

everyday playgrounds: architecture, game design, and pervasive computing

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Sigong Tech - Time & Space Tech

08/29/2005

DARCH
Faculty of Architecture

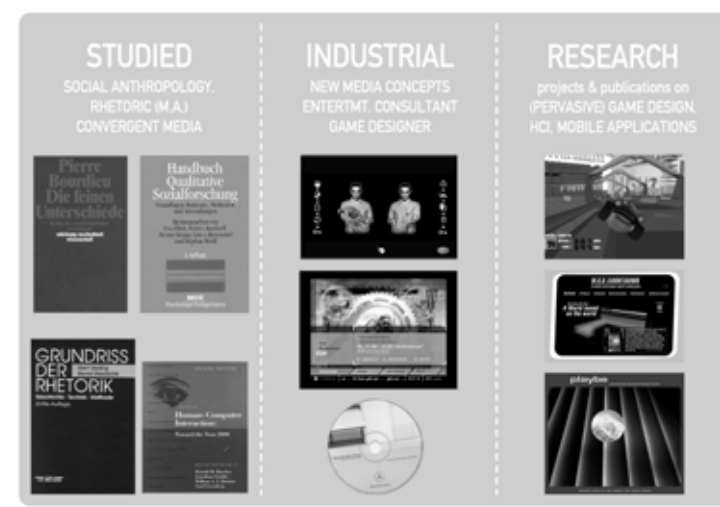
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overview

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

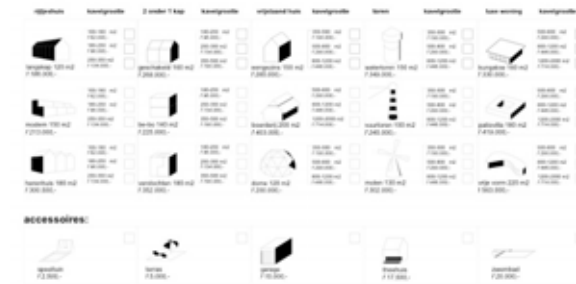
2
one-of-a-kind production
of unique building designs

3
pervasive computing to establish
(collaborative) building services

1

generative design with real
applications

woning & kavelt:



accessoires:



positie van de woning:



type tuin:



nabijheid:

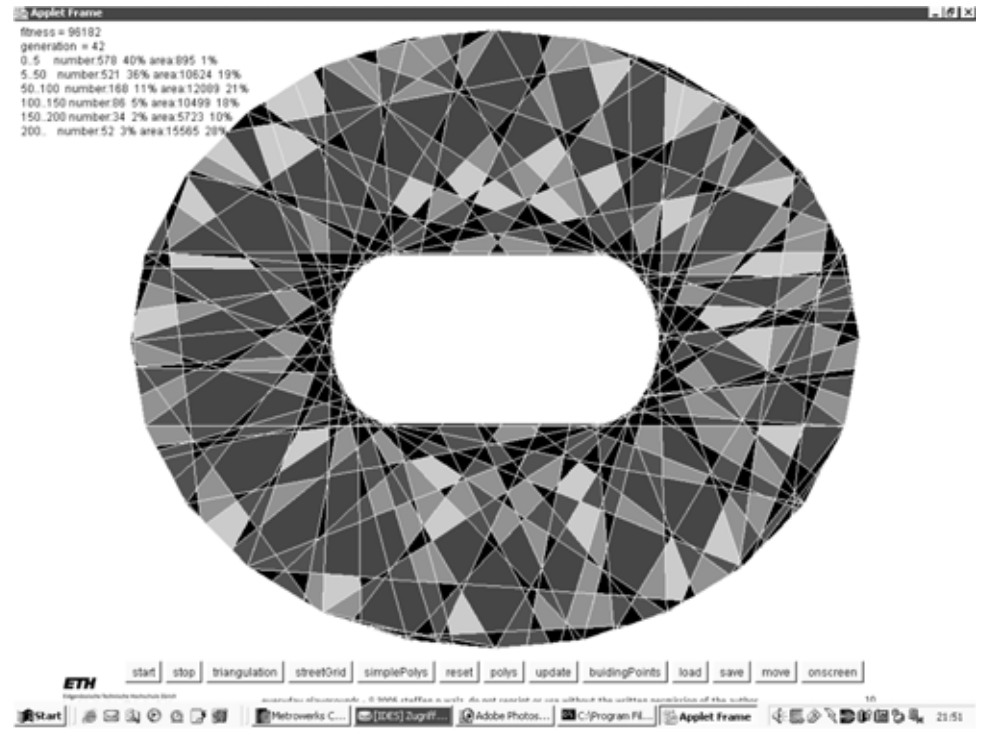


buren:





national stadium beijing



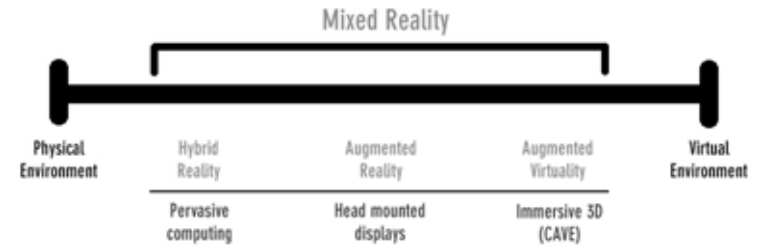
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one-of-a-kind production
 of unique building designs

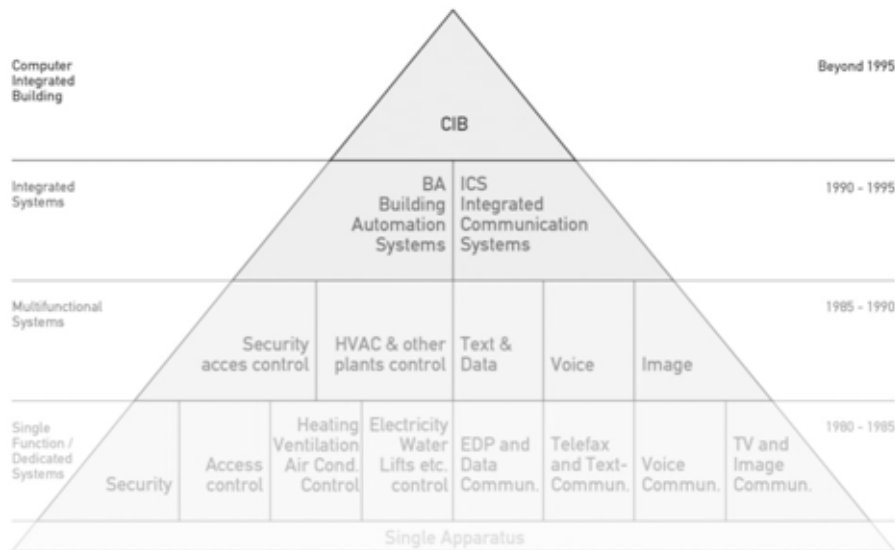
3

pervasive computing to establish
(collaborative) building / spatial
services

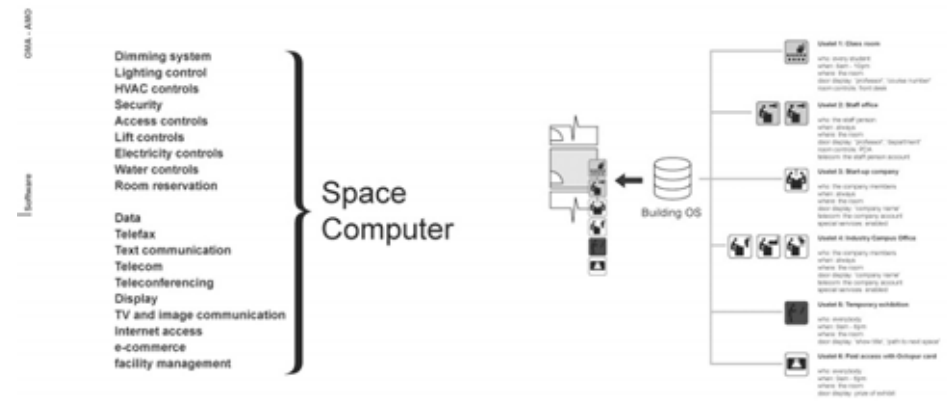
def. pervasive computing & hybrid reality



computer integrated buildings



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+)

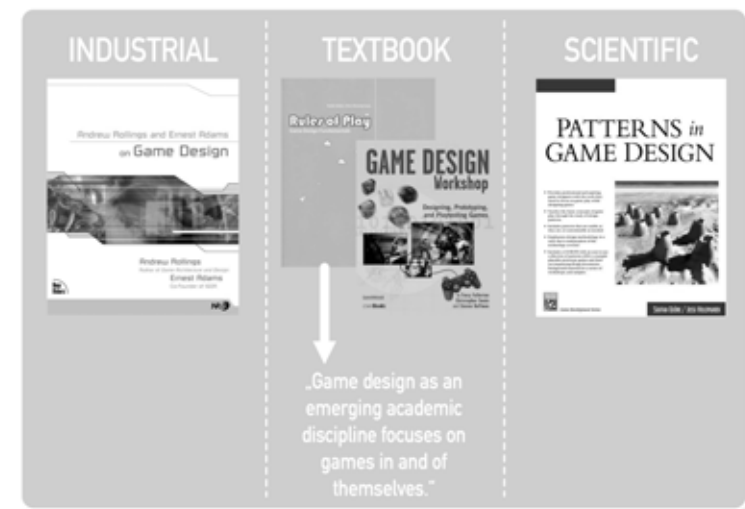


ongoing projects:
ETH world / CAAD buildingIP ->
ETH science city (2006+)



what are serious
pervasive games?

the discipline of game design



rules of play

- 1) the world - a place - is a gameboard
- 2) the game is where *you* are
- 3) ideas come first, then co-texts & con-texts, then interaction schemes, media & technology
- 4) serious pervasive games have dialectics:
 - a) they empower novel subjective experiences
 - b) if well balanced, they are near perfect surveillance and motivation tools

some history digging: technologized game & play architectures



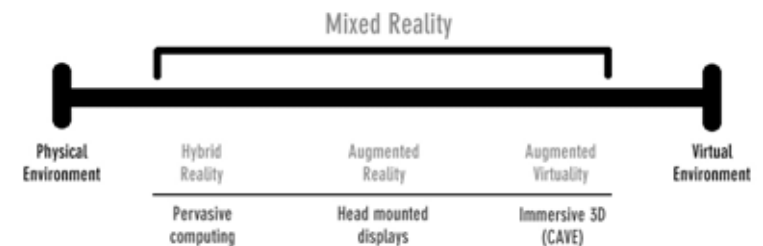
def. serious game

a serious game is a game that serves non-entertainment purposes such as learning, health care, security / military, management (training), marketing, or public policy.

(cf. www.socialimpactgames.com)

def. pervasive game

pervasive games take advantage of emerging mobile, wireless, sensor, and positioning technologies for game experiences that merge virtual and physical game components.



getting earnest again:
def. serious pervasive game

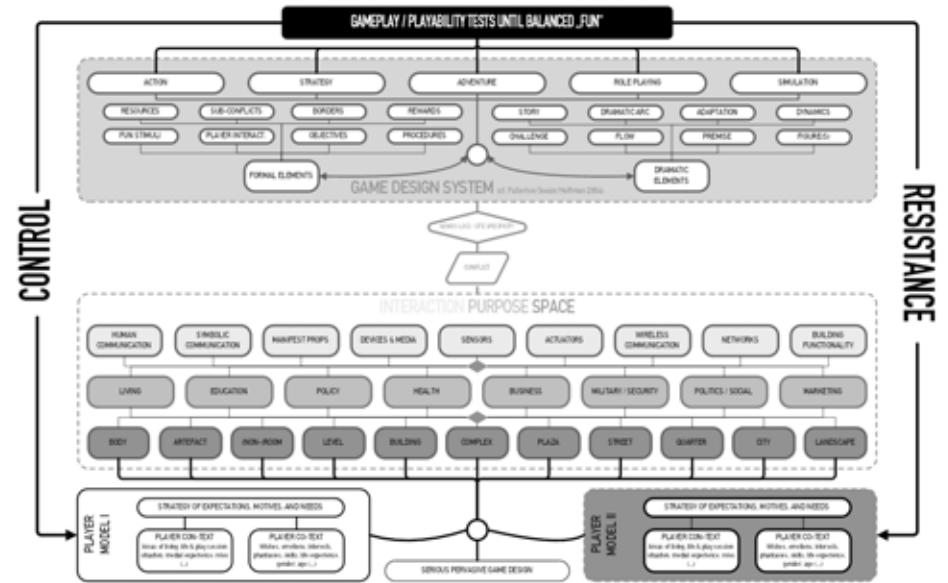
a serious pervasive game is a - surveillant - pervasive computing system in which players engage in an (artificial) conflict, defined by rules, that results in a quantifiable outcome; this game system is entertaining and experiential, yet following non-entertainment purposes.

(salen/zimmerman, add. spw)



with games, learning is the drug.

(koster)



projects

not so obvious serious fun 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

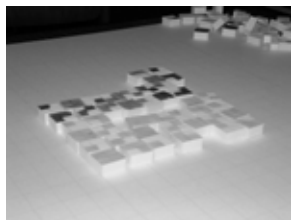
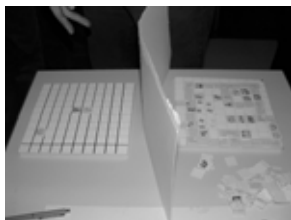


MIT - „Environmental Detectives“ emergency bio learning: PDA + GPS + virtual actors + collaborative gameplay

exemplary prototyping methods I



exemplary prototyping methods II

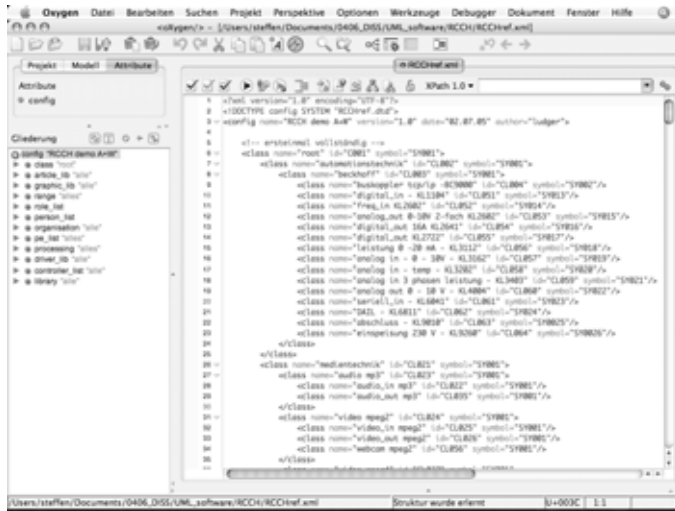


exemplary prototyping methods III



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



serious pervasive game design: policy

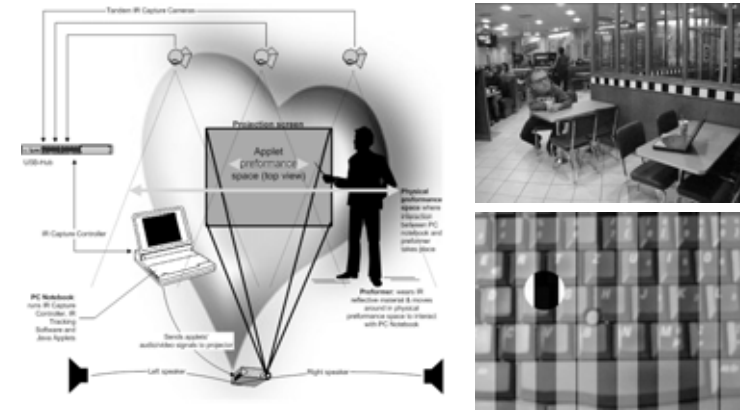


SPIRITS
 -PEOPLE, BUILDINGS, OBJECTS
 -POSITIVE TESTIMONIALS
 -WITTY COMPANY
 -KNOWLEDGEABLE

serious pervasive game design: policy

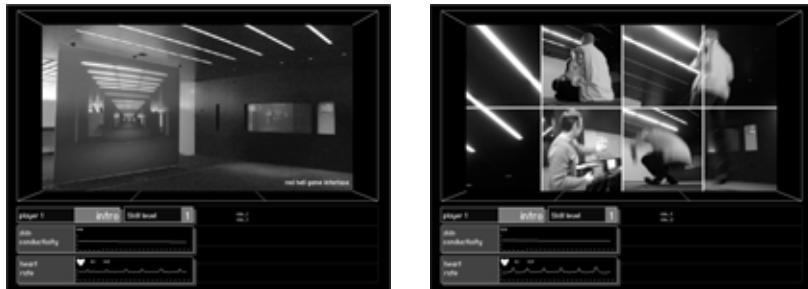
„Spirits of Split“ touristic marketing: Collectible cube puzzle + citizen participation + live action role playing

serious pervasive game design: control



„Container Love“ body based room audio/image control: Infrared tracking + projection + audio/image manipulation

serious pervasive game design: health



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

serious pervasive game design: education



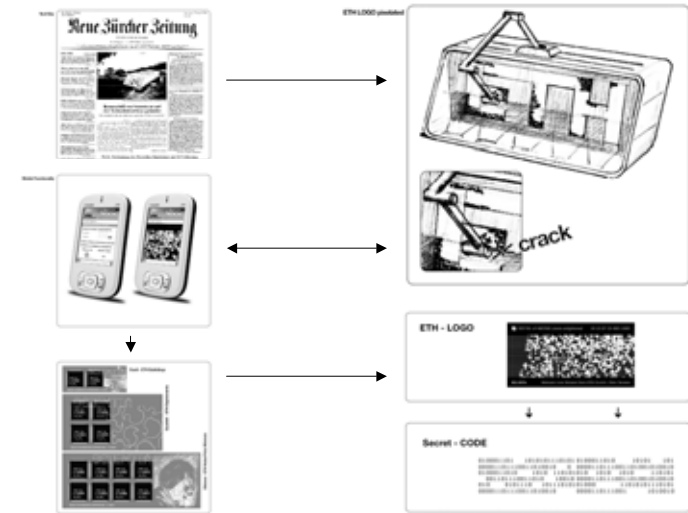
„ETHGame“ e-learning & community building: Mobile computer + WLAN positioning + massively multiplayer

serious pervasive game design: education



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

serious pervasive game design: fundraising

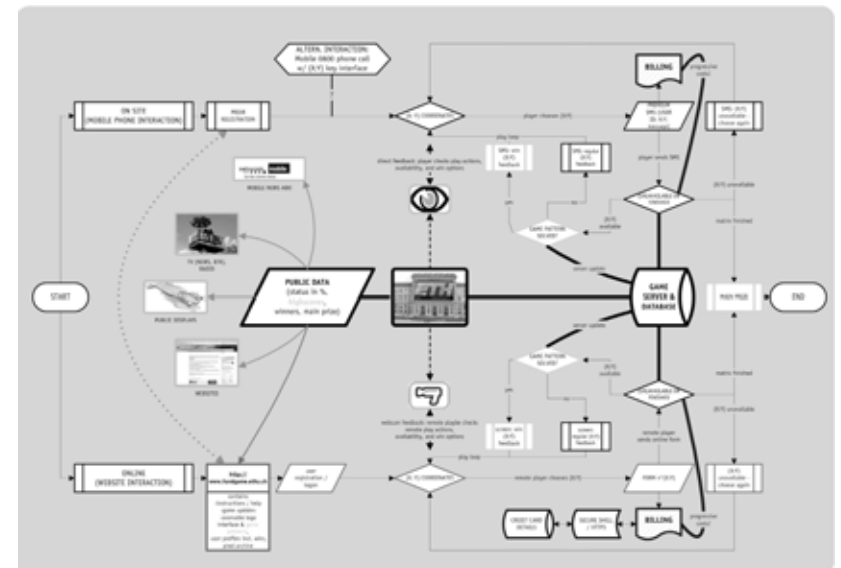


„ETH Fundraising“: Web + cell phone + alien invasion + public robotic display + chance prizes + collective gameplay

serious pervasive game design: fundraising



serious pervasive game design: 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)

earlier, related projects: collaborative 3d immersive VR, usability research

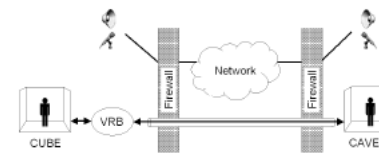


Figure 5: System Setup

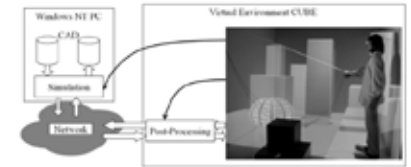


Fig. 2: Online simulation with feedback loops to post processing, simulation and CAD



University of Stuttgart, High Performance Computing Center (2000-2001)

discussion



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