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 Locative Media
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Site-Specific Arts
Locative Media programme links games, stories and art to city wanderings

By Laura Martz

It was on a day out boating that artist Esther Polak became fascinated with GPS units and the way they could record traces of people’s movements through space. In early 2002, she approached Waag Society with a novel idea: an art project using GPS. It was an impulse that would make major waves for the organisation.

“She had seen a little blinking black dot on a green screen, and thought, ‘This would be interesting to work with as an art form,’” says Waag Society’s Aske Hopman. “She came to us because she knew we worked with technical devices and was talking about doing something with GPS in a cultural context.”

Together, they came up with Amsterdam RealTime, a project to map residents’ routes through the city.

“In retrospect, it was one of the breakthrough projects that combined locative media and the arts scene,” says Aske. With Ronald Lenz, he runs Waag Society’s Locative Media programme, the more or less direct offspring of Amsterdam RealTime.

A call went out in the local media for volunteers willing to carry around GPS-equipped PDAs for two months in the name of art. By the autumn, members of the public were watching the volunteers’ traces moving live on a screen at Amsterdam’s municipal archives, in the form of white lines combined against a black background to make an idiosyncratic ‘map’ of the city.

The system consisted of the tracking units, the server they sent data on their movements to, and software that read information from the server and rendered it as traces on the screen. “We developed all the software ourselves,” says Aske. “We ran it on our open-source server platform. And we also created client software for the PDAs, which we constructed ourselves, too.”

The participants loved seeing themselves “as sort of a pen on geographic paper,” he says.
They liked seeing their daily lives mapped in a different way. Also, some of them were really interested in having this tool as a means of expressing themselves.” One even deliberately created a trace in the shape of a dove.

The media were enthusiastic too. Amsterdam RealTime got plenty of attention in the Dutch press and showed up on Slashdot and in Wired. New employees at Waag Society still talk about how it inspired them, way back in 2002.

In terms of the Locative Media programme, that’s distant history. Plenty has happened since then, and it’s down in large part to Polak’s project.

PLAYING WITH HISTORY

By late 2004, Waag Society had developed another experimental locative-media project. This one, an educational mobile-phone game called Frequency 1550, got talked about even more than Amsterdam RealTime. It aimed to teach 12-to-14-year-olds medieval Amsterdam history by having them perform location-linked multimedia tasks.

“It was an educational project, so it was more accessible,” says Aske’s colleague Ronald Lenz. “It was easier to understand.” The team believe it was also the first game of its kind.

Telecom company KPN, keen for organisations to run pilot applications on its then-new UMTS network, helped to realise a test version of the game by providing hardware, bandwidth and cash. The team staged a trial run in February 2005.

Pairs of pupils from a local school roamed the city, equipped with mobiles. (In fact, each team carried two different phones, one for GPS and one for UMTS, but technology has since caught up.) When a team arrived at a relevant location, its phone received data and activated a short video about that location’s role in history, plus instructions for a task.

The kids had to make a video, audio or photo file and send it to a team-mate back at Waag Society. He or she monitored all the competing teams’ progress, shaped a battle strategy and planned the use of offensive tactics—mainly booby-trapping certain sites with virtual ‘bombs’.

The players went to 18 medieval landmarks, including the Waag building itself—once a city gate—and the nearby Schreierstoren, from which women used to see their sailor husbands off to sea. There, pupils filmed each other pretending to be heartbroken wives.

“Of course there are always technical issues, because you’re tying things together which are not supposed to be tied together,” says Aske. “We pushed the technology to the limit. So there were delays now and then. And GPS is fallible; that’s just the technology. But the students all enjoyed [playing] very much.”

They weren’t Frequency 1550’s only fans. The novel game drew national news coverage, external suggestions for more projects, and increased interest within Waag Society. Around the end of 2005, the organisation created the Locative Media programme.

It’s had its work cut out for it ever since. With most mobiles set to feature GPS technology and Dutch broadband providers starting to switch over to flat-rate plans, the market for using – and creating—such applications will only increase.

MAKING A GAME OF IT

In fact, more and more Locative Media projects focus on building tools people can use to make their own games. From 2005 to 2007, Waag Society, the University of Amsterdam and the professional college Hogeschool van Amsterdam developed the Mobile Learning Game Kit. This website enabled users to create games online and play them on special GPS-equipped phones and a web player. Gameplay was webcast and then archived.

Aske describes it as “the tool we would have used to create 1550 if it had been there.” It was a test project, but at PICNIC’07 the concept takes its first step into the real world. Its descendant, a web community and software environment provisionally named De Mobiele Stad, or Mobile City, will let users make games for sites of their choosing. They can play these games (or invite others to) and display them online.

The beta Mobile City will launch at a workshop at PICNIC’07 and is slated to open to the public in early 2008. Waag Society will use it too. Such a template means “the production cycle can be really short,” Ronald says. “You just plug in your game logic and make some alterations.”

With teachers and pupils from three secondary schools, the team is also building a variant for use in education, the Games Atelier. First, they’ll help to develop functions for the Mobile City tool set that will be useful in education. Then, the tools will be made available to schools, probably through a separate website.

And starting in September, as another element of the Games Atelier, Waag Society, teachers and pupils will create a successor to Frequency 1550. This time the aim will be to get kids thinking about urban citizenship, youth cultures and cultural identity.
The University of Wageningen decided to design an application to fulfill their experience-travel desires close to home, and it asked Waag Society to help.

With several other research organisations and local authorities, KPN, plus a firm of landscape architects, they’ve created Digitale Wichelroede – “the digital dowsing rod”. This GPS-enabled PDA will help Dutch tourists to discover historic titbits as they walk and cycle along the Grebbe Line, a 18th-century defence line dotted with forts in central Holland.

As a visitor passes a location, the PDA will offer up information about it, gleaned from books, databases, historical associations and/or locals’ stories. When users diverge from the suggested route, the device will adapt and recommend other nearby sites to visit.

Development began a year ago and wrapped up this summer. The team hopes to recruit 1,500 volunteers for user testing in August and September. Then, says Ronald, “we’ll explore if there’s a business case. Right now, it’s purely research to see if this kind of mobile tour can be viable.”

All parties are eager to find out how the system will work: for instance, will downloadable software or a special for-hire device be the best solution? This kind of application “will probably be a major thing,” says Aske.

COMING TO A LOCATION NEAR YOU
The programme continues to expand its activities in new directions. Early next year, if all goes according to plan, at certain locations in Amsterdam’s Westerpark, audiovisual stories composed by previous visitors will be ‘hidden’ in custom-built computer boxes. If a park visitor installs the accompanying parQ application on her phone and then walks by one of these spots, her phone will receive its story via Bluetooth. She’ll also be able to add her own anecdote to the system.

But do we really need high tech in the park—the last remnant of nature in the city?” I think it’s already there,” says Aske. “Everybody brings their phone everywhere. It’s about allowing new kinds of uses and leaving power with the people operating it, not forcing it on you. We like to think of it as a social tool that can connect people who might not otherwise be connected.”

Meanwhile, Frequency 1550 continues to evolve. Ten classes played a refined version in June, this time with academics looking on. Researchers from the University of Amsterdam and Utrecht University compared its effects on learning to those of traditional teaching methods.

At the next one, at PICNIC’07, those wishing to make their own location-based mobile tours and games will be able to do so while beta-testing the Mobile City. (Aske recommends they bring their own video, audio, photos and/or text, though this isn’t mandatory.)

Workshops, while less visible than games, are an equally essential part of the programme. As Ronald puts it, “you’re empowering people to make their own view of the world. You get them to look at their environment differently and share that view so that others can see it—and play it.”

Aske says the Locative Media programme serves a larger good by showing people how they can use this technology in ways other than the well-known commercial ones. “You can use [locative media] to express yourself or to learn,” he says. “It’s such a personal, close-to-you technology. It would be a shame to leave it to companies to be the producers of meanings and media.”

Players of the Frequency 1550 pilot version in 2005

RELATED WEBSITES
The website for the Mobile Learning Game Kit (in Dutch) can be found at: http://waag.org/mlgk.nl

The website for the Digitale Wichelroede project (that partners the Province of Utrecht, Wageningen University, RGI, Waag Society and many others) can be found at: http://www.digitalewichelroede.nl
Non-verbal, implicit forms of communication are essential in keeping intimate relationships. The project named Scottie researches the possibilities of using information and communication technology to create virtual immediacy between long-stay absentees and their primary social contact group.

The widespread technology for distant communication like SMS, chat, e-mail and telephony are all less of use as ‘replacent’ for implicit and tactile real life communication within intimate relations. How to facilitate those small, mostly unconscious, expressions of affection and intimacy with innovative media like a stroke on a child’s head by a mother, a consenting nod, but also a teasing sister?

In the first place, within the project Scottie, prototypes are being developed for children aged between 13-15, that are hospitalized for a longer period. Contacts with children in hospital are now mainly physical, planned visits with explicit communication. But how to maintain, next to their new role of ‘being in hospital’, their existing roles as class mate, brother or son? How to personalize communication in an affectionate way, while being distant?

When designing these forms of communication, how to use the dynamical surroundings? Can communication be less explicit or cognitive (text, sound or image) and be more implicit and affective by using change of colours, sound, form, location or temperature in the design?

In this project, research is done with partners to find new combinations of smart materials, wireless communication technology, wearables and sensor technology.

http://waag.org/scottie

...a day in a life with...

By Janine Huizenga
In June 2007, the mobile city game Frequency 1550 was played again by pupils of two schools in Amsterdam. We followed one group of kids (Team Yellow of the Montessori Lyceum Amsterdam) to see how they went along with their mobile phones and GPS. Team Yellow did very well that day and won with 126 points gathered. And no, they were not helped in any way...

The group consisted of three school kids (one girl, two boys), their mentor and a group leader. We started in the afternoon, at the Oude Kerk (Old Church), where the first task was to be carried out. Then the route went through the Damstraat to the Dam square. Their final destination for the day was the English Church at the Begijnhof. On the streets, they looked carefully for new assignments and also kept a close watch on the results of the other groups. Images and videos were transmitted to headquarters, and they had good fun in acting out on the streets whatever tasks they received.

For their team members at the headquarters, their GPS signal was traced and represented on the screen by means of a medieval map, so that they could help them in fulfilling their assignments, by giving directions and looking things up on the computer. The only thing the kids did not like was the sometimes long wait for new instructions, or when the connection was slow. This was in great part due to the no longer state-of-the-art equipment from 2005, when the pilot of the game was played for the first time. The 2007 edition is an enhanced version of the game and research will measure the effects of gaming on learning. All results were archived on the Frequency 1550 website. http://waag.org/frequency http://www.frequentie1550.nl
The route as followed on the old map. The photos are the actual phone-camera photos taken on location by Team Yellow.

Frequency 1550 map of Amsterdam, divided in six zones
En route with Team Yellow
Photos and captions by Ron Bonstra

An assignment for this location comes in. Team Yellow concentrates on the message.

They have to act out the expression ‘to find yourself in an awkward position’ and video this.

Next location is the Dam in the river Amstel. Confusion... which way to go? Anyway, the Damstraat seems the right street to get there.

Found! Now find the right spot to make the video and answer the multiple choice questions.

Man with pipe chats with laptop, webcam and wifi on the Dam square, undisturbed by the game players.

Photos are taken and transmitted to headquarters, before the next task can be done.

Sheltering for the rain and discussing the next move.
Teylers Bètalab: work in progress
Former observatory at Teylers Museum in Haarlem

By Ron Boonstra (text), Bas van Abel (interior design) and Janine Huizenga (photographs)

At Teylers’ Museum in Haarlem, in a renovated former observatory in the garden, work is in progress to establish Teylers Bètalab, a virtual learning experience in combination with a visit to the museum. The Bètalab is aimed at the highest class of primary education. The pupils can take one of the following physics themes to study closer: light, sound, force and electricity.

On these pages we show some of the technical drawings and how they are coming to life in the small building’s space. Designer Bas van Abel and construction company Huib Nelissen are working on the implementation. They have mounted the ‘Oracle’ and Tesla coils in the small dome of the building, together with Tesla specialist Rene Wassenburg.

The ‘Oracle’ consists of nine wooden wings, fitted with eight rings of neon tubes and four differently coloured cold cathode lights that can be separately switched by the application developed for the installation. Furthermore speakers are built in, to add up to the effect.

The ‘Oracle’ shows the amount of energy building up during the session, being a ‘reward’ for successfully finished tests by the participating children.

http://waag.org/betalab

Above: the ‘Oracle’ before assembling. Left: last configurations to the Tesla coils are being made by Rene Wassenburg. This is a very precise job.
Waag Society and the PICNIC organisation open their bag of tricks to the public during the PICNIC’07 cross-media event. In keeping with Waag Society’s inclusionary concerns, city residents and secondary-school pupils as well as conference-goers will get to play with technology during PICNIC’07. They’ll get to play without it, too.

Come Out & Play in Amsterdam
‘Urban games’ and workshops aim to inspire and entertain

By Laura Martz

Waag Society is hosting two big events during the conference. At PICNIC’07 Junior, from Sunday 23 to Wednesday 26 September, Dutch teenagers will experiment with technology, while their teachers learn to use

**From the archives...**

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**Corpus:** four evenings of lectures in 2005 on the subject of Anatomy in Amsterdam and the Golden Age, Anatomy and Imaging Technology, the Anatomy of medical information and Anatomy and the Arts.

**Cybersasia:** three nights in 2006 on Asian Cyberpolitics with blogger Isaac Mao, on Asian Cyberfundamentalism and Asian Cyberart: technology, memory and place.

**Sentient Creatures 1:** nine famous lectures within the Connected-programme in 2003: Norman White, Rupert Sheldrake, Theo Jansen, Dick Bierman, Catherine Richards, Jaron Lanier, Kit Gallaway & Sherrie Rabinowitz, Joe Davis and Graham Smith.

**Cyberspace Salutations 1:** the first series with Lee Felsenstein, Richard Bartle and Marc Pesce. Lectures and discussions taped in 2005.

**i-Map See you in Walhalla:** the registration of a networked performance in 3 European cities: Sofia, Athens and Amsterdam by Amorphy, InterSpace and Waag Society as part of the Connected2 programme in 2006.

**Killerclub:** various presentations on streaming media, locative media and shows with Phil Bloom, Rob and the Rebels, Sergio Messina, Howard Rheingold and many others throughout the years.

**Hippies from Hell:** One of the first entries dating back to 2003, when this movie became available through an Creative Commons Licence. It has been downloaded ten thousands of times since.
it at an accompanying seminar. CineGrid@PICNIC will give a demonstration of 4K, the highest possible audiovisual quality available. Besides that, the Come Out & Play Festival will stage large-scale public ‘urban games’ in the city’s streets from Thursday 27 to Saturday 29 September.

COME OUT & PLAY FESTIVAL

The Come Out & Play Festival aims to get PICNIC participants and locals out in the streets together having fun. Waag Society and TV station AT5 are building a mobile game based around a sightseeing and photo tour. People have sent in proposals for other games ranging from a proprietary one for mobile phones to one that “was totally low-tech, with water guns,” says Waag Society’s Aske Hopman.

Technology isn’t the point, he says—‘Play’, one of the PICNIC’07 themes, is. The agenda wasn’t yet final as this magazine went to press, but the crew planned to choose five to ten games that made surprising use of public space and got people interacting and perceiving in new ways.

Come Out & Play, an Amsterdam version of New York’s popular 2006 event of the same name, was born at last year’s PICNIC. The American organisers participated in a session and got talking to Waag Society about bringing the festival across the pond.

Games played in New York included a giant version of Space Invaders, with marauding aliens projected on the side of a building. Players jumped around, a camera read their movements, and a computer converted them into actions. In a lower-tech but more socially sophisticated game called Identity, players were assigned to ‘secret organisations’. These teams competed to discover who the others’ members were without revealing their own. Those wanting to play the Amsterdam games can simply show up at the PICNIC site and check the day’s agenda. “We expect that along with our international guests, many local players will turn up,” says Marleen Stikker, co-founder of PICNIC and the director of Waag Society. “These urban games give you a chance to rediscover the city.”

COAP GAME CARD

3001 Big Phone Based Game (USA)

Dial into these large multiplayer games projected on buildings and use your cell phone as a wireless controller.

The games listed for COAP 2007:

City Soccer (NL): GPS-enabled version of soccer.

Space Invaders (USA): the entire city a game world.

Lumenatio (POL): fast-paced game of photo tag.

Snap Shot City (UK): document the world in this photo scavenger hunt.

Skip-Recall-Recall-Skip (UK): The classic tag.

The Target (BEL): GPS-enabled game of hide-and-seek.

TAH II (NL): unravel a mysterious story.

CounterSpy (USA): squad-based game of war gases.

Watching the Detectives (UK): watching seriesgoals.

2001 Big Phone Based Game (USA): use your cell phone as a wireless controller.

Circuit Band (USA): players move around the city looking for “filthy” game posters.

SonicBoom (NL): players from speakers that move around the room.

Snap Shot City (UK): document this photo scavenger hunt.

PICNIC’07 JUNIOR WORKSPACE

Some conferences would probably have as much fun taking part in a PICNIC’07 workshop on computer-assisted songwriting or microcontroller programming as they would playing Space Invaders. But unless they’re enrolled in a Dutch secondary school, they’ll be out of luck.

Just before the conference, local professionals will lead three days of new-media production workshops in the PICNIC’07 Junior Workspace at the Westergasfabriek. About 800 students will get the chance to compose songs, make films and photo collages, produce location-based mobile games, perform VJ sets, and program microcontrollers.

Waag Society’s new event aims to show kids cool grown-up ways to use technology.

“Young people are using media to communicate and create,” says Karien Stroukwijk, PICNIC’07 Junior’s programme manager and head of the Creative Learning Programme. “But they don’t have a good vision of how to use them from a work perspective. We want to inspire them and show them what you can do.”

At the end of each three-hour workshop, the kids will present their new creations or skills to the group. “We’re also thinking about how to share them with the PICNIC public,” says Karien. “It would be nice to show people what they’ve done.”

PICNIC’07 JUNIOR SEMINAR

Creative Technologies and Education

The pupils won’t be the only ones learning at PICNIC’07 Junior. Educators from around the Netherlands will attend the Creative Technologies and Education seminar on Wednesday 26 September.

“We want to inspire the educational system and teachers by showing them what new media can mean for them,” Karien says. “Lots of teachers are interested but don’t have the knowledge or aren’t sure how to use it in their classrooms.”

Dutch FabLabs spreading fast

The FabLab concept, an easy-to-use digital workshop that enables anyone to design and prototype products themselves, is spreading rapidly in the Netherlands. The concept originated in the US and has grown to become a worldwide phenomenon. FabLabs are designed for everyone, with a special appeal for professionals in the small and medium-sized enterprise sector, the creative sector, and in (technology) education.

In Amsterdam, the first two FabLabs are now open, in Pakhuis de Zwijger and in the Mediamatic exhibition space, on the ground floor of the PostCS building. More FabLabs will open soon in Utrecht, Dordrecht, Maastricht and on the island of Texel.

PICNIC’07 will focus on new types of media and technology, and the guest speakers will include FabLab guiding spirit and MIT professor Neil Gershenfeld, who will be talking about the developments in Personal Digital Fabrication. Anyone who is curious - young and old - can find out more about self-design and creating prototypes.

http://waag.org/fablаб

FabLab Jr - create and fabricate your own stuff (see above).

ScratchWorx - make a live DJ/VJ performance with the ScratchWorx console.

Circuit Band - make your own musical instrument with whatever equipment is available and perform live on stage.

JeefSTUDIO’s ‘Get the message!’ - interactive workshop using styled metal.

Make a Mobile Game - at the festival location.

Music Workshop - make a pop song and place it on the website as an mp3 file.

Digital Playground - experiment with cameras, computers and digital images.

PICNIC Jr. workshops include:

ScratchWorx - make a live DJ/VJ performance with the ScratchWorx console.

Circuit Band - make your own musical instrument with whatever equipment is available and perform live on stage.

JeefSTUDIO’s ‘Get the message!’ - interactive workshop using styled metal.

Make a Mobile Game - at the festival location.

Music Workshop - make a pop song and place it on the website as an mp3 file.

Digital Playground - experiment with cameras, computers and digital images.

FabLab Jr - create and fabricate your own stuff (see above).

Video workshop One Take - create a short video in just one take.
The seminar will bring together an expected 200 Dutch teachers, school administrators, IT and creative-industries professionals, and educational publishers.

One session will cover new-media educational tools. Schools can choose from a range of software and hardware, both common and specialised. For instance, kids can learn to compose music using Garageband, or get acquainted with IT and multimedia art through VJing with ScratchWorx.

A second session will look at ways educators can use broadband, which all Amsterdam schools will have by 2008. “For example, if you want to interconnect schools, you can use broadband to share film and live streaming,” Karien says.

Participants in a third session will discuss how teaching kids about careers in the creative industries could get more of them interested in studying maths and sciences. With fewer pupils choosing to specialise in these subjects than in the past, the government is keen to get them interested again.

PICNIC’07 Junior’s overarching goal, Karien says, is “to narrow the gap between how young people use technology and how it’s used in education.” By the end of the event, pupils and teachers should be interfacing a lot better on that score.

CINEGRID@PICNIC
And last but not least, the CineGrid organisation will be present at the PICNIC event with a demonstration of 4K digital projection technology.

Three zones of interest during this year PICNIC coincide with the CineGrid development. First the innovation of content producing and screening technologies and the emergence of new markets; second the innovation of uses of network technology and Grid computing; and third the attention on Asia as a ever more important technology and content producing region with which other creative regions can collaborate.

Goals of the presentation of CineGrid within the PICNIC framework are the exchange of both national and international knowledge and debate on future possibilities and implementations of audio/visual techniques and digital distribution. Showing examples and discussing market potential this event will inspire and empower future users in the cultural, scientific and business communities.

Creative Commons licences

Creative Commons Netherlands and the rights management organisation Buma/Stemra started a joint pilot on flexible rights management. With this pilot, it has been made possible for members of the organisation to share part of their work under a Creative Commons License, e.g. to promote their work on the internet. Thus, artists can benefit both being member of the organisation and still be able to use non-commercial CC-licences, which was impossible before.

All information on the pilot, which will last for a year, can be found on the Creative Commons website: http://creativecommons.org

News

Operation Sigismund nominated

The Waag Society project with the Archive of Drenthe in Assen called Operation Sigismund is nominated for the European Comenius EduMedia award. The adventure in the archives was opened in March of this year and will start the this Fall for schools to participate. There is an overwhelming interest for the already acclaimed project. http://waag.org/sigismund

Unique pilot with Creative Commons licences

Creative Commons Netherlands and the rights management organisation Buma/Stemra started a joint pilot on flexible rights management. With this pilot, it has been made possible for members of the organisation to share part of their work under a Creative Commons License, e.g. to promote their work on the internet. Thus, artists

Pedagogical Faultlines conference

On the 21st and 22nd of September 2007, Sarai [India], Institute of Network Cultures and Waag Society are organising an international conference in Amsterdam called ‘Pedagogical Faultlines’. The conference is held at Pakhuis de Zwijger.

Aim of this conference is international exchange of high-level knowledge and experience in new concepts and ideas of learning. On this event the focus will be on challenges in contemporary pedagogy.

Various forms of education will be discussed such as the use of new media tools, but also institutional and cultural issues will be explored. Speakers are stimulated to bring audiovisuals, or even a mobile version of their educational toolkit, so that participants can experiment hands on with the various educational methods. http://waag.org/faultlines