Project Blinkenlights

Tim Pritlove
Chaos Computer Club

HITBSecConf2005
Kuala Lumpur, Malaysia, 2005-09-28
Chaos Computer Club

- Founded in 1981
- Galactic community of people interested in and concerned about technology
- Decentralized, region-based structure
- Magazine “Die Datenschleuder”
- International conferences, workshops
- 1200+ members
Chaos Communication Congress (C3)

- Annual Int. European Hacker Conference
- December 27th to 30th in Berlin, Germany
- 3500+ participants
Chaos Communication Camp

- Quadrennial International Open Air Hacking Event
- Because we can
- 2000+ participants
Part 1:
Berlin, Germany
2001 A.D.

- Wau Holland died
- Spontaneous idea to celebrate the 20th anniversary of the CCC (September 12th, 2001)
- The plan: Having a five day exhibition and a big party
- And there is one more thing...
Blinkenlights

- Interactive installation at Haus des Lehrers, Berlin Alexanderplatz
- Five weeks from idea to realization
- One week setup time
- Low cost & low tech
ATTENTION!

This room is fullfilled mit special electronische equipment. Fingergrabbing and pressing the cnoeppkes from the computers is allowed for die experts only!

So all the lefthanders stay away and do not disturben the brainstorming von here working intelligencies.

Otherwise you will be out thrown and kicked anderswhere! Also: please keep still and only watchen astaunished the blinkenlights.
Details

• 8 floors with 18 windows each
• 144 floodlights on stands
• Automatic playback software
• Pong via phone
• Blinkenlights Loveletters
Blinkenlights Impressions
Heart as seen from TV tower
Heart seen from the front
Blinkenlights Photography

Chaosknoten
Blinkenlights Photography

Chaos Computer Club
Blinkenlights Photography

Three Letter Acronyms
Blinkenlights Photography

Supermännchen
Blinkenlights Photography

No War
Blinkenlights Photography

Pong
Pong

- The arcade classic
- Playable via phone
- 1 player against the computer
- 2 players against each other
- Automatic time limit
BlinkenPaint

- Authoring tool for MacOS and Windows
- Built-in simulator
- Blinkenlights Movies (BLM) file format
- Dispatched via e-mail
- Blinkentools
Blinkenlights Movies
Blinkenlights Movies File Format (BLM)

# BlinkenLights Movie 18x8

@200
000000000000000000
000011100011100000
000111110111110000
000111111111110000
000011111111100000
000000111110000000
000000001000000000
000000000000000000

@800
000011100011100000
000111110111110000
001111111111110000
001111111111110000
000111111111110000
000011111111100000
000000111110000000
000000001000000000
Blinkenlights Loveletters

- Person creates movie with BlinkenPaint
- Sends in movie in by e-mail
- Assignment of code number
- Code gets back to person by e-mail
- Loveletter invocation by phone
Blinkenlights
Art & Beauty Contest
Towers Of Hanoi

BEST GAME ANIMATION
Yin Yang

BEST LOGO ANIMATION
TLA

BEST TYPOGRAPHY
Le Chat Noir

BEST CREATURE ANIMATION
Bit Laden

BEST SATIRE
Pixie In The Box

BEST HUMAN CHARACTER ANIMATION
Quix Glitter

BEST ABSTRACT ART
Silent Night

BEST SOUNDTRACK
Supermännnchen

BEST STORY
The Fly

BEST MINIMAL
Anna

BEST LOVELETTER
Blinkenlights Pop-Art

- Golden Boy
- Sven Väth
- Miss Kittin
- Die Toten Hosen
- proto.beamaz
Blinkenlights Video
Blinkenlights Technology

A look inside
Chaos Control Center

Matrix Control Computer
Chaos Control Center

Amplification Setup
Floor Setup

Floodlights – Relais – Cables
Hardware Setup
Blinkenlights Software

• GNU Public License (GPL)
• Chaos Control Center (blccc)
• Simulator (blinkensim)
• Converter (b2b), Utilities (bsend, …)
• Blinkenlights Library (blib)
• DarwinPorts port available
Blinkenlights Protocol

Chaos Control Center

UDP

Matrix Control Unit

UDP

Blinkenlights Proxy Server

UDP

Blinkenlights Simulator
Blinkenlights Protocol

- UDP based
- Fully implemented in blib
- bsend utility
- blinkenproxy
- mcud
Matrix Control Unit

Blinkenlights Second Edition
Matrix Control Unit

- Self-developed light control modules
- Software controlled lamps
- RTAI Linux
- Support for other lamp types
  - Fluorescent lamps
  - Neon RGB
“Das Bauschild”

- Temporary installation at HdL
- LED technology
- Blinkenlights with 16 greyscales
- Test system for new tricks
BlinkenArea

- BlinkenMINI
- BlinkenLEDs
- BlinkenBoard
- LittleLights
- XMasLights
Part II:
Paris, France
Arcade

- Interactive installation at Bibliothèque nationale de France, Paris
- Part of “Nuit Blanche”
- Next generation Blinkenlights technology
- Greyscales and Plug-Ins
Details

- 20 floors with 26 windows each
- 520 double-floodlights
- 8 greyscales per “pixel”
- Extended playback software
- Realtime modules
- Tetris, Pong, Breakout and Pacman
ArcadePaint

- Next generation BlinkenPaint
- New file format BML
- Grayscales, Color, Multicolor
- XML based format
- Communication via e-mail
<?xml version="1.0" encoding="UTF-8"?>
<blm width="18" height="8" bits="8" channels="1">
  ! <header>
  ! ! <title>yeah yeah</title>
  ! ! <creator>gif2blm (modified)</creator>
  ! ! <author>Tim Ruetz</author>
  ! ! <email>tim@sushipunk.de</email>
  ! ! <loop>yes</loop>
  ! ! <duration>10900</duration>
  ! </header>

  ! <frame duration="100">
  ! ! <row>fffffffffffffffffffffffdd080a0d0fffffffffff</row>
  ! ! <row>fffffffffffffffffffffff0a04064bbe0fffffffff</row>
  ! ! <row>fffffffffffffffbb944020001033a0e0fffffff</row>
  ! ! <row>fffffffffffffffff802010000000933a0bbfff</row>
  ! ! <row>fffffffffffffffde0ab3b000000e1020293370b0ff</row>
  ! ! <row>fffffffffffffffdd094713300003370bbe0e0e00</row>
  ! ! <row>fffffffffffffff15b33101040a1e3fffffff</row>
  ! ! <row>fffffffffffffff9b615031316bcbcbd0d0e0e0</row>
  ! </frame>
Arcade Impressions
Arcade Photography

The Eye
Arcade Photography

Pacman
Arcade Photography

The Swan
Arcade Photography

Chaos Computer Club
Arcade Photography

Mona Lisa
Arcade Photography

Supermännchen
Arcade Photography

Alfred Hitchcock
Arcade Photography

Big Brother
Arcade Real Time Video Art

by proto.beamaz
Arcade Video
The future

- New projects might happen
- New interactive input devices
- Improved software foundation
- Web based movie submission and playlist administration
- World domination
Project Web Site
http://www.blinkenlights.de/

- Blinkenlights explained
- Gallery of selected movies
- Documentation videos
- Links
- Could be better
Thank You!
Any Questions?

contact@blinkenlights.de

http://www.blinkenlights.de

(DVD with Videos available - ask me)