



TerraSwarm

Semantic Heuristic Localization

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Background

Who's in Lab?



Background

What People Carry

- Phones
- Laptops
- RFID Cards
- Fitbits

What People Are

- Voice
- Faces
- Height
- Weight

What People Use

- Desk Chair
- Computer



Background

What People Carry

- Phones
- Laptops
- RFID Cards
- Fitbits





Fitbit Scanning

Fitbits communicate over BLE

Actively scan using base station

Can run from a Raspberry PI



```
[brghena@ubuntu whereabouts] [master *] $ ./fitbitfinder.py test
Scanning for fitbits...
E385285A5EE0 : -79
27E78B1E97F9 : -74
4D8D0D8CB7EE : -82
C372A4DA26C4 : -85
```



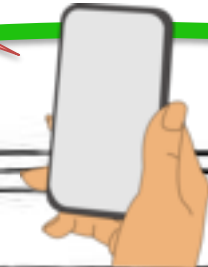
Challenges

The Barrier Problem

**1 Dozen
Goldfish Special
\$8.95**

petco. 

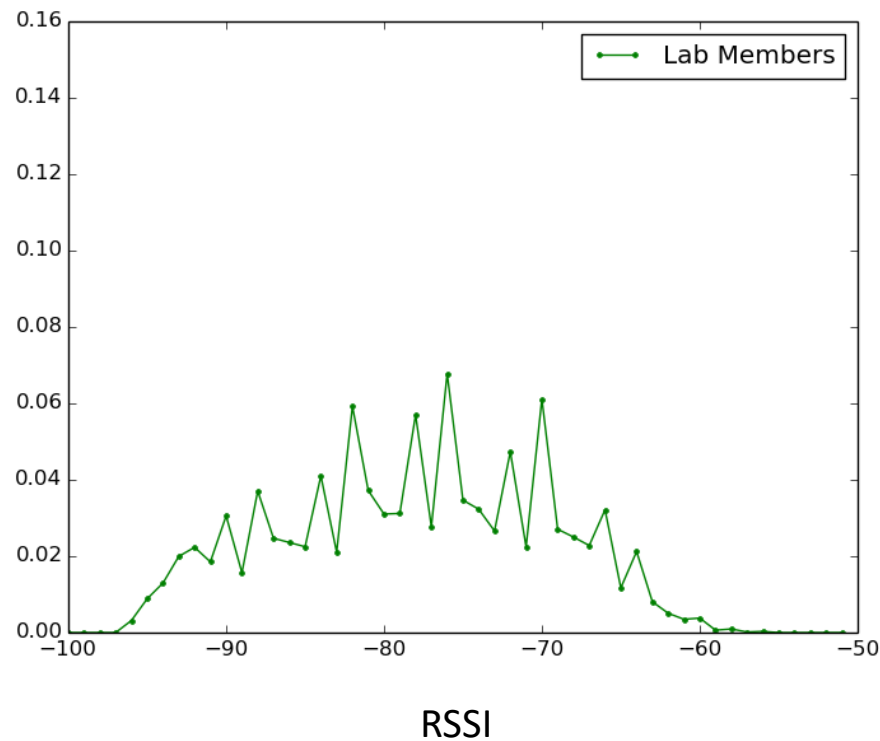
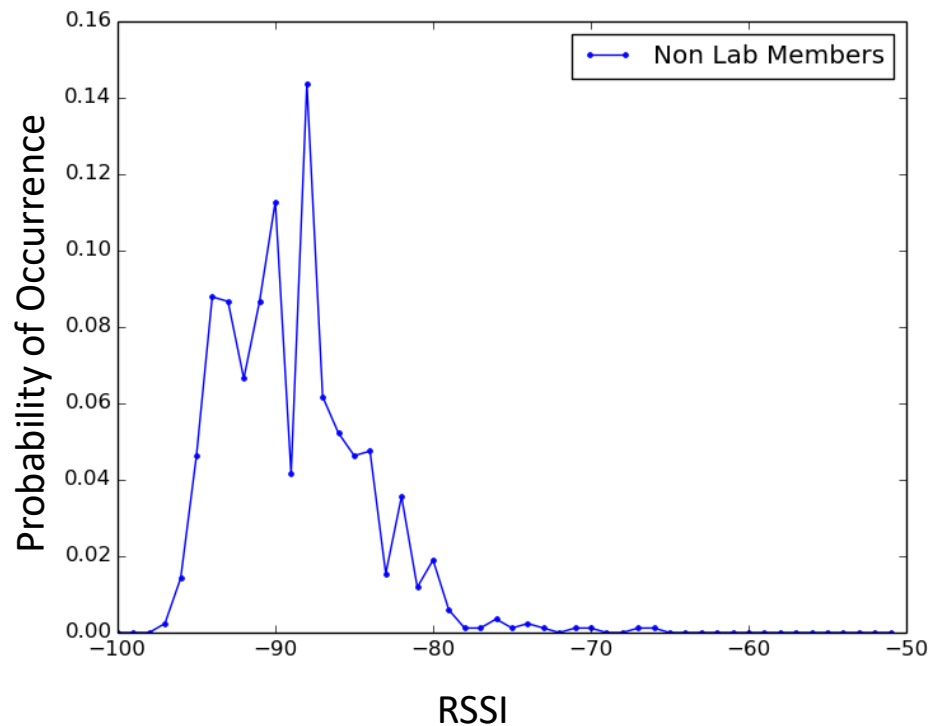
Sushiko
Japanese Restaurant





Challenges

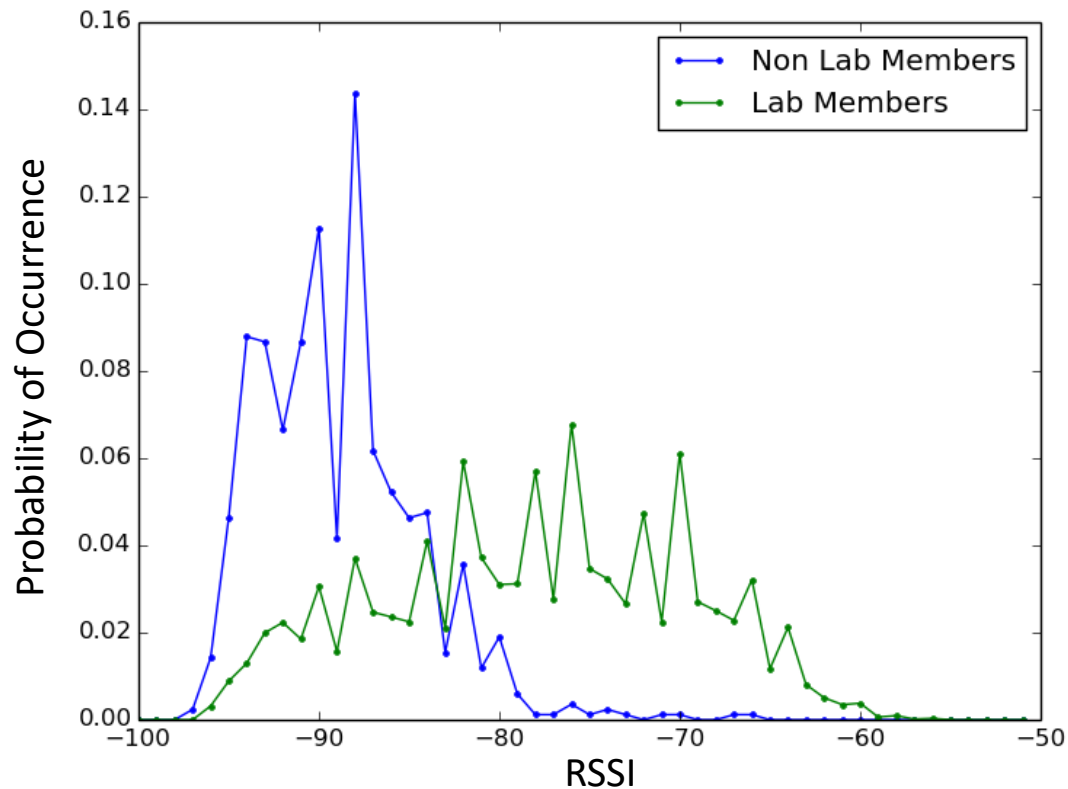
How bad is RSSI in practice?





Challenges

How bad is RSSI in practice?





Whereabouts

Demos | Whereabouts



Whereabouts Semantic Heuristic Localization



Josh Adkins

University of Michigan, BBB, 4908

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Brad Campbell

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Pat Pannuto

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<http://inductor.eecs.umich.edu/whereabouts.html>

<https://github.com/lab11/whereabouts>