Location Services in the Real World

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Location Services in Mobile Consumer Software

(a terrible but more accurate title)
Three parts:

1) Twist and it’s application of locations services.
2) Some of the challenges we faced.
3) Why location services are so exciting.
Part 1:
Twist and Our Application of Location Services.
Make your life easier by reducing the anxiety caused by going places and meeting people.
anxiety ˈaNGzī-ītē

1. a feeling of worry, nervousness, or unease, typically about an imminent event or something with an uncertain outcome.

New Oxford American Dictionary
Discomfort stemming from uncertainty.
Let’s say you have an 8am coffee meeting.
Where are they?
They’ll arrive in 5 minutes.
Before you leave:

1) Input where you’re going.
2) Input who you’re meeting.
3) Put the phone in your pocket.
Twist will:

1) Let them know when you’re on the way (with arrival estimate).
2) Let them access real-time progress updates.
3) Let them know when you’re almost there.
4) Automatically shut itself off.
Built on location services.
But more of a time service.
So that’s what we actually built.
(Available on the App Store and Google Play.)
Bigger vision of connecting people and businesses.
Cable Guy (Comcast, AT&T, etc.)
Pizza Delivery (Dominos, Patxi’s, etc.)
Packages (UPS, FedEx, etc.)
The reverse direction is interesting as well (letting a business know when you will arrive)
Drive
Leave
"Drive" "Stand in Line" "They Make Order"

Order
Arrive
"They Make Order"

Go
Grab
"Leave" "Order"

Go
"Arrive" "Grab"

Achieve
"Drive" "They Make Order"
Standing and waiting is pure excise.
Exists because time information isn’t being shared amongst the relevant parties.
So, to summarize:

Twist was using location services, trying to make people’s lives easier, and barely scratched the surface of what we thought could be done.
Part 2:
The Messy Reality
Lots of challenges.
Disclaimer: iOS Focus Ahead
But first... a brief explanation of Location Services on iOS
Cell Tower Triangulation
WiFi Triangulation
GPS
Bluetooth Triangulation

Location Services

Developer
Location Manager
  - Desired Accuracy

Locations
  - Coordinate (Lat + Long)
  - Altitude
  - Horizontal + Vertical Accuracy
  - Timestamp
  - Speed
  - Course
Accuracies

- Three Kilometers
- Kilometer
- Hundred Meters
- Ten Meters
- Best
- Best for Navigation
Significant Location Changes

Region Monitoring

Beacon Ranging
So…
No info on what service generated your location.
No pseudo-ranges.
No ephemeris data.
Not a serious issue for Twist, but a bummer for some of you folks.
Sorry.
Scumbag Locations
We’re really confident that you’re enjoying the sunshine in the park...
Multipath
False departures.
Addressed by adjusting departure heuristics from being based on a single point to being based on streams of points.
Battery Consumption
If you’re battery goes to zero…
game over.
Network >> Location Services
Addressed by throttling when...
Far from beginning or end.
On route.
If no one is checking in.
Perceived Battery Consumption
Transparency + Accountability
Ambiguous Actions
When are you “on the way”? 
Challenge of building intelligence on top of raw data.
Sociological Issues
The challenge of living in the communication channel between two social, hairless apes.
So, to summarize:

Black Box
Scumbag Locations
Battery Consumption
Perceived Battery Consumption
Ambiguous Actions
Sociological Issues
Part 3:
Location Services Are Awesome!
Lots of apps are using location services.

Yelp
OpenTable
Apple Maps
Foursquare
Weather
Google Latitude
Uber
Lyft
Square
Transit App
Camera
The promise of location services:

1) Context Sensitivity
2) Reduced Interaction
3) Continuous Data
Context Sensitivity
N
Inbound to Caltrain via Down...
Sunset Tunnel East Portal
1 minute

37
Outbound to Twin Peaks
Masonic Ave / Haight St
8 minutes

F
Outbound to Castro Station...
Market St / Sanchez St
15 minutes

J
Inbound to Downtown
Church St / Duboce Ave
7 minutes

M
35 Noe St
Reduced Interaction
Interaction is the enemy.
(unless you’re a game)
Location services can reduce interaction.
The Mill

736 Divisadero St.
Open 7 AM - 9 PM, 7 AM - 9 PM

Share...

Auto Check In: ON
Continuous Data

aka “things that were previously impossible”
Twist
Walking 4.7 mi

Matt's House
Walk 17 min

Matt's House
Walk 17 min

Fox & Goose
Walking 8 min
Walk 7 min

Burgers & Brew
Walk 9 min
Google Now
Wednesday, November 13th

Traffic is unusually heavy on the way to 364 Bush St. The driving time is 17 minutes.

The first thing on your calendar today is “Hardly Strictly”, at 8 AM.
The Punchline:
Your customer’s attention is scarce and valuable; location services help you make the most of it.
We’re just scratching the surface of what is possible today, and there’s more to come.
Thank you for your time.
Q/A

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