

NeoGeo

Gunnar
Misund

Agenda

Some maps

OpenStreetMap

NeoGeo

Opportunities

Final remarks

NeoGeo: Some Grassroots Perspectives

or:

Users Are Doing It For Themselves

Gunnar Misund

Mobile Applications Group, Østfold University College
Halden, Norway

20th Nordic GIS Conference
Fredrikstad, Norway, October 16th, 2008

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2 OpenStreetMap

3 NeoGeo

4 Opportunities

5 Final remarks

About MAG / Østfold University College

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Some maps

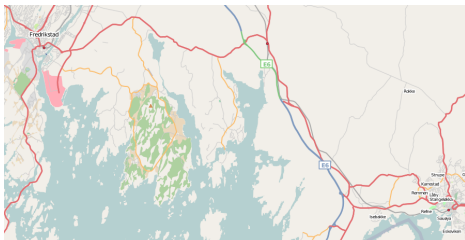
OpenStreetMap

NeoGeo

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- Halden is a small city south-east in Norway, and, the location of a regional University College



- The Mobile Applications Group (MAG) is a cross-discipline R&D team with a joint focus on technological and user related aspects of emerging mobile devices, systems, and services
- Our M.Sc. program on mobile applications started in 2003

Sydney, Google Maps

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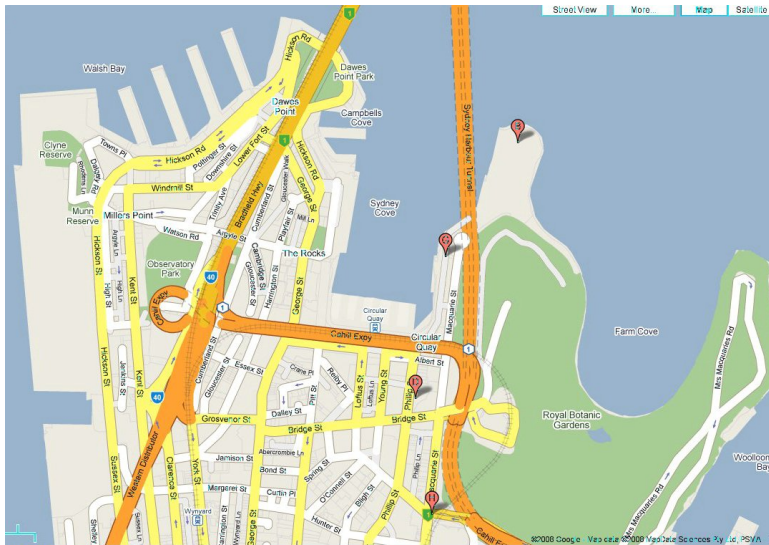
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Sydney, Flickr + ?

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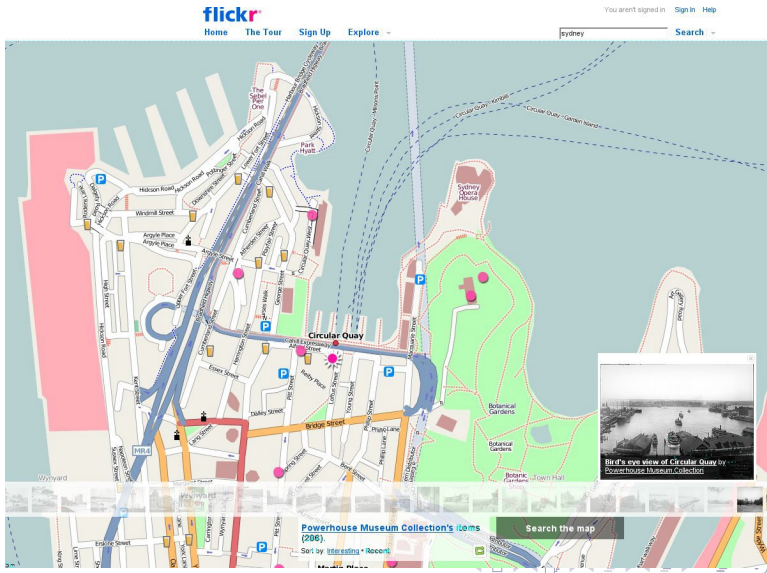
Some maps

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flickr
 Home The Tour Sign Up Explore

You aren't signed in [Sign In](#) [Help](#)

sydney Search

Wyllyard
 Circular Quay
 Sydney Opera House
 Botanical Gardens
 Botanic Gardens
 Botanic Garden
 Town Hall
 Powerhouse Museum Collection's items (206)
 Sort by Interesting Recent
 Search the map

Bird's eye view of Circular Quay by Powerhouse Museum Collection

Sydney, Flickr + OpenStreetMap

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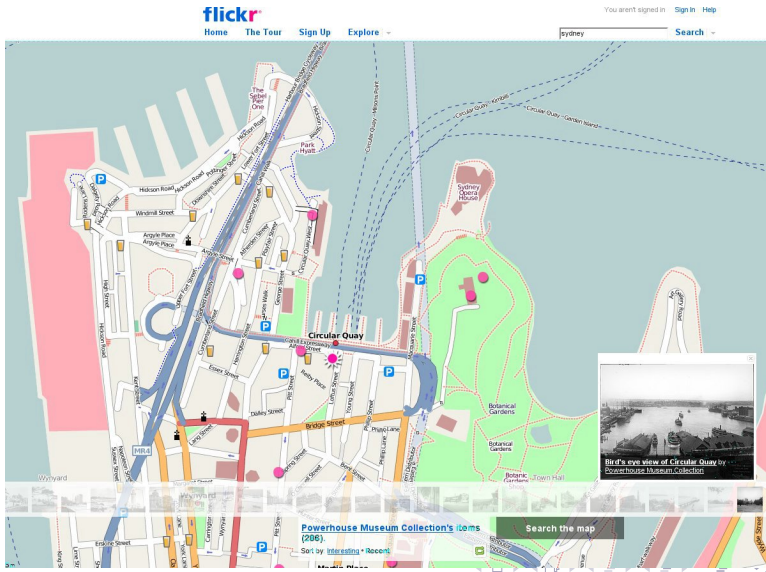
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The screenshot shows a Flickr map interface for Sydney, Australia. At the top, the Flickr logo is visible, along with navigation links: Home, The Tour, Sign Up, and Explore. A search bar contains the text 'sydney' and a 'Search' button. The map itself is a street view of Circular Quay, showing the Sydney Opera House, the Botanical Gardens, and various streets like Circular Quay, George Street, and Bridge Street. A search bar at the bottom of the map area contains the text 'Powerhouse Museum Collection's items (206)' and a 'Search the map' button. A small inset image in the bottom right corner shows a 'Bird's eye view of Circular Quay by Powerhouse Museum Collection'.

“Byer i Belgia”: Beirut

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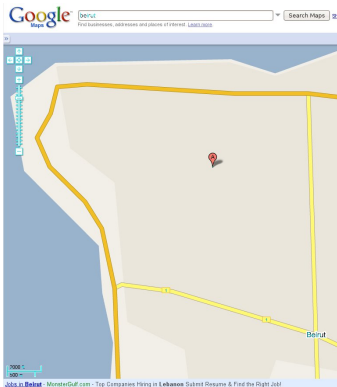
Some maps

OpenStreetMap

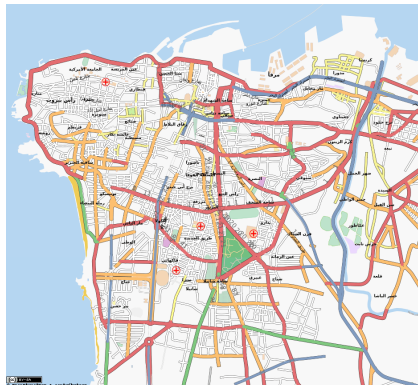
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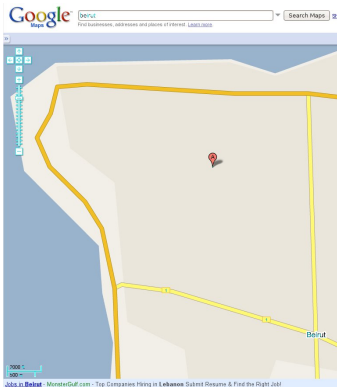
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OpenStreetMap

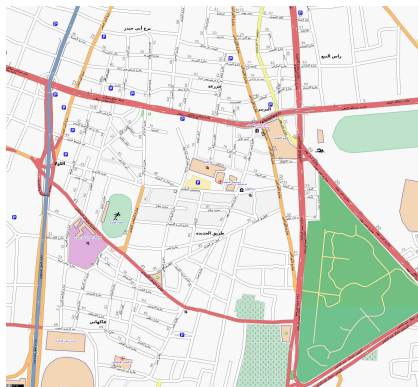
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Google Maps



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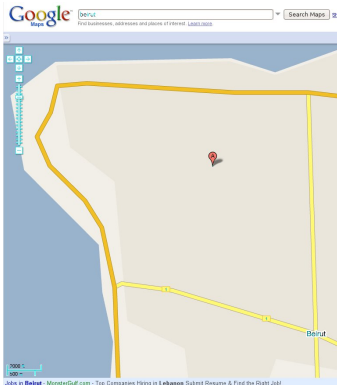
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Google Maps

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“Byer i Belgia”: Baghdad

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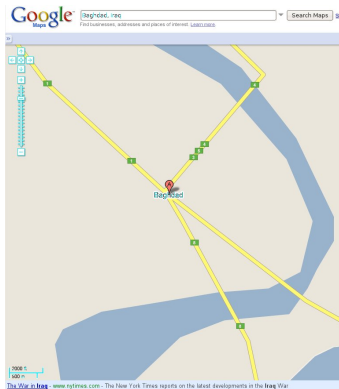
Some maps

OpenStreetMap

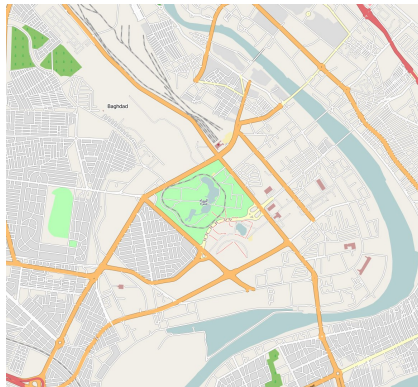
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Google Maps



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“Byer i Belgia”: Beijing

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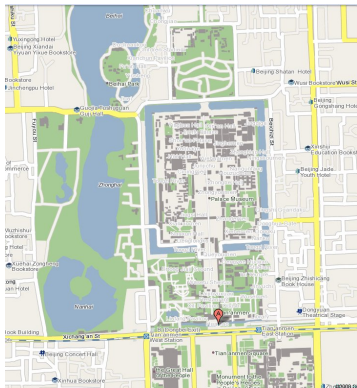
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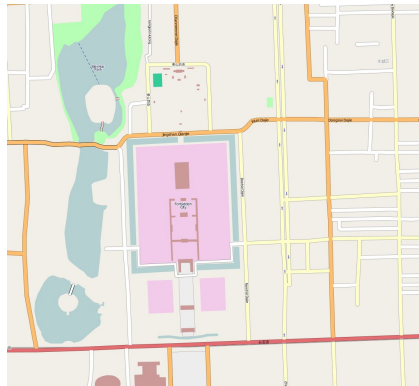
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Google Maps, October 2008



OpenStreetMap

“Byer i Belgia”: Beijing

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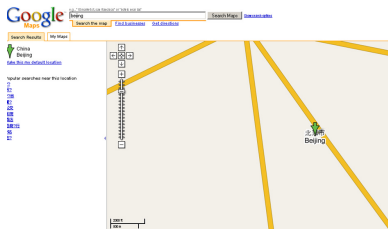
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OpenStreetMap

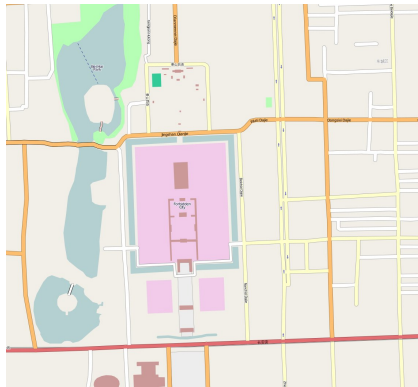
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Google Maps, March 2008



OpenStreetMap

“Byer i Belgia”: Bodø

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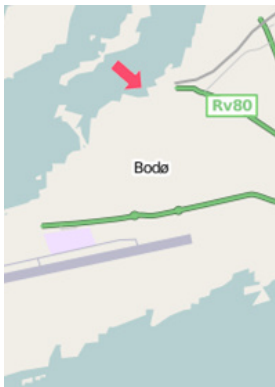
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OpenStreetMap, March 2008

“Byer i Belgia”: Bodø

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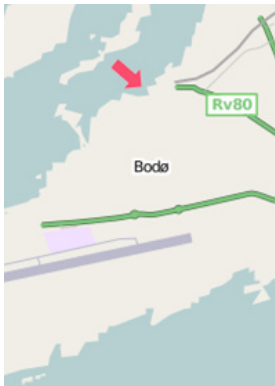
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OpenStreetMap, March 2008



OpenStreetMap, October
2008

Mapping the world: The party way

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Some maps

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- OpenStreetMap (OSM) founded by Steve Coast in 2004
- Maps are made by happy amateurs
- Often organized as “Mapping Parties”
- Consumer grade devices combined with free and open software
- Maps constructed from GPS tracks...
- ...or by tracing non-copyright maps and imagery (Yahoo has authorized usage of all their imagery)



Mapping the world: The party way

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Some stats

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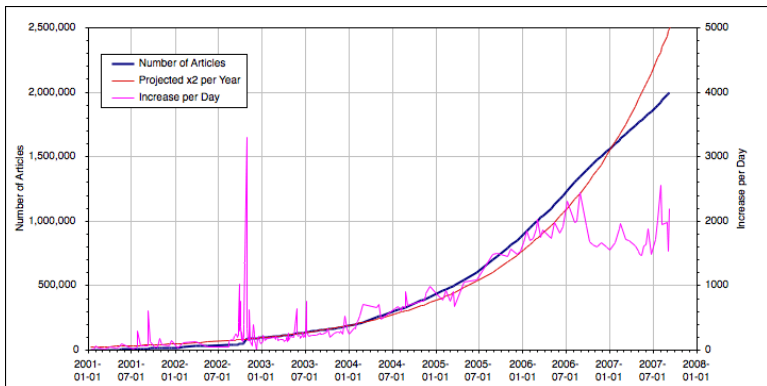
Some maps

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WIKIPEDIA

Some stats

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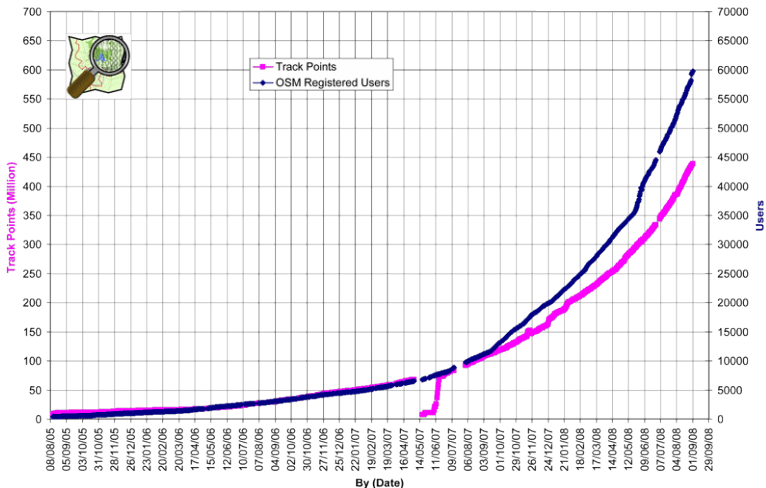
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OpenStreetMap Database Statistics
Users and User gpx Uploads (track points)



Neogeography (NeoGeo, for short)

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- NeoGeo activities and communities are found on the fringes of traditional GI Systems, Services, and Science
- Many references, however few precise definitions [Haden, 2008]:
 - “A diverse set of practices that (mostly) fall outside the professional geographic domain [...] neogeography tends towards the intuitive, expressive, personal, absurd, and or artistic [...] they usually don’t conform to the protocols of professional practice.” (Randall Szott, 2006)
 - “...geographical techniques and tools used for personal activities or for utilization by a nonexpert group of users; not formal or analytical...”(Andrew Turner, 2007)
 - “Neogeographers seem to avoid consultation with well-informed and easily-available specialists in other fields.” (Chronica botanica, 1954)

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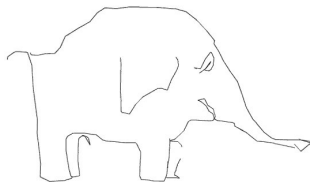
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The Brighton Elephant, 2001

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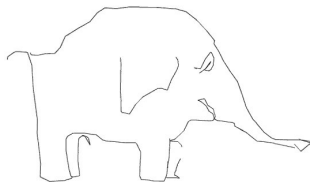
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The Brighton Elephant, 2001



Emotion maps

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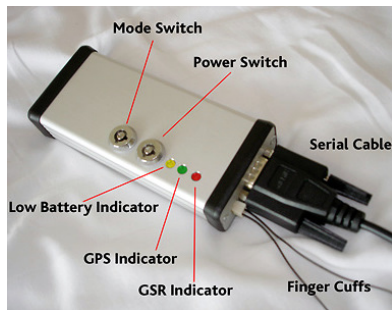
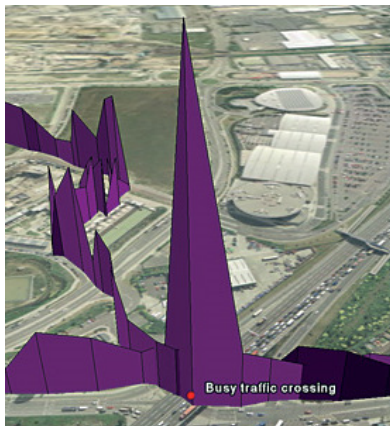
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NeoGeo contributions: Insights

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- Citizens may be equally competent as governments and huge commercial actors, regarding perception and description of our physical surroundings
- There is no such thing as “ground truth”

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Opportunities

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- Bottom up approaches
- Collaborative and distributed work
- Wiki principles and methods applied to geographic information
- Utilization of open/free data and tools

NeoGeo contributions: Tools

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- Many “industrial strength” tools have started as smaller projects by neogeographers, then grown to maturity by “friendly” host organizations: GRASS, GeoServer, GeoTools, JUMP/JTS, OpenLayers etc.
- A plethora of smaller, but nevertheless important, utility programs developed and maintained by eager amateurs
- Needless to say: All free and open source, mostly platform independent (or at least, support for open platforms)
- Many tools are standards complying (OGC, ISO etc.)
- OSGeo: Open Source Geospatial Foundation



NeoGeo contributions: Data

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Opportunities

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- OpenStreetMap: World wide vector data
- GeoNames: World wide location and description of places
- Geo-tagged photos, e.g., Flickr
- Various overlays for Google Maps/Earth and siblings

Mobile, location based gaming: FoxHunt

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Mobile, location based gaming: FoxHunt

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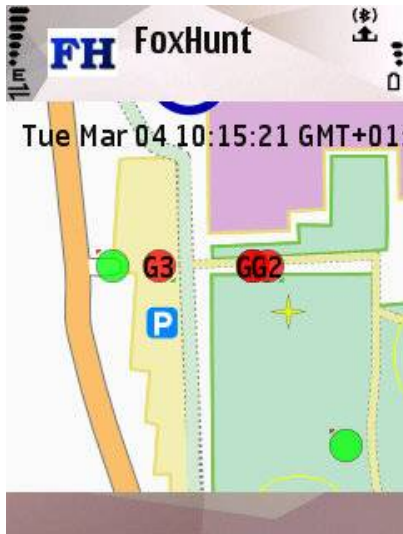
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Mobile, location based gaming: FoxHunt

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Bli med på revejakt!



Poengtavle

Navn	Fangst
Jeger 1	0
Jeger 2	4
Jeger 3	6

OpenStreetMap

Mobile, location based gaming with user generated content...a goldmine to be explored (and exploited)?

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- Fact: Personal Navigation Systems is big business

Collaborative personal navigation

NeoGeo

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- Fact: Personal Navigation Systems is big business
- Claim: Pedestrian Navigation Systems is *going to be* big business (source: Nokia and other major players)

Collaborative personal navigation

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- Fact: Personal Navigation Systems is big business
- Claim: Pedestrian Navigation Systems is *going to be* big business (source: Nokia and other major players)
- Problem: Car drivers constitute a fairly homogeneous group, ...because they are driving vehicles with small variations regarding capabilities. However, *pedestrians* are as heterogeneous as it gets.

Collaborative personal navigation

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Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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User (with baby stroller)
navigates to area of
interest, either assisted
by external GPS or
manually by pan and
zoom

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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Marks start

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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Marks destination

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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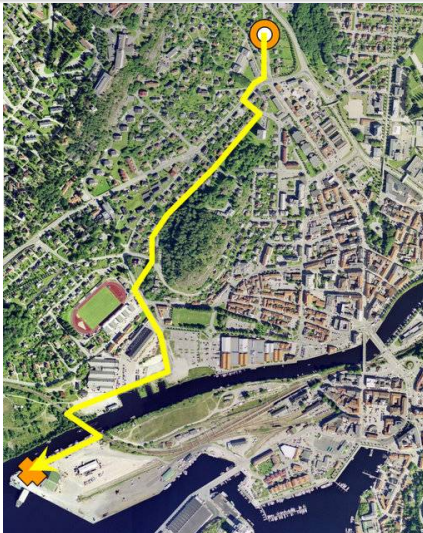
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System finds and displays shortest route based on geographic distances of network edges

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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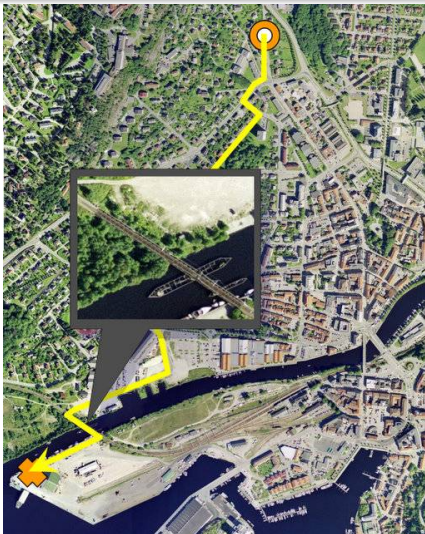
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User encounters a
steep stairway leading
to a narrow pedestrian
bridge

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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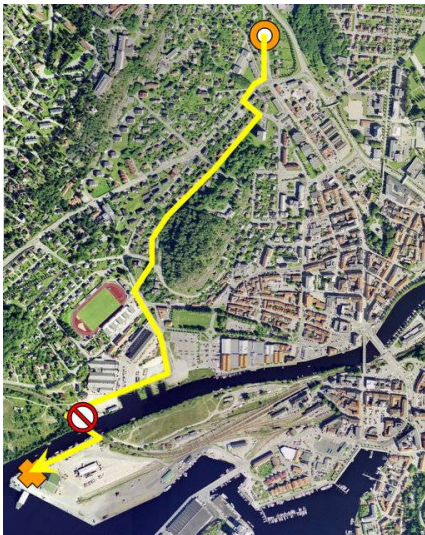
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User marks location as
inaccessible

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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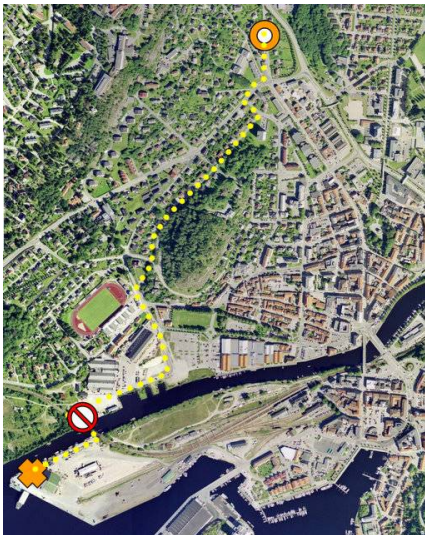
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System recalculates
shortest route based on
adjusted edge weight

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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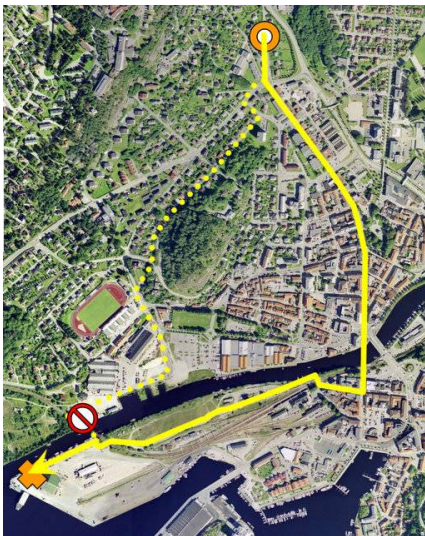
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System recalculates
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Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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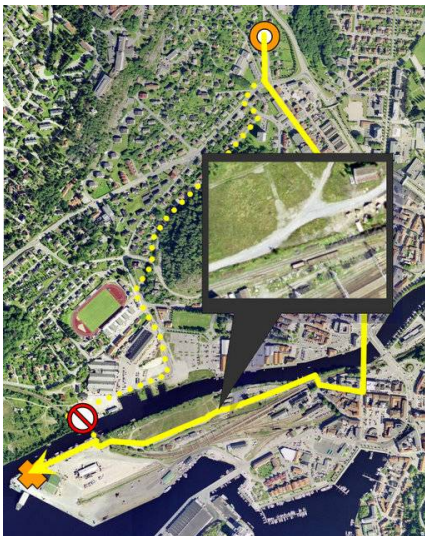
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User entering a dirt
road with bumps and
various obstacles

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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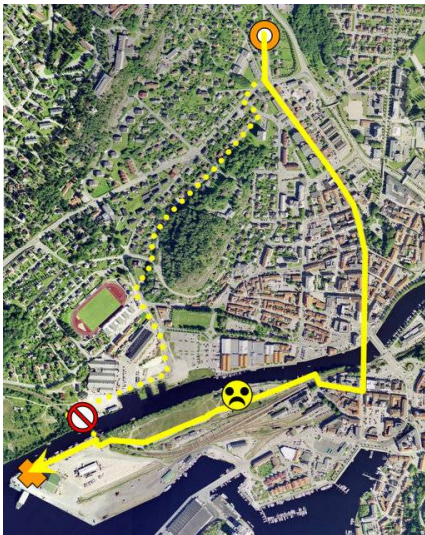
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User marks location as
uncomfortable

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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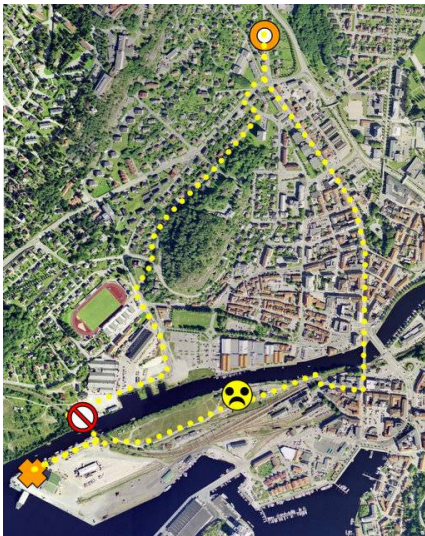
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System suggests
alternative and
acceptable route

Collaborative Personal Navigation: OurWay [Holone, 2007][Holone, 2008]

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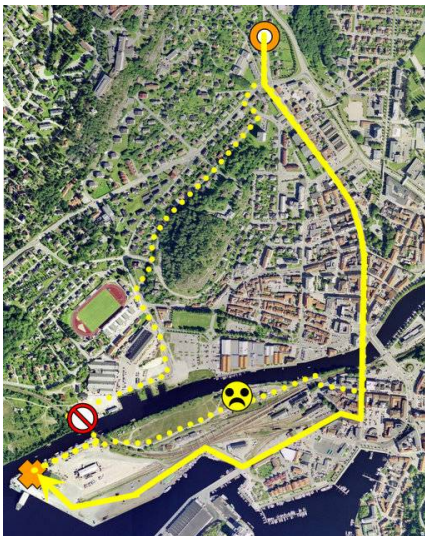
Some maps

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System suggests
alternative and
acceptable route

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Halden kommune

Velg karttype:

Kummer



Søk

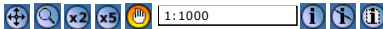


Velg søk

-- Velg søk --

Bruk av kartløsning

Du får fram mer detaljerte kart ved å gjøre søk under fanevalget "Søk", eller ved å zoome deg inn i kartet ved hjelp av zoomverktøyet (forstørrelsesglasset) på oppgavelinja.



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Aftenposten.no

Nyheter Innenriks

To barnehagebarn falt ned i sjakt



Sjakten er ifølge politiet 5-8 meter dyp.

Fem år gammel gutt bragt til sykehus med luftambulanse.

To barnehagebarn fra Halden er bragt til sykehus etter at de falt ned i en kum som er mellom fem og åtte meter dyp.

De to guttene, som er fire og fem år gamle, var på tur med barnehagen sin da ulykken skjedde.

NeoGeo

Gunnar
Misund

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Aftenposten.no

Nyheter Innenriks

To barnehagebarn falt ned i sjakt



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Rådmannen ber om kum-tips

Fireåringene som falt ned
i en dyp kum i Halden i går,
hadde englevakt.

Nå ber rådmann

Per Egil Pedersen

folk om å tipse kommunen
om farlige kummer.

Citizens as sensors [Goodchild, 2008]: Farekart

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FARE KART

Små og store farer i nærmiljøet, registrert og fulgt med på av oss som ferdes der.

 Registrert

 Varslet


 Utbedret

Brattiveien 6

Hopp til adresse

Nullstill kart

 Kart og flyfoto leveres fra Norge Digitalt.



Info **Fare** **Ny fare** **Hjelp**

Brattibanen (Id: 4) [Vis på kart](#)

Registrert av [Likkent](#) (2007-05-31 10:31:05)


Midlertidig sikret [Les mer](#)


Skrevet av [Gunnar Misund](#) (2007-06-01 10:30:31)

 **Bilder** [Les mer](#)


Skrevet av [Gunnar](#) (2007-05-31 11:08:50)

Bilder



 **Bilder** [Les mer](#)

Skrevet av [Gunnar](#) (2007-05-31 11:08:50)



Farekartet er utviklet og drevet av Høgskolen i Østfold, Avdeling for informasjonsteknologi. Farekartet dekker foreløpig kun Halden kommune.

Ansvarlige myndigheter vil ikke bli varslet fra dette nettstedet.

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Open a story

Classical Philosophers, ▾

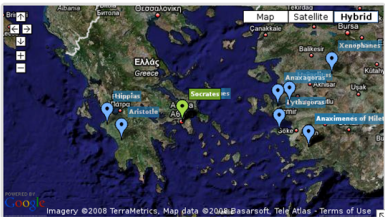
[Open story](#)

1.1.1 Thales
1.1.2 Anaximander
1.1.3 Anaximenes of Miletus
1.1.4 Pythagoras
1.1.5 Xenophanes

1.2 500-400 BCE

1.2.1 Heraclitus
1.2.2 Parmenides
1.2.3 Anaxagoras
1.2.4 Zeno of Elea
1.2.5 Empedocles
1.2.6 Protagoras
1.2.7 Hippias
1.2.8 Gorgias
1.2.9 Socrates
1.2.10 Leucippus
1.2.11 Democritus
1.2.12 Archelaus
1.2.13 Melissus of Samos
1.2.14 Cratylus
1.2.15 Ion of Chios
1.2.16 Echechrates
1.2.17 Timaeus of Locri

1.3 400-300 BCE



January -470


Classical Philosophers, 600-0 BCE

Socrates

Wed Jan 01 -0470 00:00:00 GMT+0100 (CET) @ Athens

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Socrates (Greek: Σωκράτης c. 470 BC–399 BC) was a Classical Greek philosopher. He is best known for the creation of Socratic irony and the Socratic Method, or elenchus. Specifically, Socrates is renowned for developing the practice of a philosophical type of pedagogy, in which the teacher asks questions of the student in order to elicit the best answer, and fundamental insight, on the part of the student.



The Death of Socrates, by Jacques-Louis David (1787).

Socrates is credited with exerting a powerful influence upon the founders of Western philosophy, most particularly Plato and

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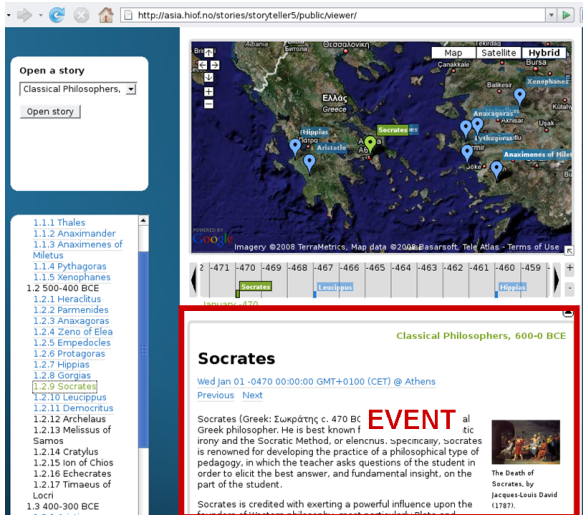
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1.2.16 Echechrates
1.2.17 Timaeus of Locri
1.3 400-300 BCE

Map Satellite Hybrid

Socrates

Classical Philosophers, 600-0 BCE

Socrates

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Socrates (Greek: Σωκράτης c. 470 BC) was a Greek philosopher. He is best known for his use of irony and the Socratic Method, or elenchus. Socrates is renowned for developing the practice of a philosophical type of pedagogy, in which the teacher asks questions of the student in order to elicit the best answer, and fundamental insight, on the part of the student.

The Death of Socrates, by Jacques-Louis David (1787).

Socrates is credited with exerting a powerful influence upon the development of Western philosophy, particularly in the fields of ethics and politics.

Event

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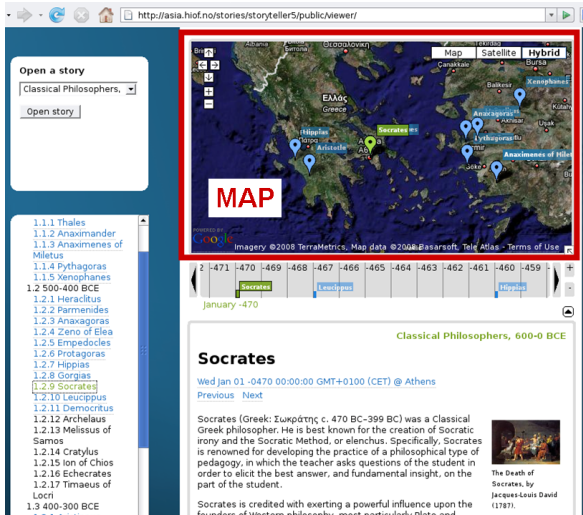
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Classical Philosophers, ▾
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1.3 400-300 BCE

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Map Satellite Hybrid


January -470

Classical Philosophers, 600-0 BCE

Socrates

Wed Jan 01 -0470 00:00:00 GMT+0100 (CET) @ Athens
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Socrates (Greek: Σωκράτης c. 470 BC–399 BC) was a Classical Greek philosopher. He is best known for the creation of Socratic irony and the Socratic Method, or elenchus. Specifically, Socrates is renowned for developing the practice of a philosophical type of pedagogy, in which the teacher asks questions of the student in order to elicit the best answer, and fundamental insight, on the part of the student.



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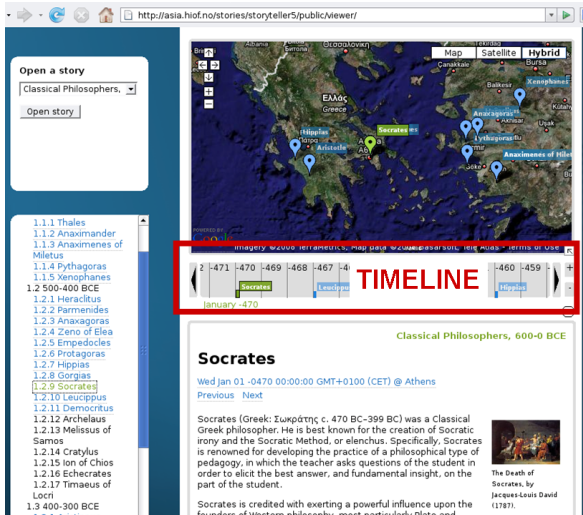
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The screenshot shows a web browser window with the URL `http://asia.hiof.no/stories/storyteller5/public/viewer/`. The main content area is split into two panels. The left panel, titled "Open a story", has a dropdown menu set to "Classical Philosophers" and an "Open story" button. Below this is a list of philosophers with a search bar, including: 1.1.1 Thales, 1.1.2 Anaximander, 1.1.3 Anaximenes of Miletus, 1.1.4 Pythagoras, 1.1.5 Xenophanes, 1.2 500-400 BCE, 1.2.1 Heraclitus, 1.2.2 Parmenides, 1.2.3 Anaxagoras, 1.2.4 Zeno of Elea, 1.2.5 Empedocles, 1.2.6 Protagoras, 1.2.7 Hippias, 1.2.8 Gorgias, 1.2.9 Socrates (highlighted in yellow), 1.2.10 Leucippus, 1.2.11 Democritus, 1.2.12 Archelaus, 1.2.13 Melissus of Samos, 1.2.14 Cratylus, 1.2.15 Ion of Chios, 1.2.16 Echechrates, 1.2.17 Timaeus of Locri, and 1.3 400-300 BCE. The right panel features a map of Greece with markers for various philosophers: Hippias, Anaximenes, Socrates, Pythagoras, and Anaximander. Below the map is a "TIMELINE" slider with a red border, showing a range from -471 to -459, with "Socrates" and "Hippias" highlighted. The main content area below the timeline is titled "Classical Philosophers, 600-0 BCE" and displays a story for "Socrates". The story text reads: "Socrates (Greek: Σωκράτης c. 470 BC–399 BC) was a Classical Greek philosopher. He is best known for the creation of Socratic irony and the Socratic Method, or elenchus. Specifically, Socrates is renowned for developing the practice of a philosophical type of pedagogy, in which the teacher asks questions of the student in order to elicit the best answer, and fundamental insight, on the part of the student. Socrates is credited with exerting a powerful influence upon the founders of Western philosophy, most particularly Plato and..." A small image titled "The Death of Socrates, by Jacques-Louis David (1787)." is also visible.

Timeline

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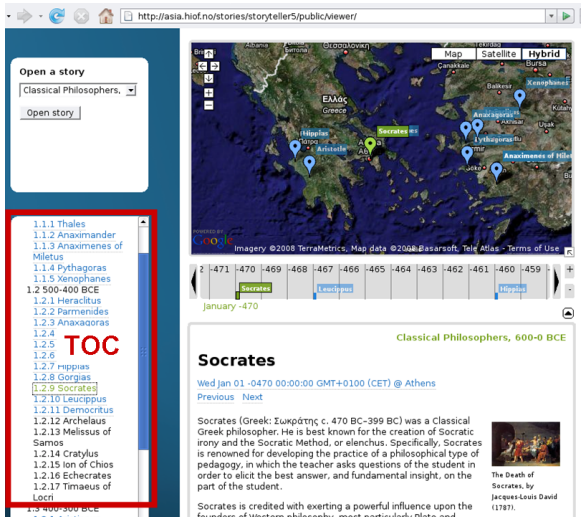
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1.2.4
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1.2.8 Gorgias
1.2.9 Socrates
1.2.10 Leucippus
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1.2.12 Archelaus
1.2.13 Melissus of Samos
1.2.14 Cratylus
1.2.15 Ion of Chios
1.2.16 Echeocrates
1.2.17 Timaeus of Locri
1.3 400-300 BCE
1.3.1 Aristotle

Map Satellite Hybrid

EMAdc Greece
Socrates
Hippias
Aristotle
Anaxagoras
Lythogoras
Anaximenes of Miletus
Xenophanes

Imagery ©2008 TerraMetrics, Map data ©2008 Basarsoft, Tele Atlas - Terms of Use


January -470

Classical Philosophers, 600-0 BCE

Socrates

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The Death of Socrates, by Jacques-Louis David (1787).

Socrates is credited with exerting a powerful influence upon the founders of Western philosophy, most particularly Plato and

Table of content (TOC)

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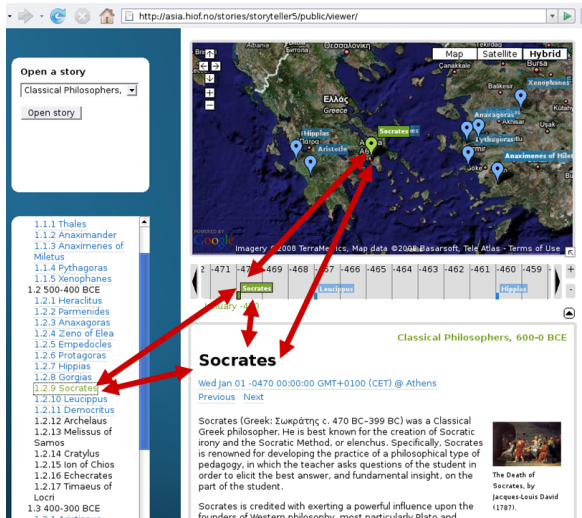
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Open a story
Classical Philosophers, -
Open story

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Map Satellite Hybrid

EMAdc Greece
Socrates
Aristotle
Hippias
Anaxagoras
Xenophanes
Anaximenes of Miletus

Classical Philosophers, 600-0 BCE

Socrates

Wed Jan 01 -0470 00:00:00 GMT+0100 (CET) @ Athens
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The Death of Socrates, by Jacques-Louis David (1787).

All story elements are synchronized: Clicking on a map marker updates event view, timeline and TOC, and so on.

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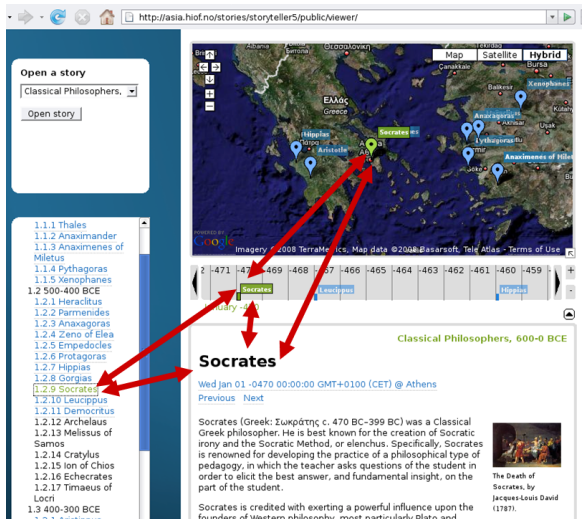
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http://asia.hiof.no/stories/storyteller5/publicViewer/

Open a story
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Map Satellite Hybrid

Socrates

Classical Philosophers, 600-0 BCE

Socrates
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The Death of Socrates, by Jacques-Louis David (1787).

Findings from a pilot study (7th. grade) indicate that the “weaker” pupils, using Storix, perform much better than expected [Misund, 2008]

NeoGeo

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- Open data and free software make research and teaching easier, more fun, and more efficient
- Academia should not be passive consumers!
- Should contribute directly with software, methods, data
- Indirectly by evaluating and assessing the neogeo domain, and provide guidelines
- Nothing to lose, lots to win!

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August 2005:
Østfold
University
College
opens a new
campus at
Remmen,
Halden

Geodata quality

NeoGeo

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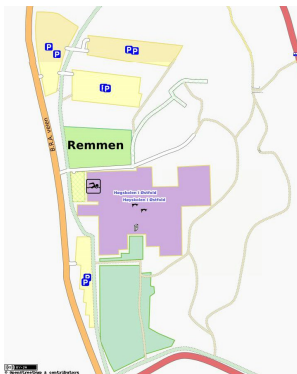
Some maps

OpenStreetMap

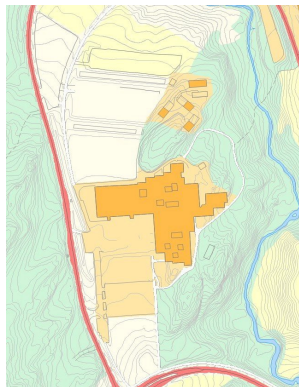
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Maps from October 2008

Geodata quality

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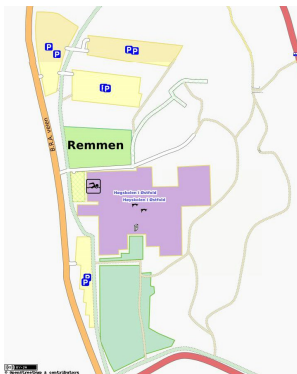
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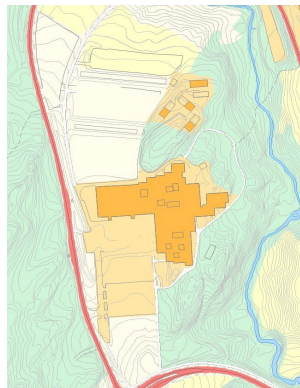
Final remarks



OpenStreetMap



August 2005:
Østfold
University
College
opens a new
campus at
Remmen,
Halden



Official map from
Halden Kommune

Maps from October 2008

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Final remarks

- Problem: Update rate
- Problem: Data corrections
- Solution: Open the door for the common users?
- If so - how about quality assurance?

Quality: User expectations

NeoGeo

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- User survey[Le, 2008], 325 participants (mostly from the South-East region of Norway)
- Knowledge of OpenStreetMap: 5% have tried it 10% have only heard about it, 82% have not heard about it at all
- One of the questions: Do you think user generated maps may be more accurate than maps from government and commercial actors?
- 20% YES and 75% NO
- However, 30% of the young users (18-24) say YES (65% NO)
- ...as opposed to only 10% of the users older than 50 (80% NO)

Quality: How good is OpenStreetMap, compared to Ordnance Survey? [Hacklay, 2008]

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- On average: OSM features are within about 6 meters of the position recorded by the OS
- Approximately 80% overlap of motorway objects between the two datasets
- In four years, OpenStreetMap has captured about 29% of the area of England (!)
- Most of the data capture (80%) was carried out by 90 participants (!!)
- “Differences in digitisation – from a fairly sloppy [...] to a consistent and careful approach – seem to be part of the price that is paid for having a loosely organised group of participants”

Challenge!

NeoGeo

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Some maps

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Final remarks

- Who is going to be the first municipality to give away their geodata (to for instance OpenStreetMap)?

¹ Large worldwide data and service provider

² Press release, July 2007

Challenge!

NeoGeo

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- Who is going to be the first municipality to give away their geodata (to for instance OpenStreetMap)?
- Why?

¹ Large worldwide data and service provider

² Press release, July 2007

Challenge!

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- Who is going to be the first municipality to give away their geodata (to for instance OpenStreetMap)?
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Final remarks

- Who is going to be the first municipality to give away their geodata (to for instance OpenStreetMap)?
- Why not?
- **“AND and OpenStreetMap join forces to create digital maps**

AND Automotive Navigation Data¹ donated digital maps of the **Netherlands, China and India** to the **OpenStreetMap Foundation** to create the most up-to-date map in the market. With this partnership AND recognized the power of a community, the Web 2.0 developments and it wants to stimulate the development of new and innovative applications.²”

¹Large worldwide data and service provider

²Press release, July 2007

Concluding remarks

NeoGeo

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- NeoGeo is more than (pink?) elephants in Brighton
- The NeoGeo community has provided novel (and useful) approaches, insights, methods, tools and data, ...all for free
- OpenStreetMap is one of many “fruits from the GIS fringes”
- Keep an eye on the fringes! Exciting things happen, ...and some of them may have significant impact on our future
- “If we replace the phrase ‘neogeography’ with the phrase ‘desktop mapping’, then I feel like we had this conversation 10 (or more) years ago” (Bill Dollins, 2007)

Questions, Comments?

Storix, FoxHunt, OurWay and Farekart are projects from
Mobile Applications Group (MAG)



`mobapp.hiof.no`

Storix, demo:

`http://asia.hiof.no/storix`

Storix, source:

`http://storix.sourceforge.net`

Farekart, demo:

`http://halden.hiof.no/farekart/kum`

Thank you for your attention!

NeoGeo

Gunnar
Misund

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Final remarks

- ▶ Michael Goodchild.
Citizens as sensors: the world of volunteered geography.
GeoJournal, 69(4):211–221, 2007.
- ▶ Mordechai Haklay.
How good is OpenStreetMap information? A comparative study of OpenStreetMap and Ordnance Survey datasets for London and the rest of England.
Environment & Planning B (under review), 2008.
- ▶ D. D. Haden.
A short enquiry into the origins and uses of the term “neogeography”.
- ▶ H. Holone and G. Misund.
People Helping Computers Helping People: Navigation For People With Mobility Problems By Sharing Accessibility Annotations.
In Proceedings of the 11th International Conference on Computers Helping People with Special Needs(ICCHP). Springer (LNCS), 2008.
- ▶ H. Holone, G. Misund, and H. Holmstedt.
Users Are Doing It For Themselves: Pedestrian Navigation With User Generated Content.
In Proceedings of The First International Conference on Next Generation Mobile Applications, Services and Technologies, pages 91–99. IEEE, 2007.
- ▶ V. Q. Le and T. Rasmussen.
Brukerundersøkelse om karttjenester (in Norwegian).
Hovedprosjekt, Faculty of Computer Sciences, Østfold University College.
- ▶ G. Misund, H. Tolsby, and Ø. Håkestad.
Learning From Spatiotemporal Stories With Storix - One Size Fits All?
In Proceedings of the 11th IASTED International Conference on Computers and Advanced Technology in Education (CATE). Acta Press, 2008.