

Location tracking

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8-533 / 8-733 / 19-608 / 95-818:
Privacy Policy, Law, and Technology



By the end of class you will be able to:

- Discuss the value of locational privacy
- Understand how location tracking works
- Know what regulatory protections exist for location privacy
- Understand the difficulties in protecting location privacy

Location Location Location

- Is location information sensitive?

A database of your location reveals

- “Did you go to an anti-war rally on Tuesday?”
- “Did you see an AIDS counselor?”
- “Did you skip lunch to pitch a new invention to a VC? Which one?”
- “Were you the person who anonymously tipped off safety regulators about the rusty machines?”
- “Which church do you attend? Which mosque? Which gay bars?”

What are some location collection scenarios?

- Why is location collected?
- Whose location is collected?
- Who collects it?
- Which method is used?

Some scenarios

- Driving through FastTrak
- I visit www.homedepot.com from my laptop
- I play Angry Birds on my cell phone; flurry.com collects my location
- When a suspect is being followed by the police, the police install a tracker on the suspect's car

Court Decisions

- Supreme Court *US vs Jones*: Police placed GPS tracker on suspect's car and exceeded warrant
 - Court rules the physical placement was a trespass
- 11th circuit court *US vs Davis*: Warrantless collection of location from cell phone history
 - Three judge panel found it was a violation of 4th amendment rights
 - *En banc* Court reversed decision based on third party doctrine
- Supreme Court: *Riley v. California*
 - unanimously held that warrantless search and seizure of phone's contents unconstitutional

Some states require a search warrant

- Require police to obtain a search warrant to track with GPS or electronic tracking device
 - HI, NY, OR, WA
- Require law enforcement to obtain search warrant before obtaining historical cell phone data
 - CO, ME, MN, MO, UT
- Court decisions: MA, NJ

Locating Technologies

Global Positioning System




Image from wikipedia.


WiFi Positioning



IP Based Location



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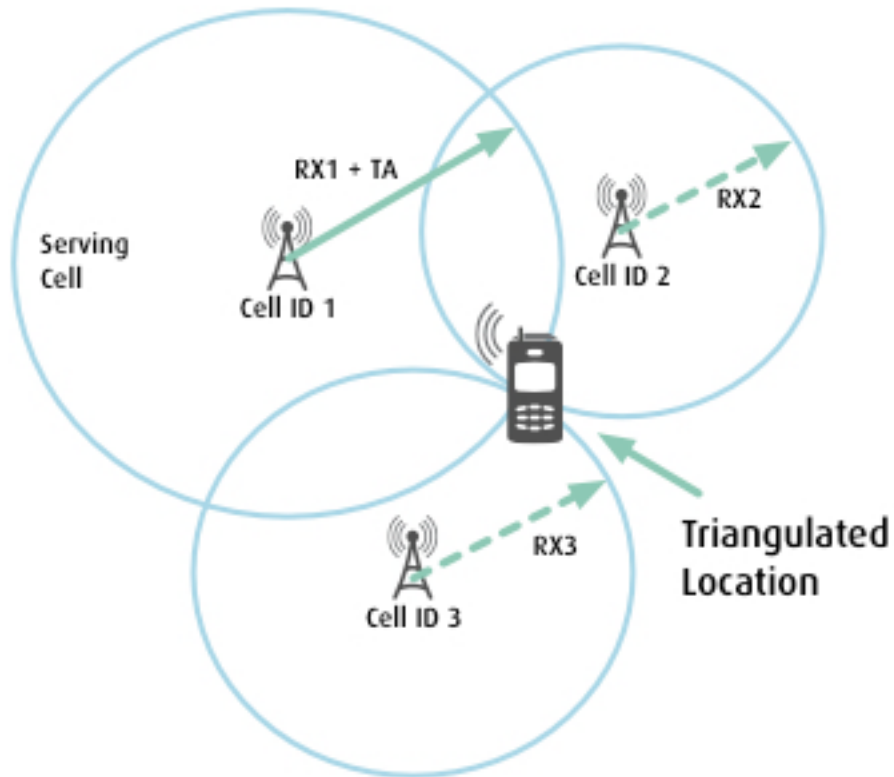
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Cellular Triangulation



Beacons

Examples of Beacons



Gimbal



Radius Networks



Estimote



Signal 360

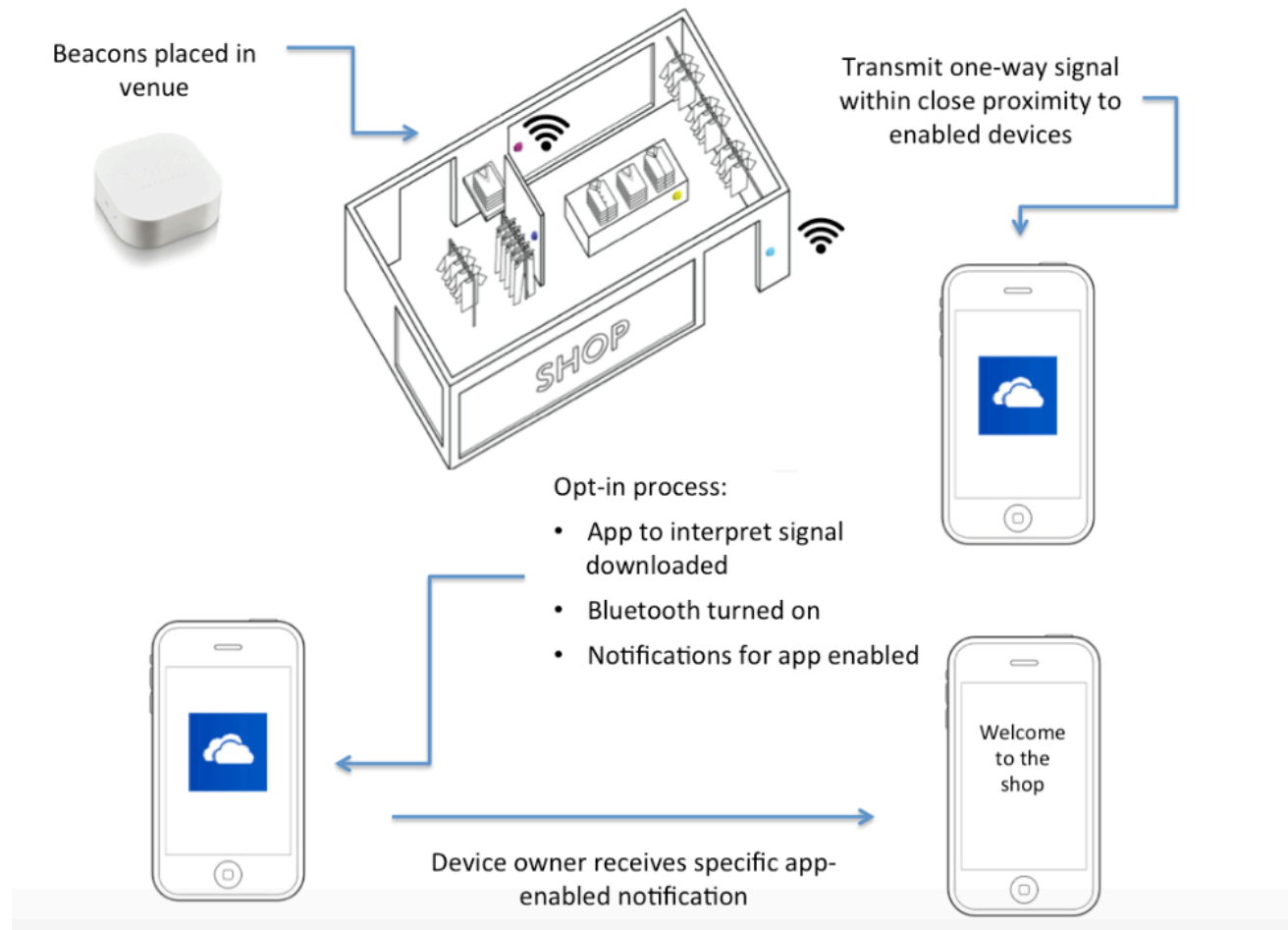


GPSHopper



Aruba

How Beacons Work



Limits on anonymizing location data

- Why is it difficult to anonymize location data?
- How unique is location data?

In class work - individual

- When would you find it useful to share your location with an app, website, or friend?
- When would you not want to share your location?
- Specify a set of rules for sharing your location
 - What attributes are the rules based on?
 - How many rules do you need?

Group discussion on location privacy controls

- As a group, compare and contrast the rules you developed for sharing location
- Prepare advice for a company looking to implement this app on what controls they need for the user
- Prepare advice for the company on any other ways they can protect user privacy



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