What about the tools?
An overview of locative systems

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why me?

PhD in Human-Computer Interaction about location-awareness in virtual and pervasive gaming

Not concerned by technical aspects BUT...

Interest in user experience and design issues

why locating?
input/ouput
main design issues
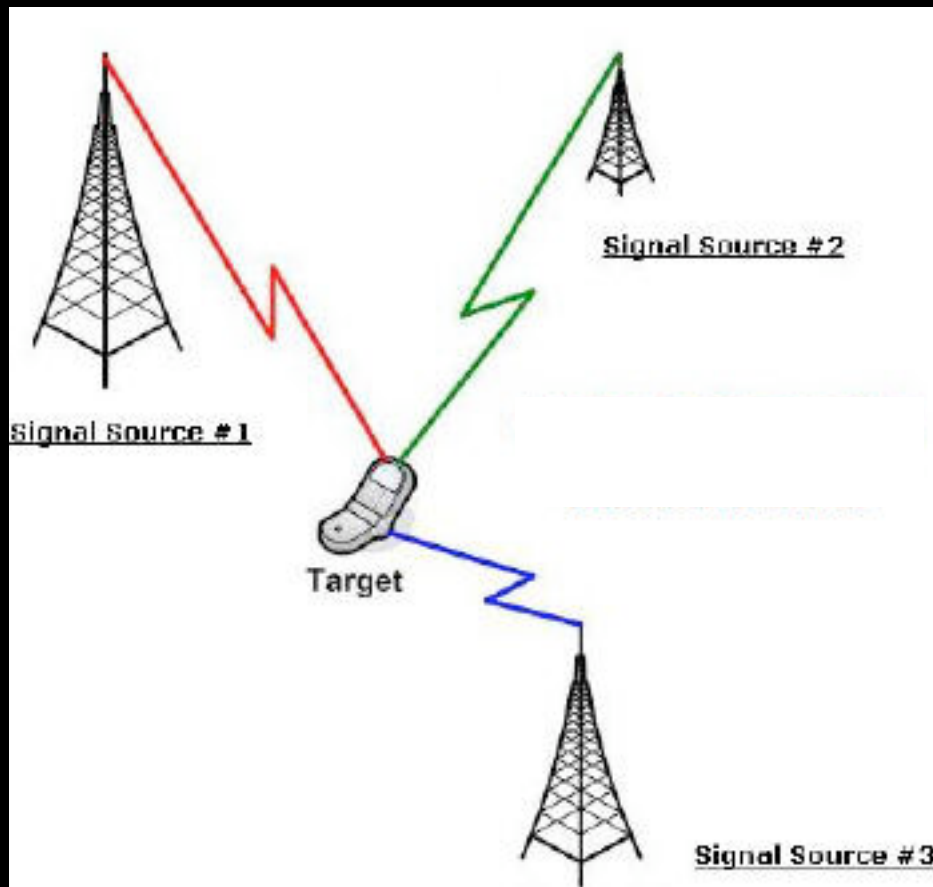conclusion

WHY LOCATING?

direct/indirect

INPUT: how you "sense" the objects/people's location
OUTPUT: what you do out of it, what's the outcome for the user?

triangulation of radio signals
(GPS, WiFi, RFID, TV/radio)

need a GPS receiver

accuracy: 10-75 meters
constraints:
- cannot be used indoor, doesn't work well in a pocket
- need a clear line of sight to (at least 3) GPS satellites (4 for 3D)

need access to WiFi hotspots
+ need accurate location of hostpots

accuracy: 5-25 meters
constraints:
- better used indoor,
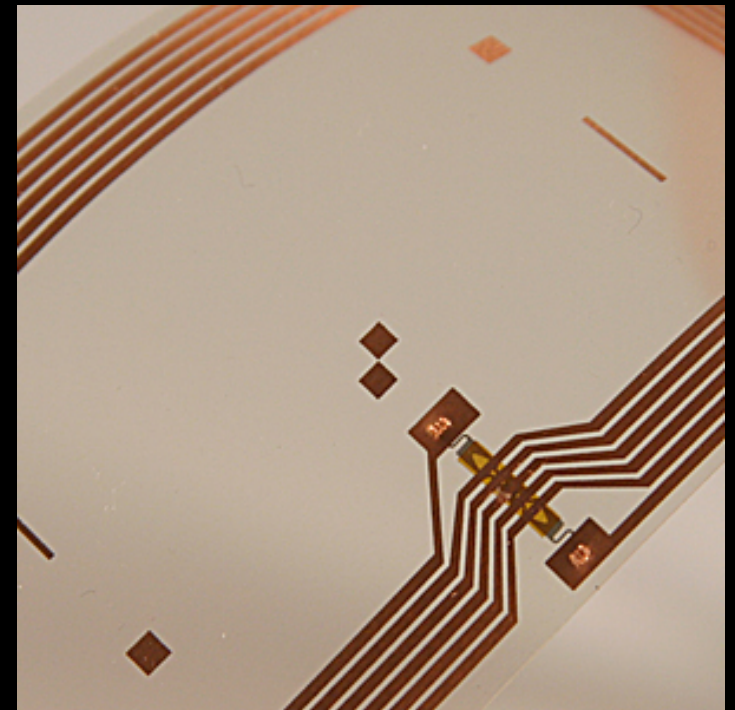- work only in small and controlled setting
(university campus, museum)

RFID tag scanned by a gelocated reader
 OR tags senses if scanned (and potential lookup)

accuracy: up to 50 meters
constraints:
- better used indoor,

special case, only available through <u>certain</u> network operators (hence invisible to the user), possible hacks:

• CellID: network reports which cell you are using (but not always connected to nearest cell). Accuracy: 50 m - 3km

• if you have the list of antenna's position... then triangulation (accuracy: 50-2km depending on the density)

• bad solution IMHO

Quoted from Chris Heathcote: http://www.anti-mega.com/etech_35ways.ppt)
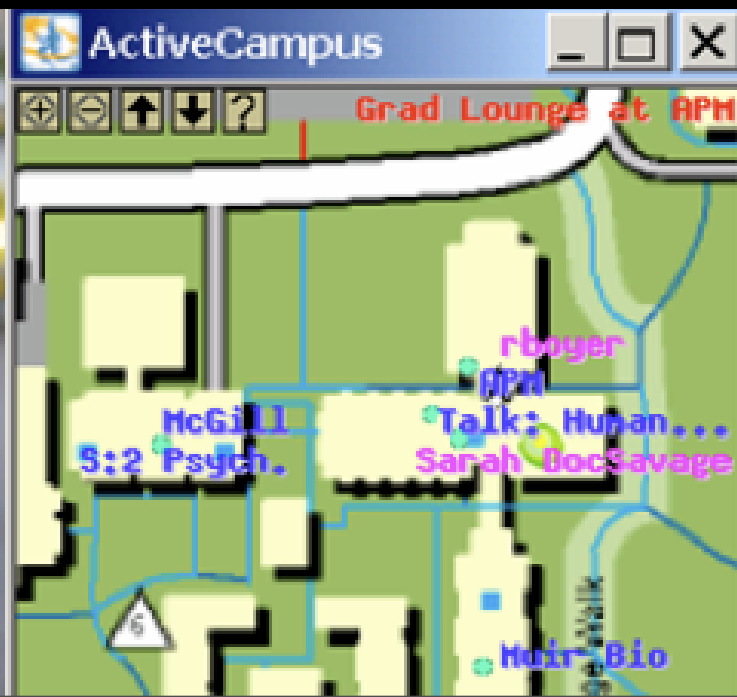
INPUT > low tech approaches
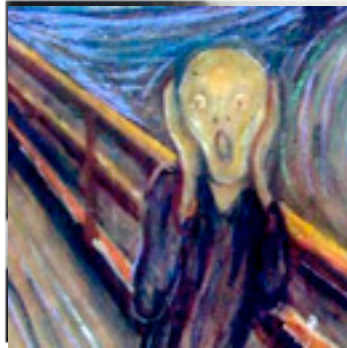
should not be dismissed
self-disclosure of one's position
(zip code, town name, block name, street name)

mostly better to refine

OUTPUTS

time span

past/present/future(direction)

location-awareness of the future: dopplr.com

(fake trips ;))

DESIGN ISSUES

DESIGN ISSUES > more than location

- distance covered
- speed
- recognition or not
- relative/absolute, location versus proximity
- naming: physical (32"34') versus symbolic ("home")

DESIGN ISSUES > limits(1) > accuracy

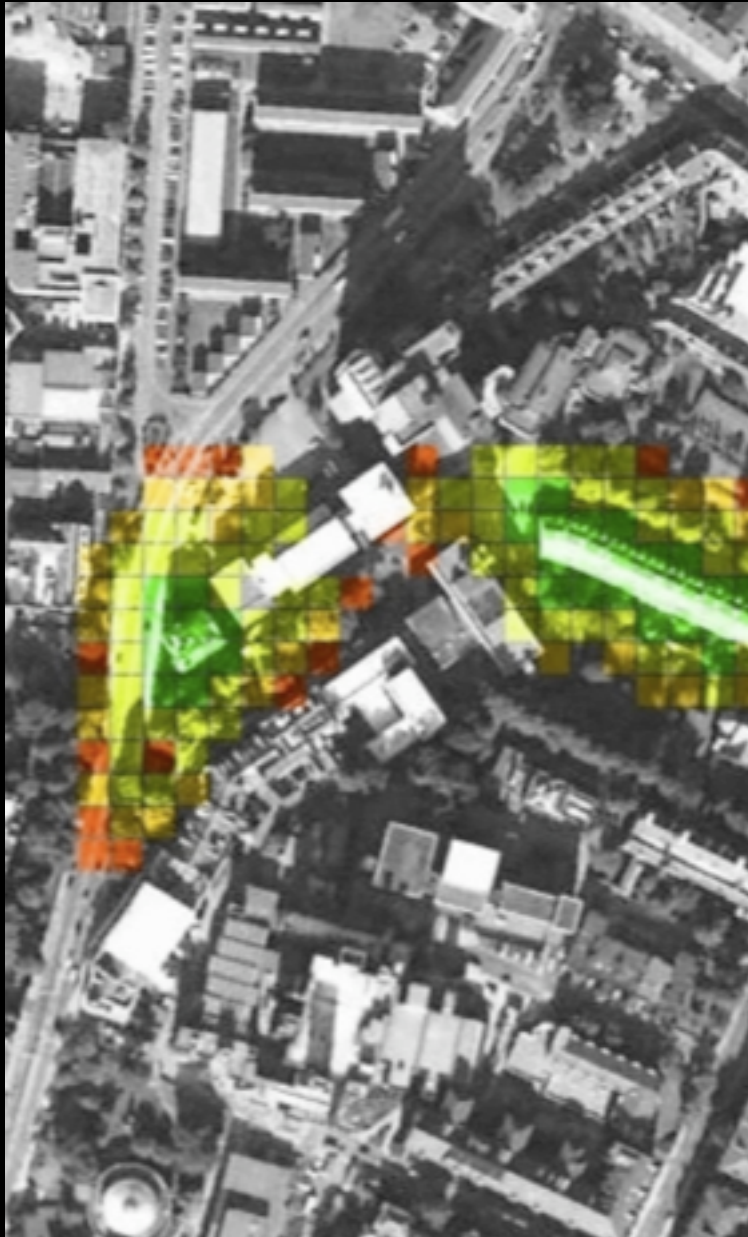(taken from Fabien Girardin)

indoor/outdoor, junctions...
black spots, no coverage

DESIGN ISSUES > limits(2) > breakdowns

DESIGN ISSUES > seamful design

reveal the "seams" (limits, boundaries, uncertainties) when to reveal the imperfections?

matthew chalmers

CONCLUSION

GPS is not the THE solution to the world's problems

Seams, holes and problems can be design opportunities

Choose a method that matches context+problem+users

Read more:

Hightower, J. and Borriello, G (2001). A Survey and Taxonomy of Location Systems for Ubiquitous Computing. Extended paper from Computer, 34(8) p57–66, August 2001.