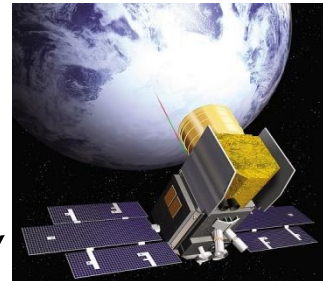


Location Based Services



A fast growing IT area



By NASA Goddard
Photo and Video



<http://commons.wikimedia.org/wiki/File:Garmin-etrex-vista-gps.jpg>

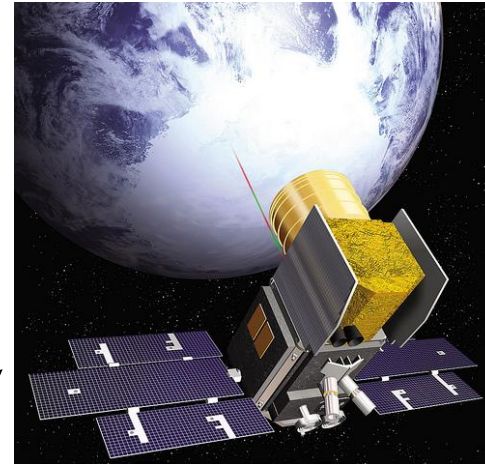
Location-Based Services

Technologies

- GPS (Galileo by 2008)
- 3G phone network
- RFID
- GSM (Triangulation)
- WLAN (Triangulation)
- Bluetooth



<http://commons.wikimedia.org/wiki/File:Garmin-etrex-vista-gps.jpg>



By [NASA Goddard Photo and Video](#)

Possibilities

- Emergency (tracking)
- Crime fighting (tracking)
- Navigation Aid
- Logistic flow control
- Promotions

LET'S MAKE SURE.

Location-Based Services

Three main questions and technologies used

Where are you?

Technology needed

Positioning (GPS etc)

Identification (RFID etc)

Wireless communication

Who are you?

Where am I?

Technology needed

Positioning (GPS etc)

(Navigation software)

...and where to go?



by Easterbilby



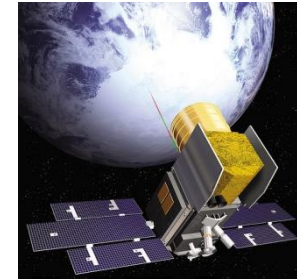
By Bond Girlz

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Location-Based Services

Positioning technologies

- **Satellite positioning systems**
 - GPS (Global Positioning System)
 - Galileo, the global European system (from 2008)
- **3G** has built in capabilities for positioning within its network
- **WLAN** positioning for enterprises
- Add on technology for GSM (triangulation)
- **RFID** where the RFID reader communicates data and where it's position is known.



By [NASA Goddard Photo and Video](#)



By [BlinkenArea.org](#)



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Location-Based Services

Identification Technologies

- **RFID tag** providing its ID to the RFID reader
- **Phone number** within mobile phone networks
- **Proprietary software** typically communicating over the GSM network or through satellites



By [bfishadow](#)

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Location-Based Services

Typical applications

- Tracking people
 - For crime fighting
 - In emergency situations
 - Lost children
- Tracking and controlling objects in logistic flows
 - Fleet control, such as Dynafleet, Volvo Link and Infom@x
 - RFID is under test at Volvo IT, VTEC, Parts, Buses and other Volvo companies.
- Navigation Aid

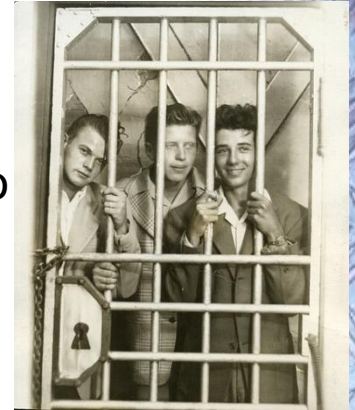
Location-Based Services

...and two debated applications

No escape for Ohio jailbirds...

Ohio will install an RFID tracking system in their prison system to eventually track the state's 44,000 inmates.

The prisoners will be wearing RFID tags in order to be identified when passing gates etc. The information is communicated to the jailhouse operators and stored for possible later usage.



By [Christian Montone](#)

School kids in Japan to be tagged with RFID chips

The Japanese city of Osaka have decided to be equip children in one primary school with RFID tags. The tags will be read by readers installed in school gates and other key locations to track the kids' movements.

The chips will be put onto kids' schoolbags, name tags or clothing in one Wakayama prefecture school. Denmark's Legoland introduced a similar scheme last month to stop young children going astray.



By [LWY](#)

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Location-Based Services

Regional differences

- Japan and South Korea

- In the leading edge
- 3G already with wide coverage
- Are offered a range of services from their 3G operators



- USA

- Enhanced GSM/GPRS technology for positioning
 - The operators are forced to handle 911 tracking by government regulations



- Europe

- Awaiting 3G
- No incitement to enhance the old GSM/GPRS network in order to offer positioning services,



LET'S MAKE SURE.

Location-Based Services

What to expect in 2-5 years

- A variety of location based services will be offered to both the consumer market and enterprises.
- With the help of information about where we are, who we are and what our goals are, extended services will be offered through the mobile network.
- GPS (and Galileo from 2008) into the cell phones
 - Why GPS and Galileo? Phone Networks are only covering well populated areas. GPS and Galileo covers the planet.
- Usage of RFID in logistics and other applications will increase dramatically.