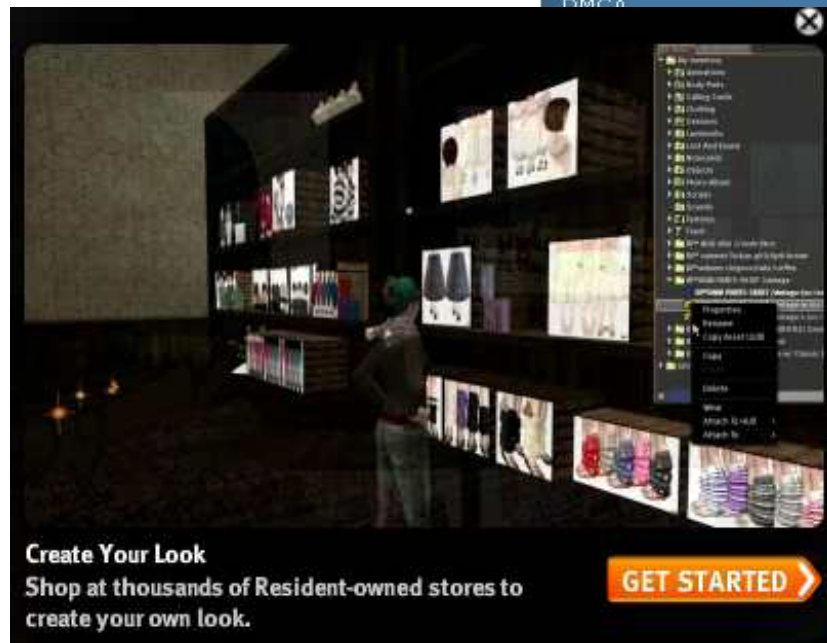
Most retailers in the Second Life world offer legitimate items for sale, but buyers should be aware of some sneaky shopping scams. Linden Lab does not generally get involved in private deals between Residents; so you should use caution when making your purchases. Here are some things to consider before shelling out your precious Linden™ dollars:

#### **If the deal sounds too good to be true, it probably is.**

If someone is offering to sell virtual land or items at a price that is significantly lower than the standard price, then you should use caution before making your purchase. Some bargains to be had in Second Life, some of these deals may literally be too good to be true. Payment could be taken without the items being delivered.

When you attempt to pay for an item, you should see a confirmation screen that verifies the price and the object that you are about to purchase. If you are unsure, you can always let the seller know the listed "creator" of the item. In many cases, the listed "creator" will match the retail seller.

Also, most retail locations do not have live staff present to help with your transaction. If you wish to pay them directly for the purchase of an item in the store, you should do it through the "About Land" dialogue box. This dialogue box



# Role of Virtual Worlds in Real World Education

Open  
**Cobalt**  
Edusim<sup>edition</sup>

3D virtual learning worlds for the interactive whiteboard

Home Videos Screenshots Links Content Download Support OnTwitter

**"Edusim-Cobalt Beta" will formally launch at the  
"Immersive Education Day: Kansas / Missouri"  
on July 27th in Kansas City Missouri  
Click for details !**

Live Feed

Updates by Email  
Request Information

### What is the Edusim?

The *Edusim* application is a slimmed down version of the core Open Cobalt Metaverse Project. Edusim is a 3D multi-user virtual world platform and authoring toolkit intended for your classroom interactive whiteboard (but equally powerful on the students laptop or desktop computers !). Cobalt - Edusim has been tested and works on the Smartboard, Activeboard, Interwriter, Polyvision, Mimio, eBeam, and even the Wiimote Whiteboard. Edusim is extendable allowing multiple classrooms to connect their interactive whiteboards for collaborative learning session. Edusim as a concept seeks to model a new way to engage student by leveraging 3D virtual environments on the interactive surface or classroom interactive whiteboard. Read more about Edusim on [Wikipedia here](#).



# Role of Virtual Worlds in Real World Collaboration



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### MPK20:

#### Sun's Virtual Workplace

On any given day, over 50% of Sun's workforce is remote. MPK20 is a virtual 3D environment built using the [Project Wonderland Toolkit](#). In this 3D world, employees can accomplish their real work, share documents, and meet with colleagues using natural voice communication. Just like on Sun's physical Menlo Park campus, known as "MPK," inhabitants of the virtual MPK20 office building can work together in planned meetings, or can talk informally in unplanned encounters. Unlike the physical campus, however, in MPK20, the community can be built and maintained without the constraints of physical location.



- [Video Demos](#)
- [Project Wonderland open source community](#)
- [Download software](#)

# Why 3D for Collaboration?

- While it might be possible to build a 2D tool with functionality similar to MPK20, **the spacial layout of the 3D world** coupled with the immersive audio provides strong cognitive cues that enhance collaboration.
- In terms of *data sharing, looking at objects together* is a natural activity.
- With **the 3D spacial cues**, each person can get an immediate sense of *what the other collaborators can and cannot see*.

# IBM

- **Introduction to the opportunities and technologies**
  - Virtual World
  - May 2009
- **How virtual worlds can be applied within an enterprise to save money and time**

# Use of Virtual Places to Enable Business Activities

- Events
- Mentoring and knowledge exchange
- New employee orientation
- Rehearsals
- Software development
- Systems management
- White-board brainstorming

# Four "I" Characteristics of Virtual World

	Description
<b>Integration</b>	Linking virtual spaces with <b>physical world, 2D web, mobile devices</b>
<b>Interaction</b>	Real time collaboration leveraging Web2.0 and <b>social networking attributes.</b>
<b>Immersion</b>	Exploitation of senses and community to gain <b>perception of being</b> part of the environment
<b>Interoperability</b>	<b>Navigation between multiple virtual worlds and spaces</b>

# Some More Thoughts about VW

# Interesting Issues in VW

- Day and Night
- Concept of Time
  - More fast than Real World Time
- Policeman
- Crime
  - Criminal, Offender
- **Security**
  - **Personal Identity Issue**
    - In Real World, Same Person
    - In Virtual World, Can login as different avatars at the same time
    - Why to recognize ?
- Secure
- Trust
- Legal (합법적인)

# Virtual Life

- Virtual Life Project
  - Funded by EU Framework 7
  - 3 year Project
  - 3.3 Million Euro
- <http://www.ict-virtuallife.eu/blog/?cat=8>



# Virtual Life



Secure, Trusted and Legally Ruled Collaboration Environment in Virtual Life



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## Sophisticated interactive objects in VirtualLife



For more pictures see our [Gallery](#)

### About VirtualLife

VirtualLife project aims at developing a virtual world platform mainly focusing on security, democracy and collaborative aspects. Combining a virtual legal system with a strong security infrastructure and a peer-to-peer architecture, VirtualLife provides a digital 3d environment suitable for education, training, e-commerce, business and entertainment.

The research leading to these results has received funding from the European Community's Seventh Framework Programme (FP7/2007-2013) under grant agreement n° 216064.

## LATEST NEWS

### First VirtualLife workshop

On Tuesday, July, 20th, 2010 the First VirtualLife Workshop took place in Rome – Italy. The workshop was attended both by the VirtualLife Consortium and 10 external stakeholders.

[more>>](#)

### Poster in the cyber-security session

V. Čyras will participate in SRC'2010, the 5th Annual Security Research Conference, 22-24 September 2010, Ostend, Belgium, <http://www.src10.be/>. He will present a poster in the cyber-security session.

### First VirtualLife workshop (invitation)

The VirtualLife Consortium is glad to invite you to the First VirtualLife workshop on the 20th of July, 2010 at 9,30 am at Nergal Srl.

[more>>](#)

# Virtual Life

- The VirtualLife consortium has just released the official VirtualLife demo video;
- it contains general information about the platform and its architecture, together with a general overview of the work in progress and future features.
- The video also show the high level of 3d graphics of this virtual world.
- Version September 2009.

# VirtualLife Virtual World Platform Demo

- <http://www.youtube.com/watch?v=iueJh3iWoHs> (5:10)