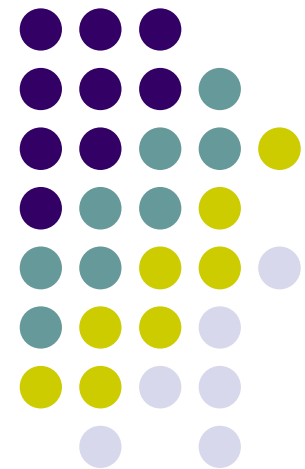


# The Pros and Cons of Living Online

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Mobile Telephone Tracking

K.Davies 2007





# An Invasion of Privacy?

- 75% of adults in the UK own or use a mobile phone.
- Of those surveyed, 90% of 15-34 year olds owned mobile phones.
- Research hypothesis:

*UK University Students Consider Mobile Telephone Tracking to be an Invasion of Privacy.*

[OfTel Residential Survey, 2003]

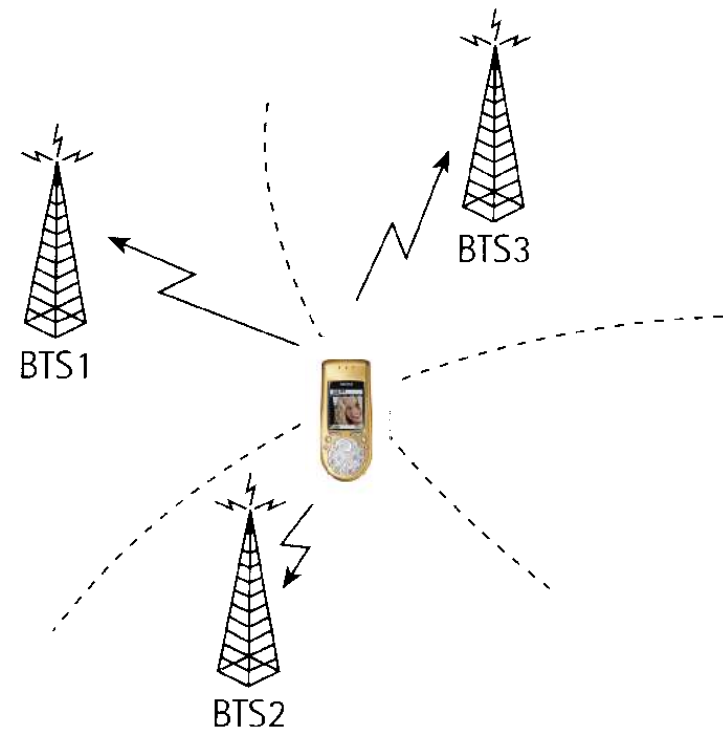
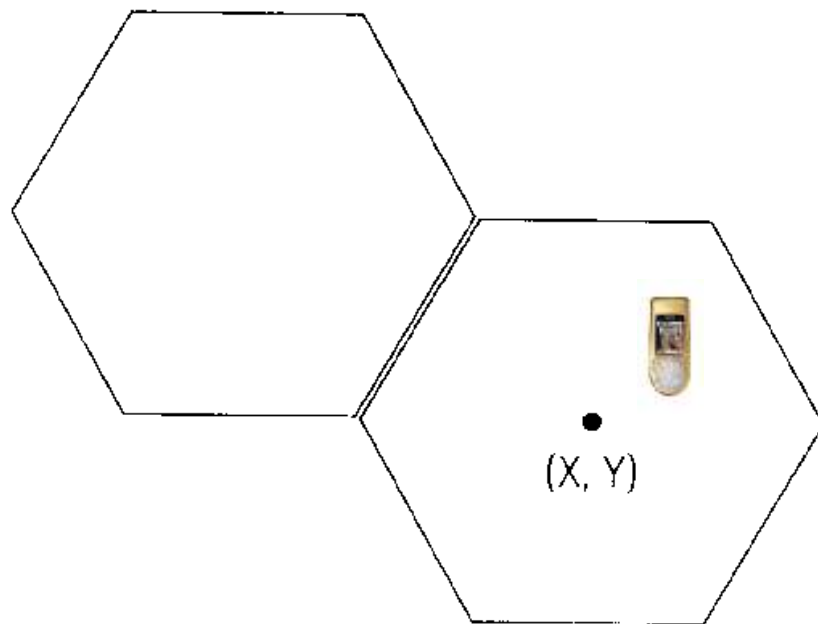
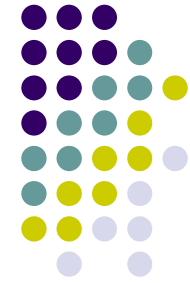


# Positioning Techniques

3 common techniques:

- **Cell Of Origin (COO)**  
100m – several kilometres, relief dependent [GOGGIN, 2006]
- **Time of Arrival (TOA)**  
~100m with 3 transmitters in urban areas  
~200m with 2 transmitters, with 67% accuracy [PALOLA & TARVAINEN, 2003]
- **Global Positioning System (GPS)**  
<100m accuracy [GOGGIN, 2006]

# Cell of Origin & Time of Arrival



[PALOLA & TARVAINEN, 2003]



# Legislation - USA

US Federal Communications Commission's (FCC) requirement:

- Phase I of FCC's E911 rules state that mobile providers must:  
provide emergency services with the *number* of the caller and the *location* of the *cell site* or *base station* transmitting the call.
- Phase II (2001) required the location to be of 50-100 metres accuracy.

[GOGGIN, 2006]



# Legislation - EU

The 2003, EU directive E112 requires:

- Mobile phone networks to provide emergency services with whatever information they have about the location a mobile call was made.

[GRAHAM-ROWE, 2003]

# Cons



Minch [2004] identifies 13 privacy issues surrounding location aware-mobile devices, which include:

- Should users of location-enabled devices be informed when location tracking is in use and should they be permitted to turn it off?
- Who should store tracking information, and what details should be stored?
- What level of disclosure should be maintained, and who should have access, or be able to request access?

# Pros



- Location for emergency services: increases precision and speed for crews to respond to calls.
- Criminal investigations: search for missing persons, or even property.
- Location relevant content: maps, local service information.
- Child tracking: for the paranoid parent.
- Location dependent billing: cheaper call rates at home, etc.



# Suggested Innovation?

- Still an invasion of privacy if you could:
- Verify your attendance in lectures?
- Be given directions to unfamiliar campus buildings based on your current location?
- Receive relevant information about events on campus?

(Most would work better on a larger campus.)



# Conclusions

- The pros of tracking may outweigh the cons in benefits.
- Legislation is required to govern potential use of information created from tracking.
- Positioning techniques are improving constantly, giving greater accuracy of location.



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