ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

building gameboards: game design for computer integrated environments

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Moyang Architects & Partners, Seoul

09/02/2005

DARCH
Faculty of Architecture

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overview

upcoming

- background
- about ETH Zurich / CAAD
- what are serious pervasive games in relation to architecture?
- projects
- discussion

background spw

ETH Zurich / CAAD

at the ETH Zurich / CAAD we apply IT to create real projects:

1

generative design
with real applications

2

one-of-a-kind production
of unique building designs:
mass customization

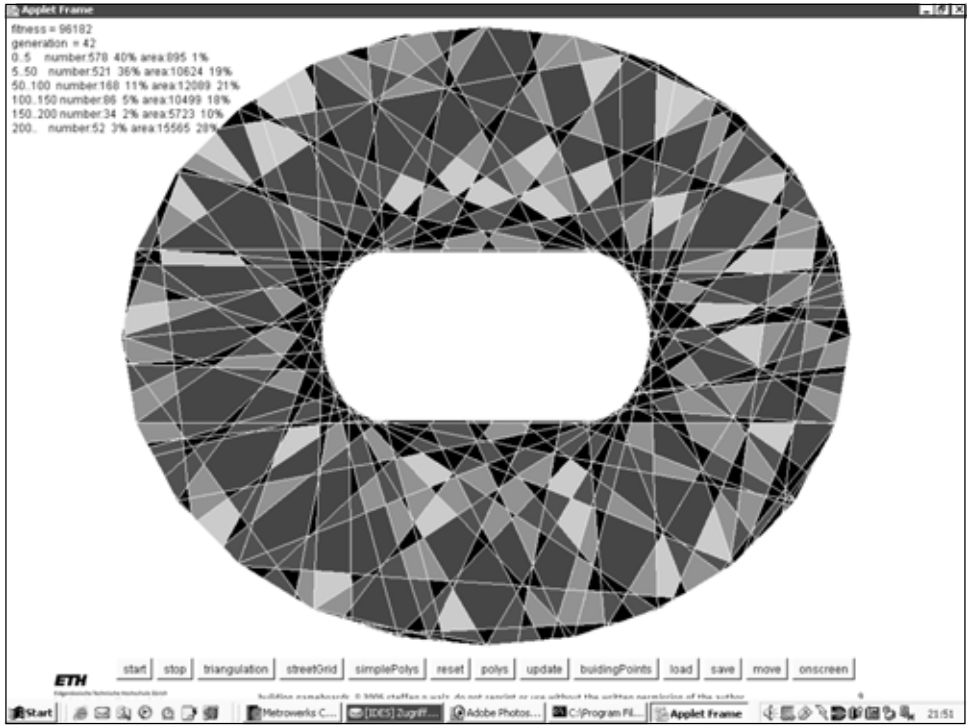
3

pervasive computing to establish
(collaborative) building services

1

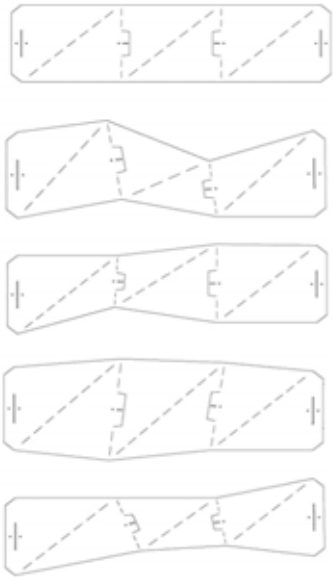
generative design with real
applications

national stadium beijing



2

one-of-a-kind production
of unique building designs:
mass customization



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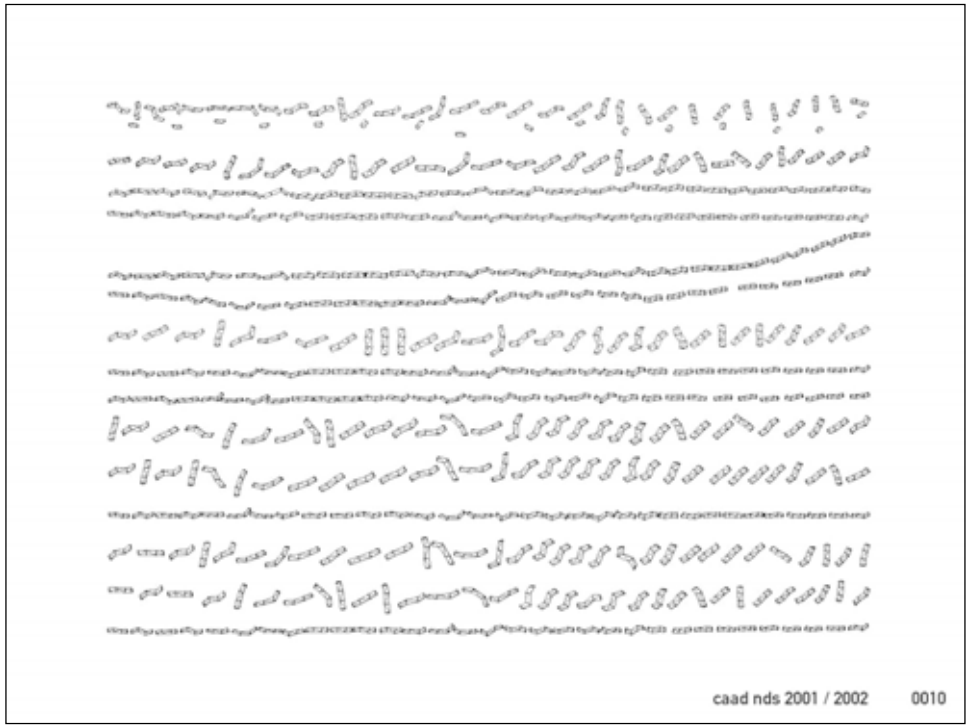
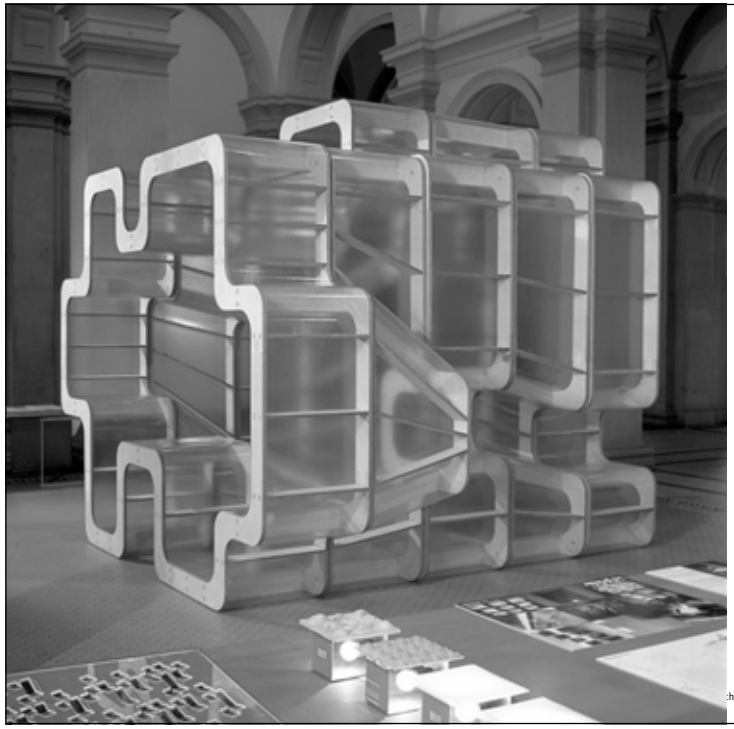


caad nds 2001 / 2002 0010



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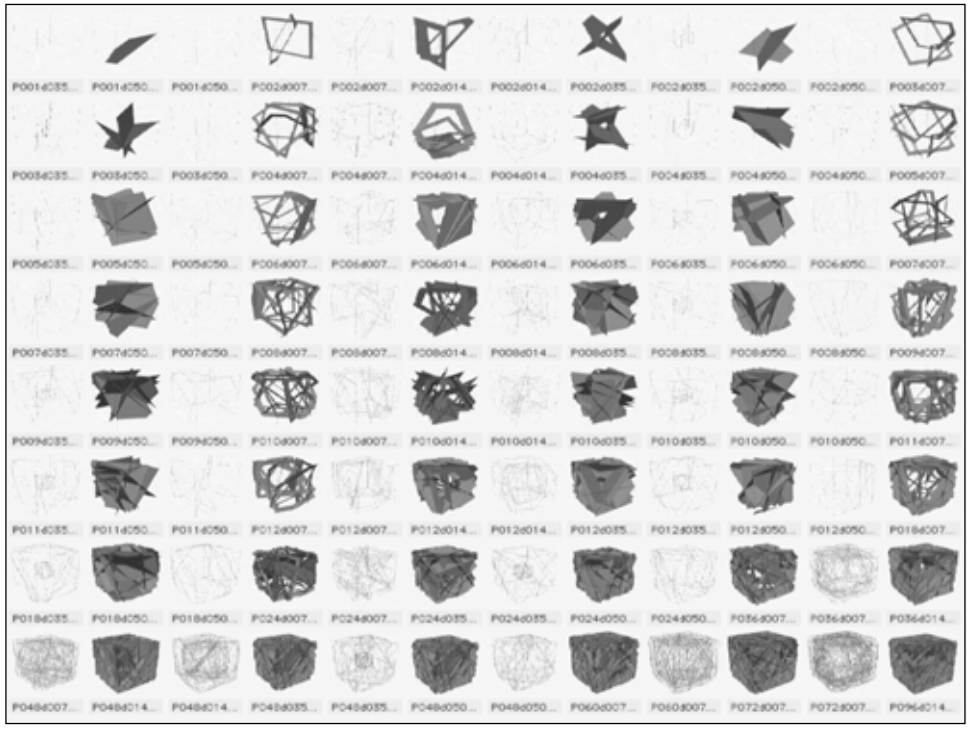
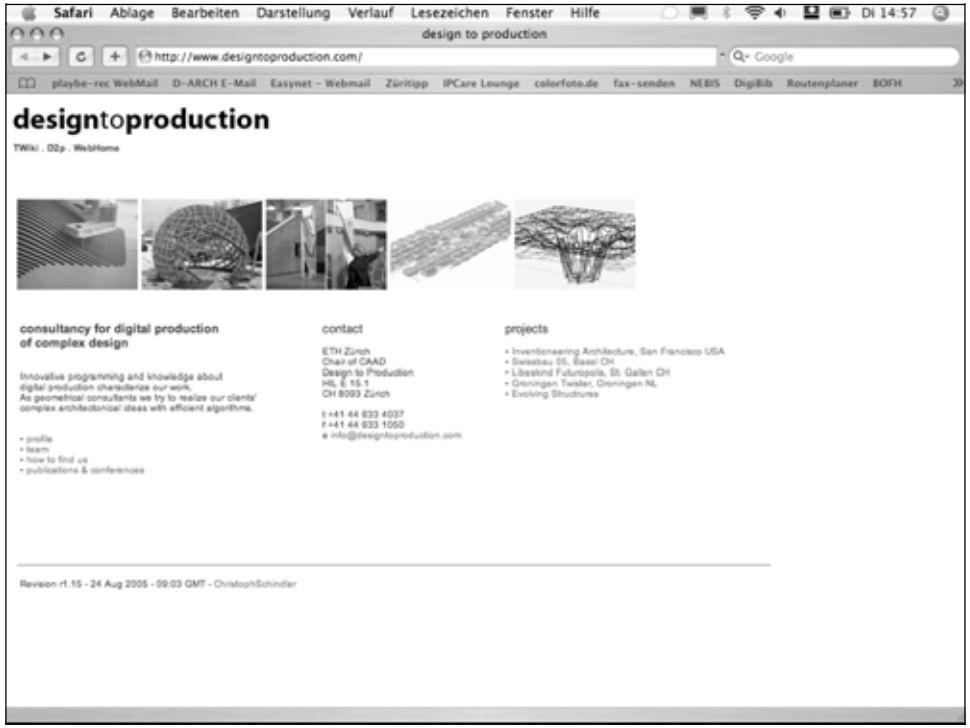
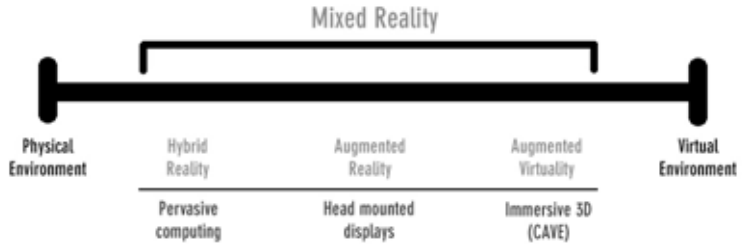




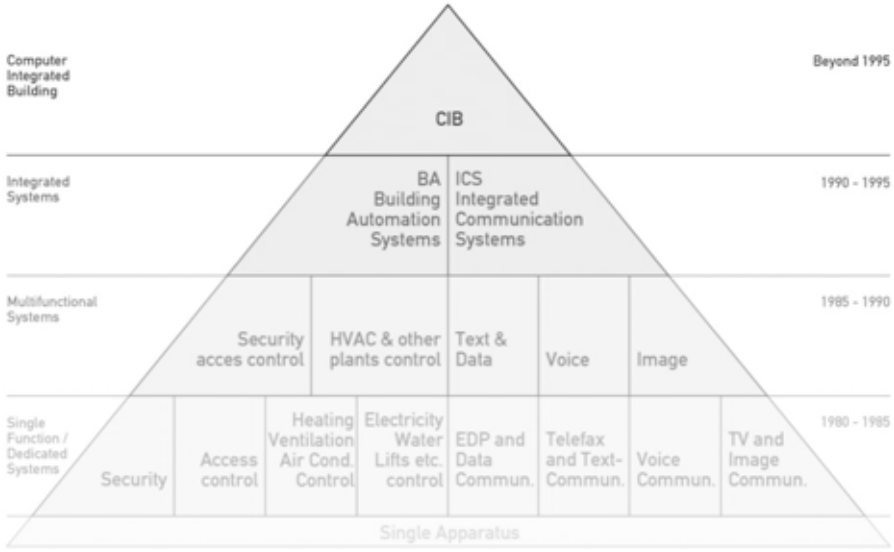
3

pervasive computing to establish (collaborative) building / spatial services

def. pervasive computing & hybrid reality

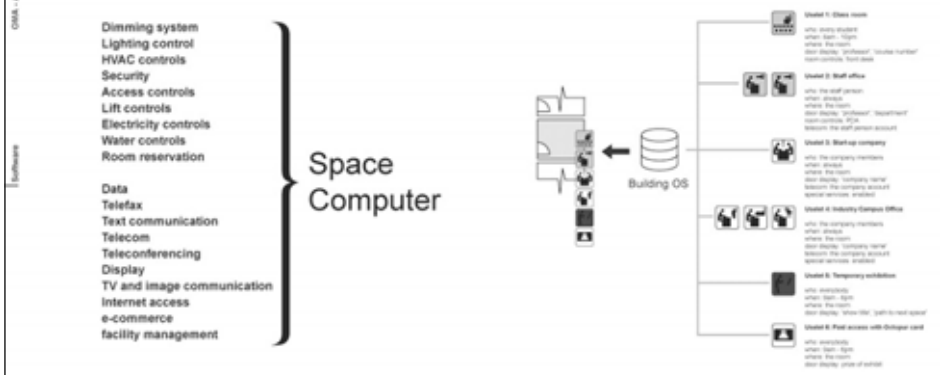


computer integrated buildings



teknibank, degw, milano/london, 1991

a building as a service platform



© OMA - AMO 2002

ongoing projects:
ETH world -> ETH science city (2006+)

ongoing projects:
ETH world / CAAD buildingIP ->
ETH science city (2006+)

ongoing projects:
ETH world / CAAD buildingIP ->
ETH science city (2006+)

ongoing projects:
ETH world / CAAD buildingIP ->
ETH science city (2006+)

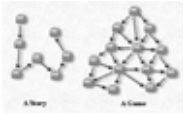
what are serious pervasive games?

serious pervasive games combine =

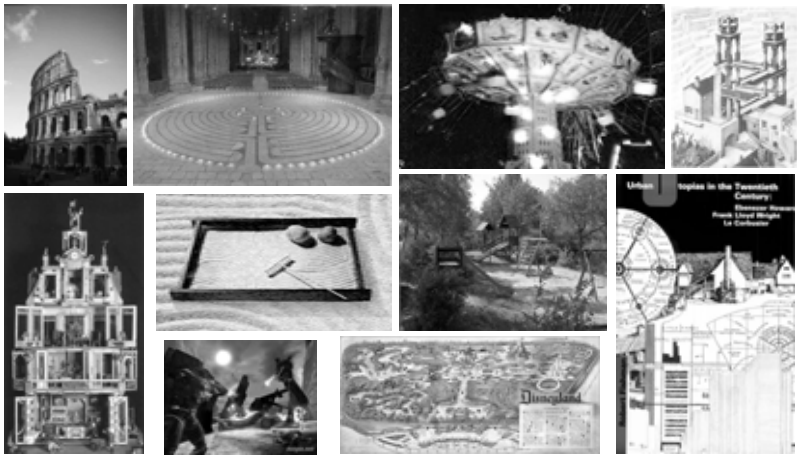
1) serious purpose
(e.g. learning)

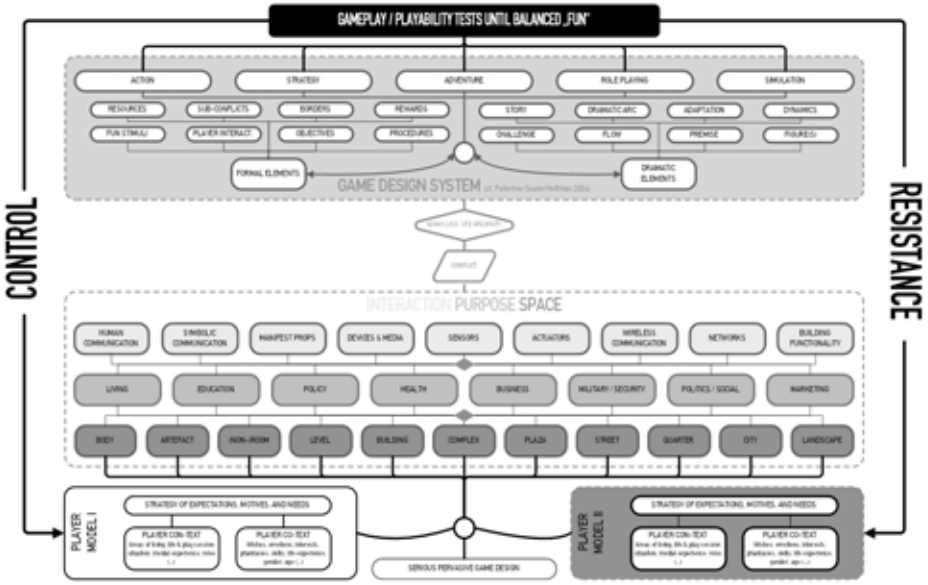
2) pervasive computing
(e.g. mobile devices, wireless networks, sensors / actuators)

3) game design methods
(e.g. rules & goals, space-time, interactions, challenges & rewards, drama, closure)



some history digging:
technologized game & play architectures





projects

not so obvious serious game technologies

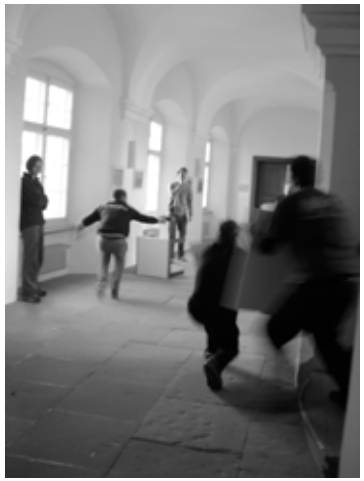
- face recognition
- gait identification
- (DNA) fingerprinting
- vehicle / traffic tracking
- electronic tagging
- location tracking
- wiretapping / bugging
- project echelon
- data warehouses (acxiom)
- ID cards
- CCTV

third party serious pervasive game examples

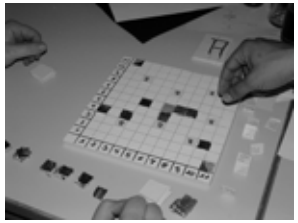
Microsoft - „I Love Bees“ marketing for Halo2 (Xbox): Web + public payphones + real actors + collaborative gameplay

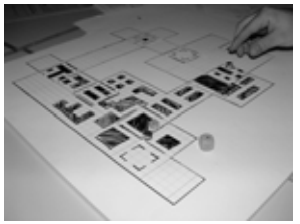
MIT - „Environmental Detectives“ emergency bio learning: PDA + GPS + virtual actors + collaborative gameplay

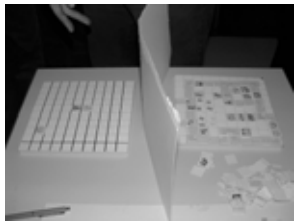
exemplary prototyping methods I

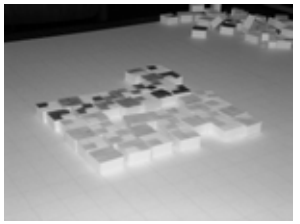


exemplary prototyping methods II





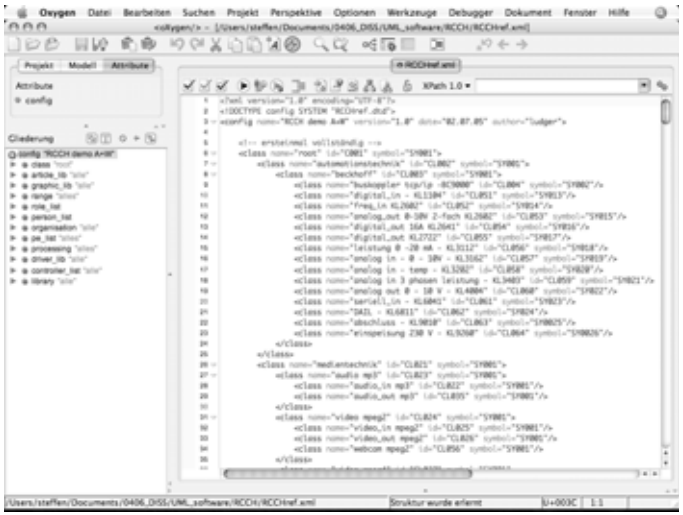




exemplary prototyping methods III

results from game arch design class, university of stuttgart, fall 2004/05, cf. http://wiki.caad.hbt.arch.ethz.ch/twiki/bin/view/Gamearch

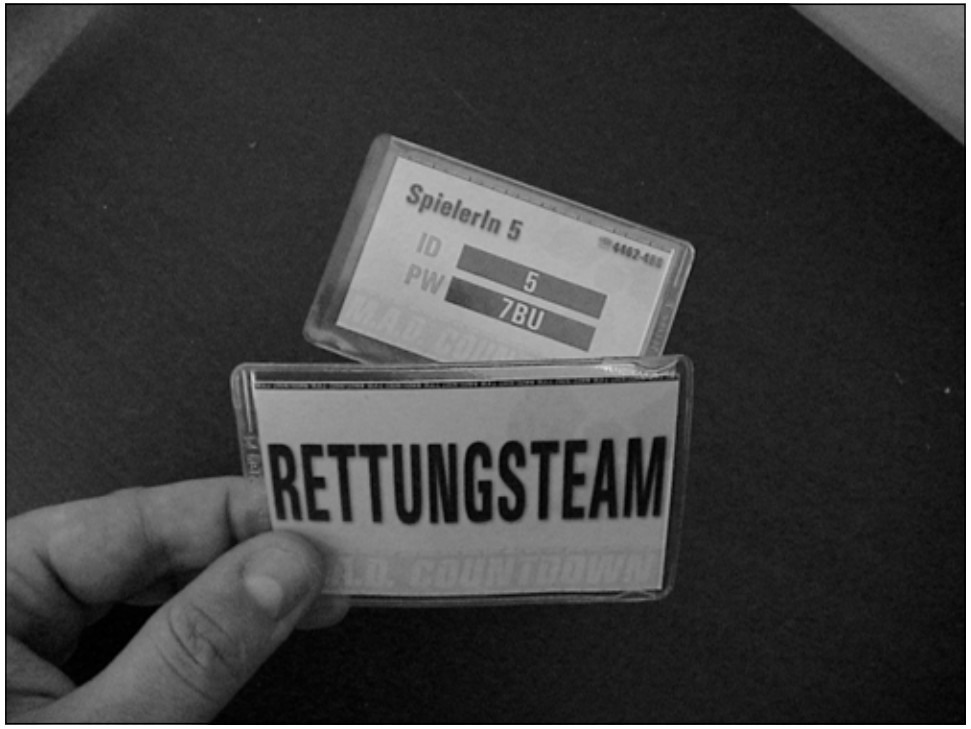
exemplary prototyping methods IV

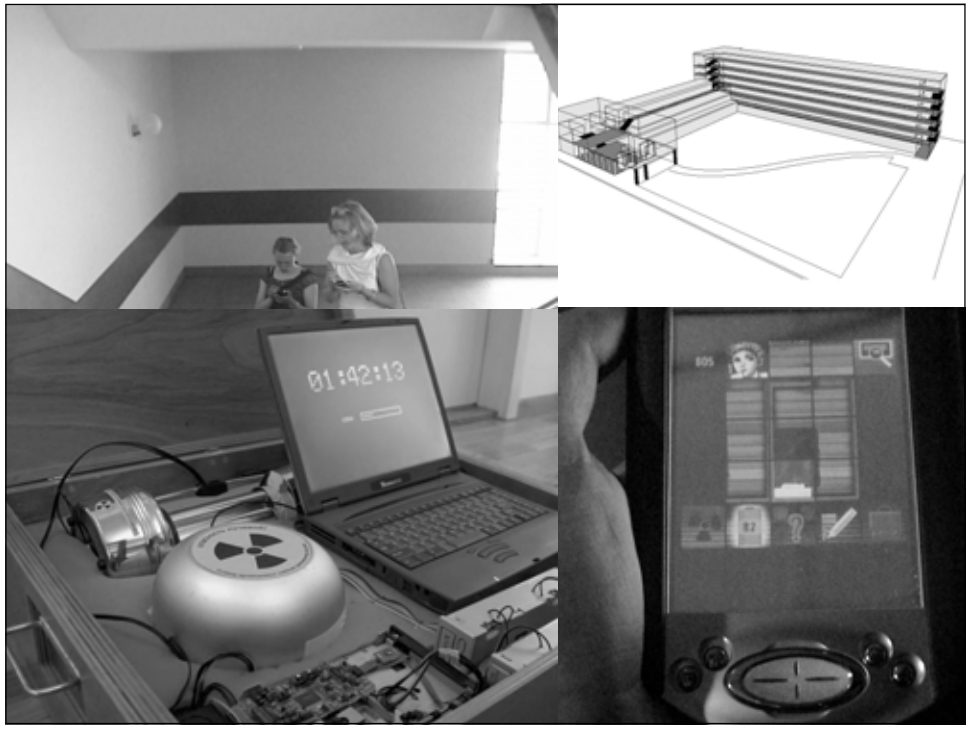


XML definition of a functional computer integrated building setting

serious pervasive game design: security

www.madcountdown.de: emergency & trust: PDA + WLAN + physical components + real actors + collaborative gameplay





serious pervasive game design: policy

ETH

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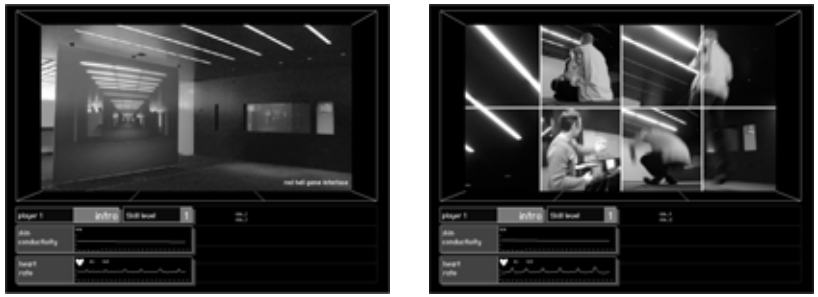
serious pervasive game design: policy

serious pervasive game design: policy

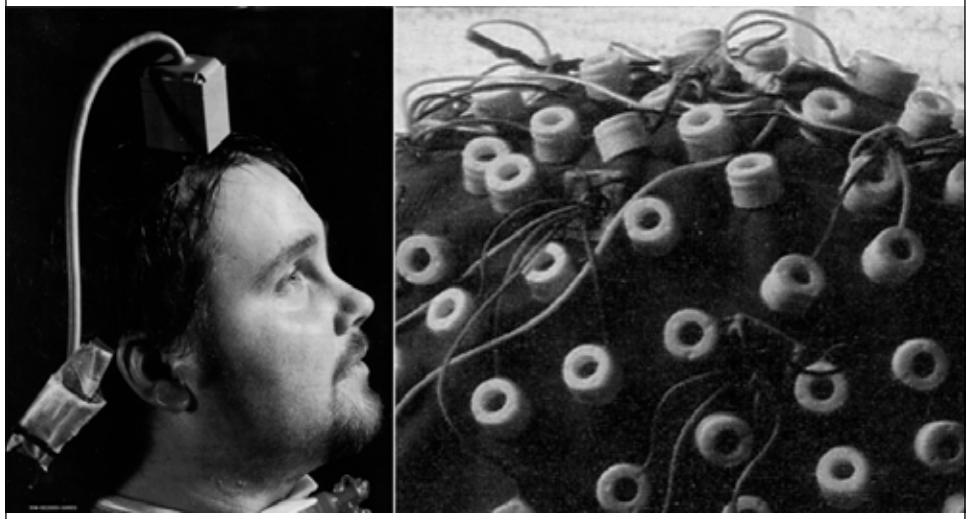
„Spirits of Split“ touristic marketing: Collectible cube puzzle + citizen participation + live action role playing

serious pervasive game design: health

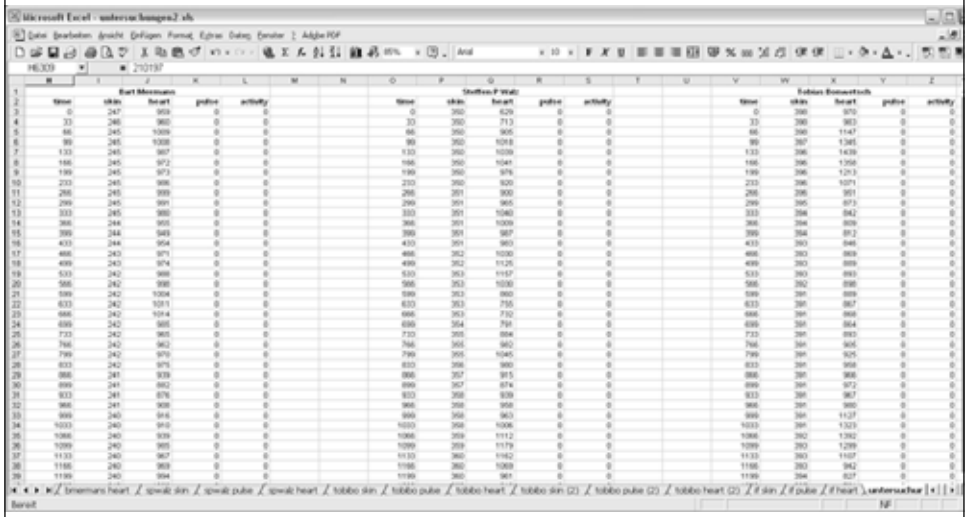


„lightFight“ health care & room control: Wearable biofeedback + IP enabled room functionalities + psychophysiology

serious pervasive game design: health



serious pervasive game design: health



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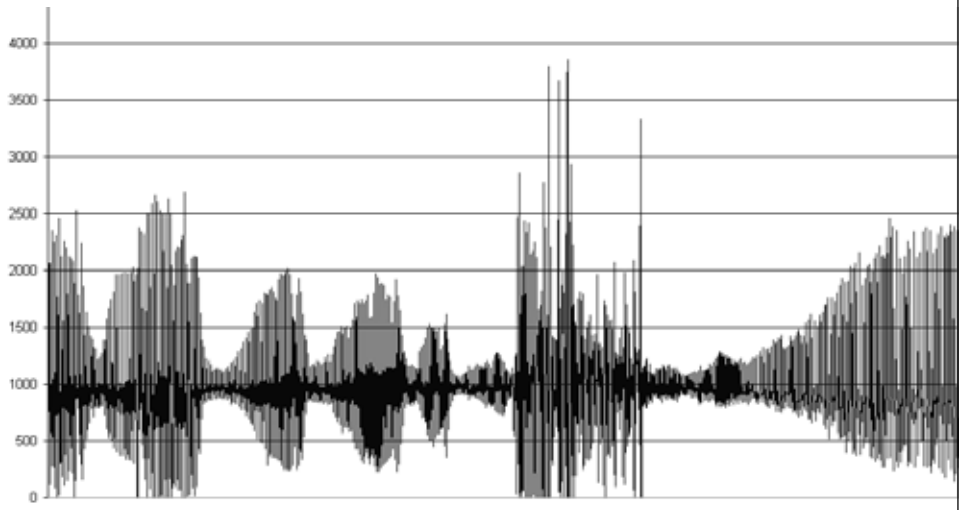

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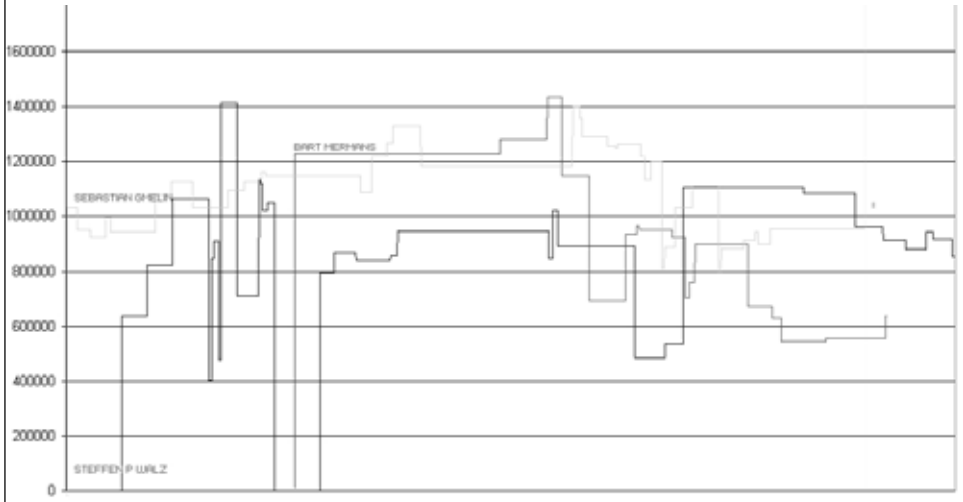

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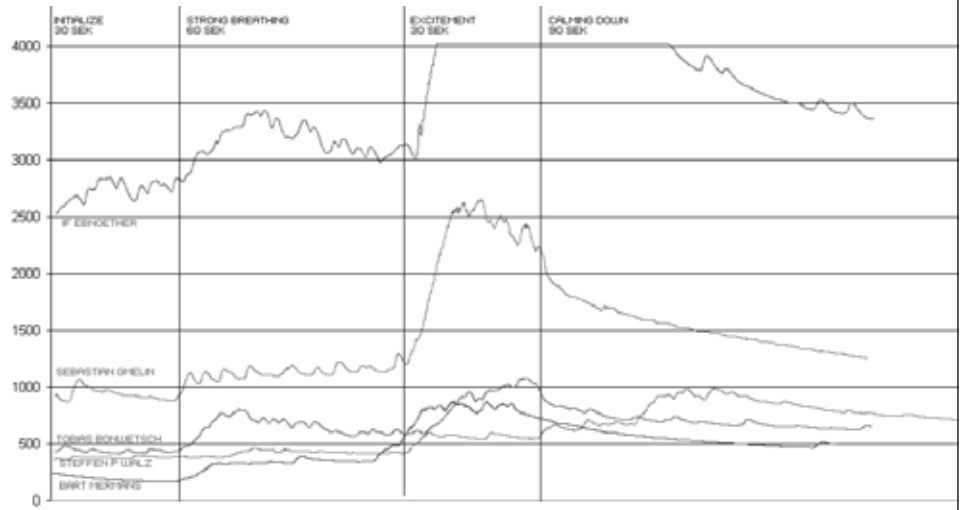

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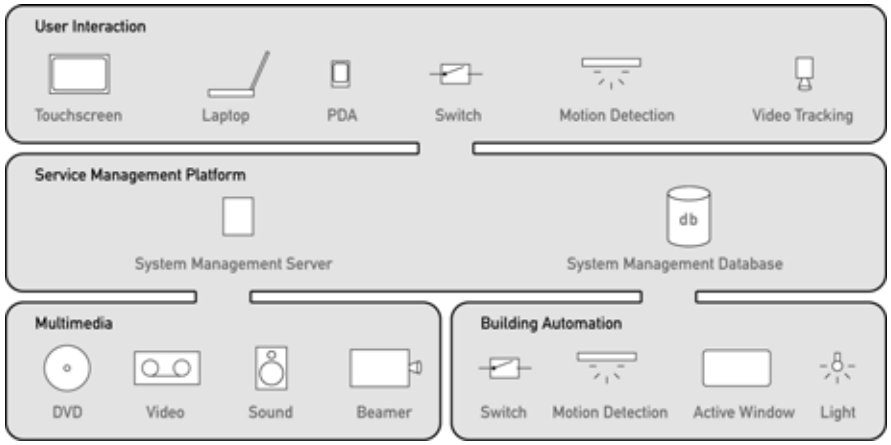

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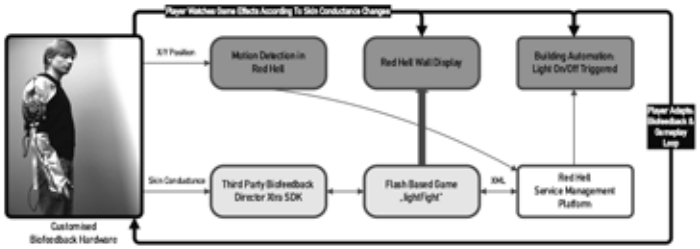

serious pervasive game design: health

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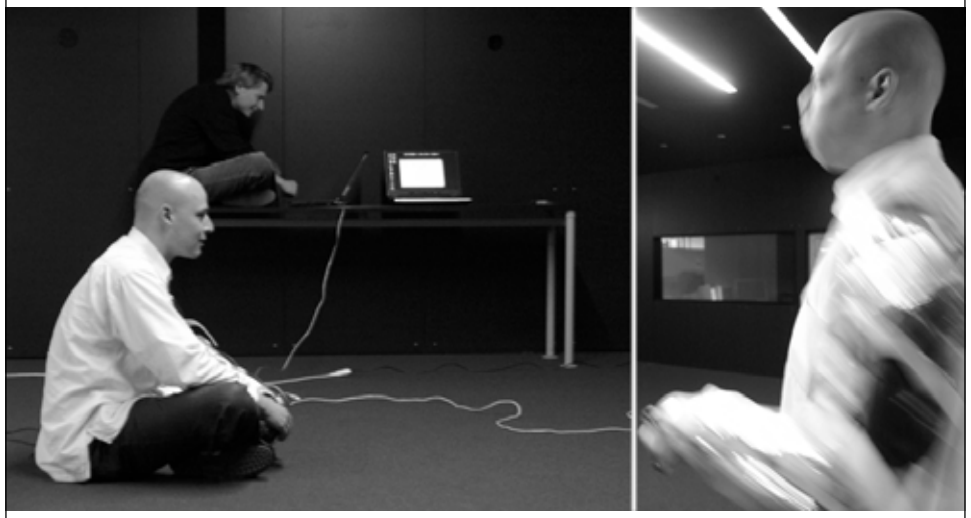
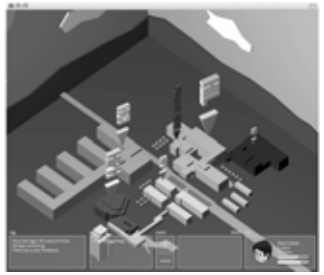


serious pervasive game design: education

„ETHGame“ e-learning & community building: Mobile computer + WLAN positioning + massively multiplayer

serious pervasive game design: education



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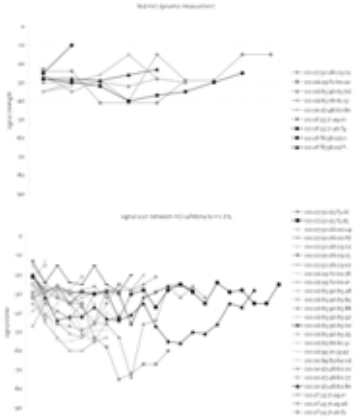
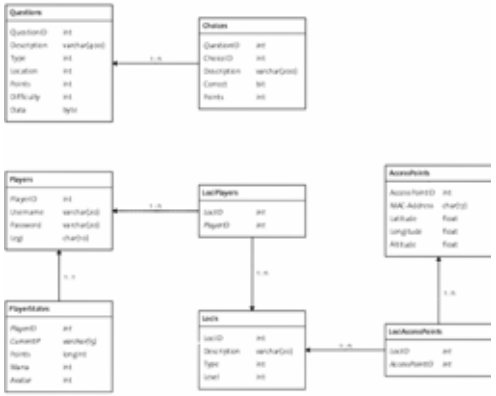


serious pervasive game design: education



serious pervasive game design: education

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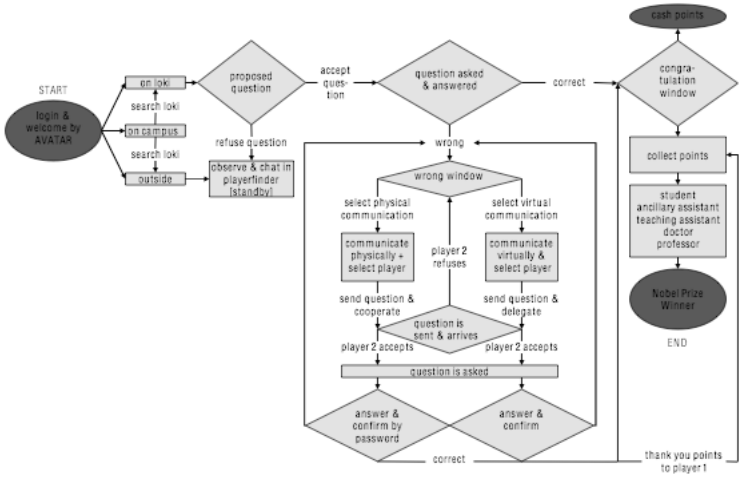
serious pervasive game design: education



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serious pervasive game design: education II

„Who's afraid of the black man?" study program learning & community building:
Cell phone camera + semacode scanning + GPRS + Online multiplayer application

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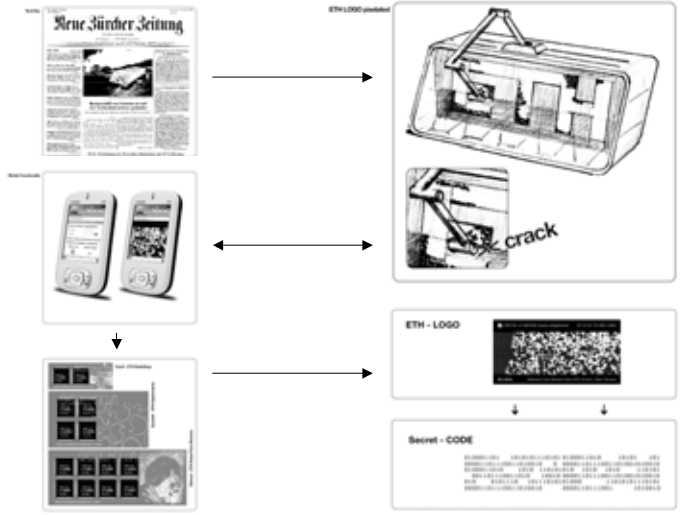
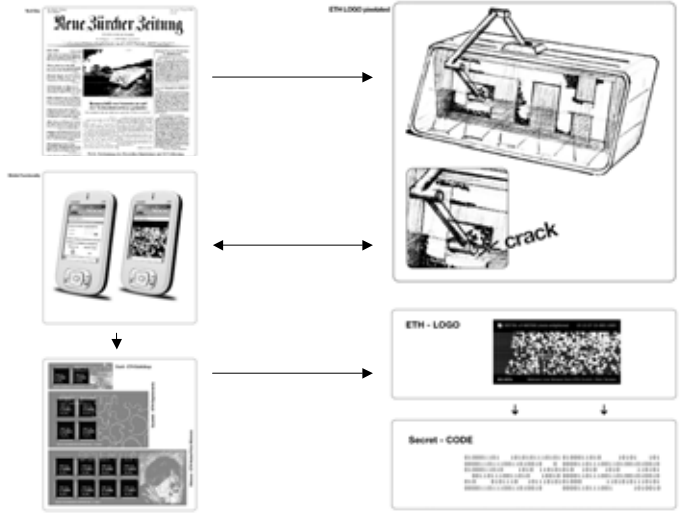
serious pervasive game design: fundraising

serious pervasive game design: fundraising



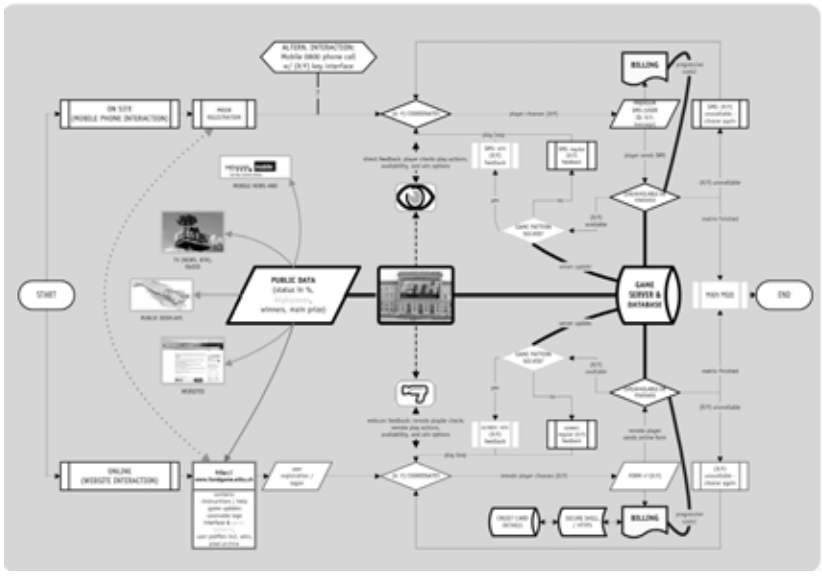
„ETH Fundraising": Web + cell phone + alien invasion + public robotic display + chance prizes + collective gameplay

serious pervasive game design: fundraising



„ETH Fundraising": Web + cell phone + alien invasion + public robotic display + chance prizes + collective gameplay

serious pervasive game design: fundraising



serious pervasive game design: business

Chaos Computer Club & Bbtel GmbH
„Blinkenlights“ (2001):

Cell phone + media augmented facade

CAAD & Bbtel GmbH:

Cell phone as universal control device (displays, functionalities, sensors)

next steps: MassivelyMultiplayerAudioRealityGames =

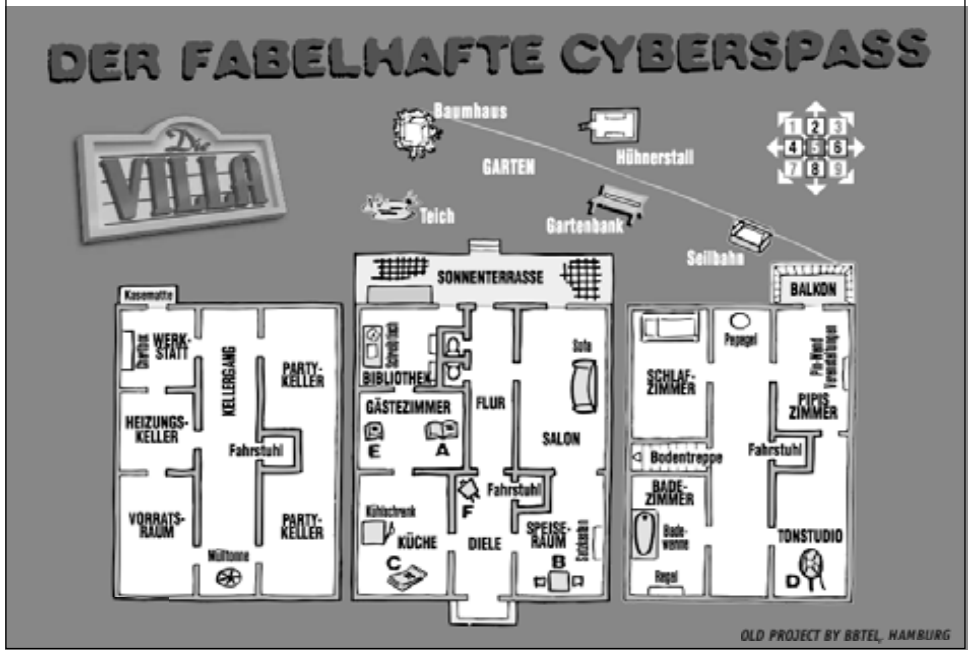
1) many simultaneous players & quests in the style of MMORPGs, but in an audioReality

2) use core functionality of cell phones: telephony!

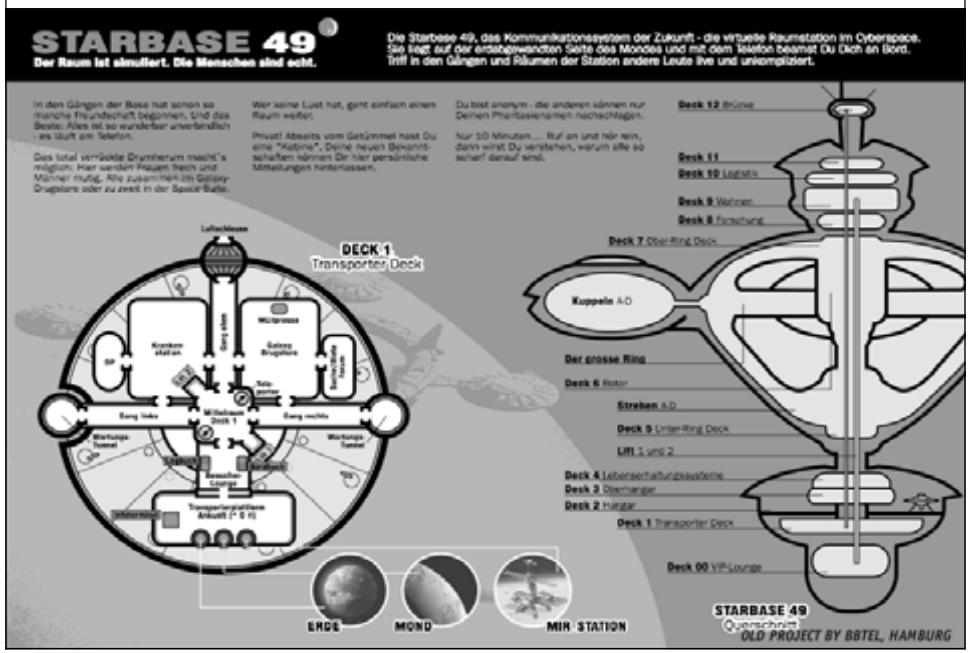
3) add side functionality of cell phones for interaction: universal remote control / „joystick“ via phone keys

4) possibly: location based data

next steps: MassivelyMultiplayerAudioRealityGames

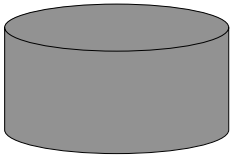


next steps: MassivelyMultiplayerAudioRealityGames



next steps: MassivelyMultiplayerAudioRealityGames

MMARG server & multi user functionalities



MMARG incl. avatar, quests, level ups etc.

discussion

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