



demandware

In-Store
Mobile
Consumer
App Project



Brandeis

Shimon, Wesley, Jing, Brian

Today's Agenda

- Overview
- Problem Space
- Features
- User Story
- Technology
 - Map Interface Demo
- Prototype Design Demo
- Conclusion
- Q & A

Overview

- Semester long field project led by Professor **Pito Salas** and Technical Lead **Mia Stern** at Demandware
- Our mission was to create the proof of concept for a **consumer mobile app** used primarily **in-store**
- We investigated competing apps and technologies, and came up with specific, customer-validated, technically feasible **proofs of concept** for such an application
- Let's dive right in...

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Brandeis X Demandware

THE NEXT GENERATION OF IN STORE SHOPPING

TELL ME MORE

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Technology

Beacons:

“Eyes for your blind phone in the pocket”

Bluetooth Low Energy Signals

2.5 - 3 year battery life

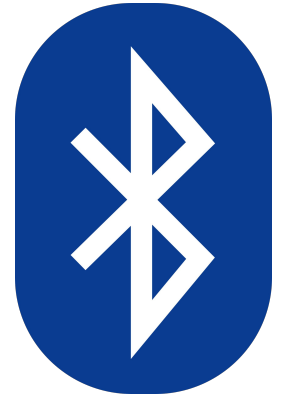
Accuracy:

Ranging: < 10 cm

Location: < 2 m

Range Up to 70 m

Additional Motion/ Temperature Sensors



Technology

Our Choice of Beacons:

Estimote, an Y Combinator Graduate

Estimote is an open platform with demo apps and source code on Github

Well documented development guideline

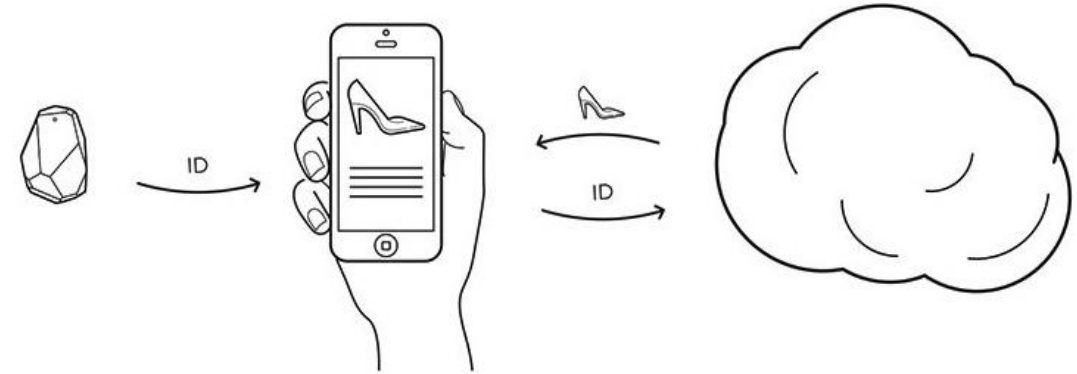
Good Q&A page

Other Options:

Swirl, Radius Network, Onyx, etc.



Technology



Background Monitoring/Ranging System

Setup Listener:

Listen to a set of beacons with the same UUID for the **Burlington store**

Listen to a set of beacons with Major/Minor number > 100 for the **clothing section**

Listen to a single beacon with Major/Minor number = 100 for just the **sweatshirt aisle**

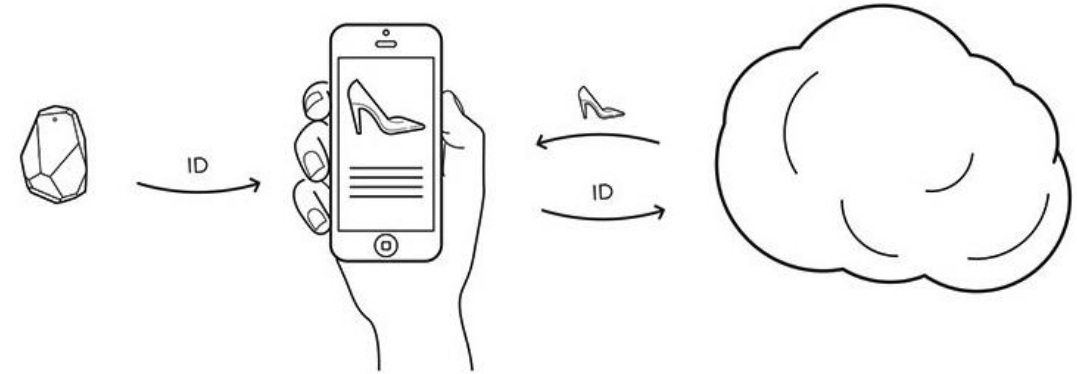
Enter/Exit Trigger Function:

Push notification for sales and recommendation

Initiate/ terminate timer for behavior analysis

Technology

Indoor Location System



Precise blue-dot location services indoors using trilateration of signal strength

How does it works?

1. **Place** beacons on each wall
2. **Map** the border of the space using Estimote Indoor Location App, which will upload the configuration to the Estimote Cloud
3. **Link** the configuration from the cloud in the application and start fetching location
4. **Call** delegated function to get Location object, which includes coordinate and orientation

Caveat:

Our mapping successful rate is 30%, so it takes some time to do the configuration, especially for large spaces

Technology

Potential Problems with Beacons

From Beacons to Application:

Streamline the process of setting up beacons in store

Configure information in application

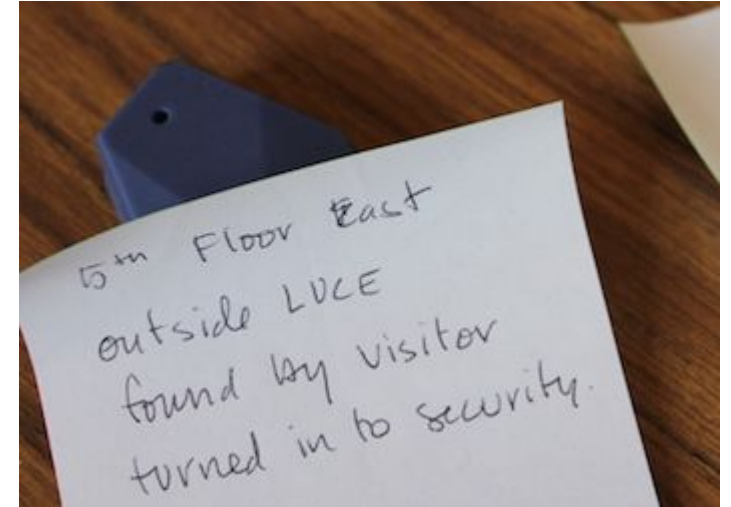
Scaling:

3 beacons -> 30 beacons

Optimize the layout and maintain the beacon

Indoor Location Accuracy:

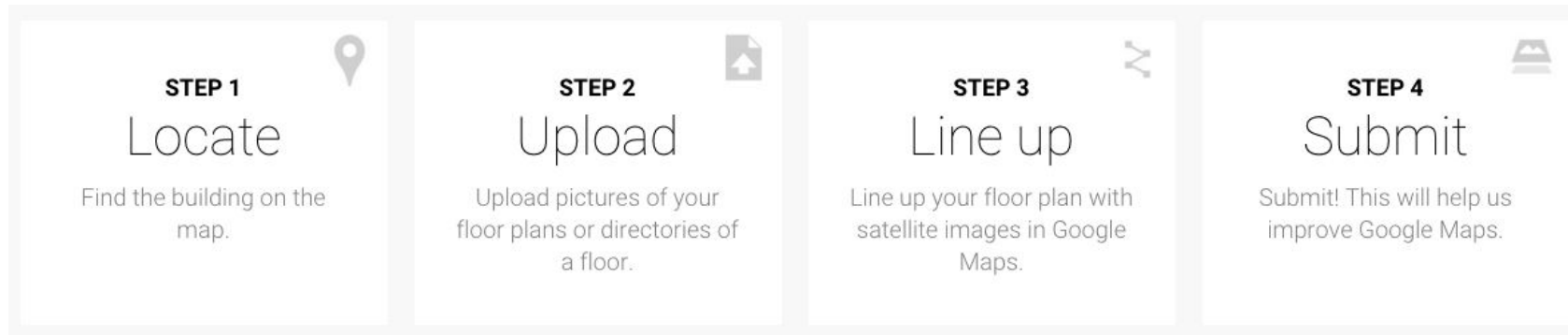
< 2 m



Technology

Map Interface

A simple way to get indoor layout map with matured map system



Google Indoor Map



Apple ID

Password

Indoor Survey

Enable indoor positioning.

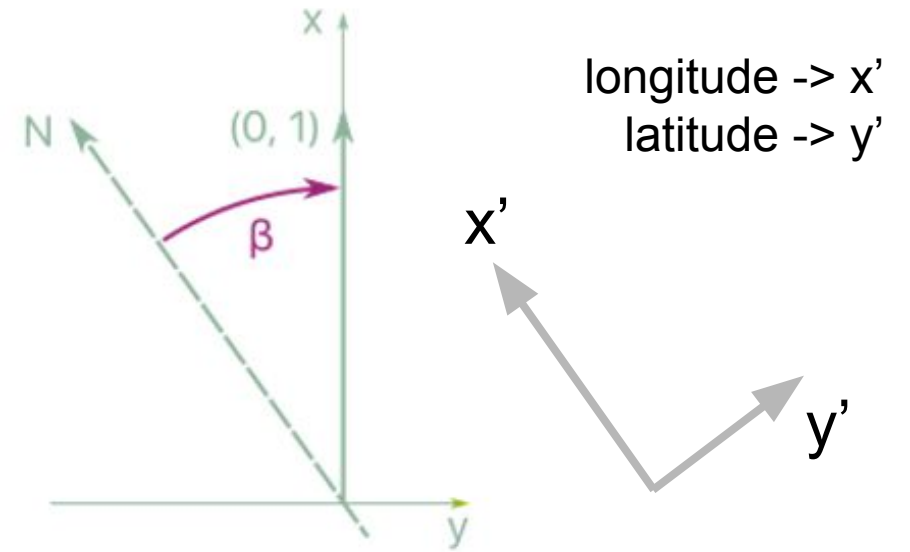
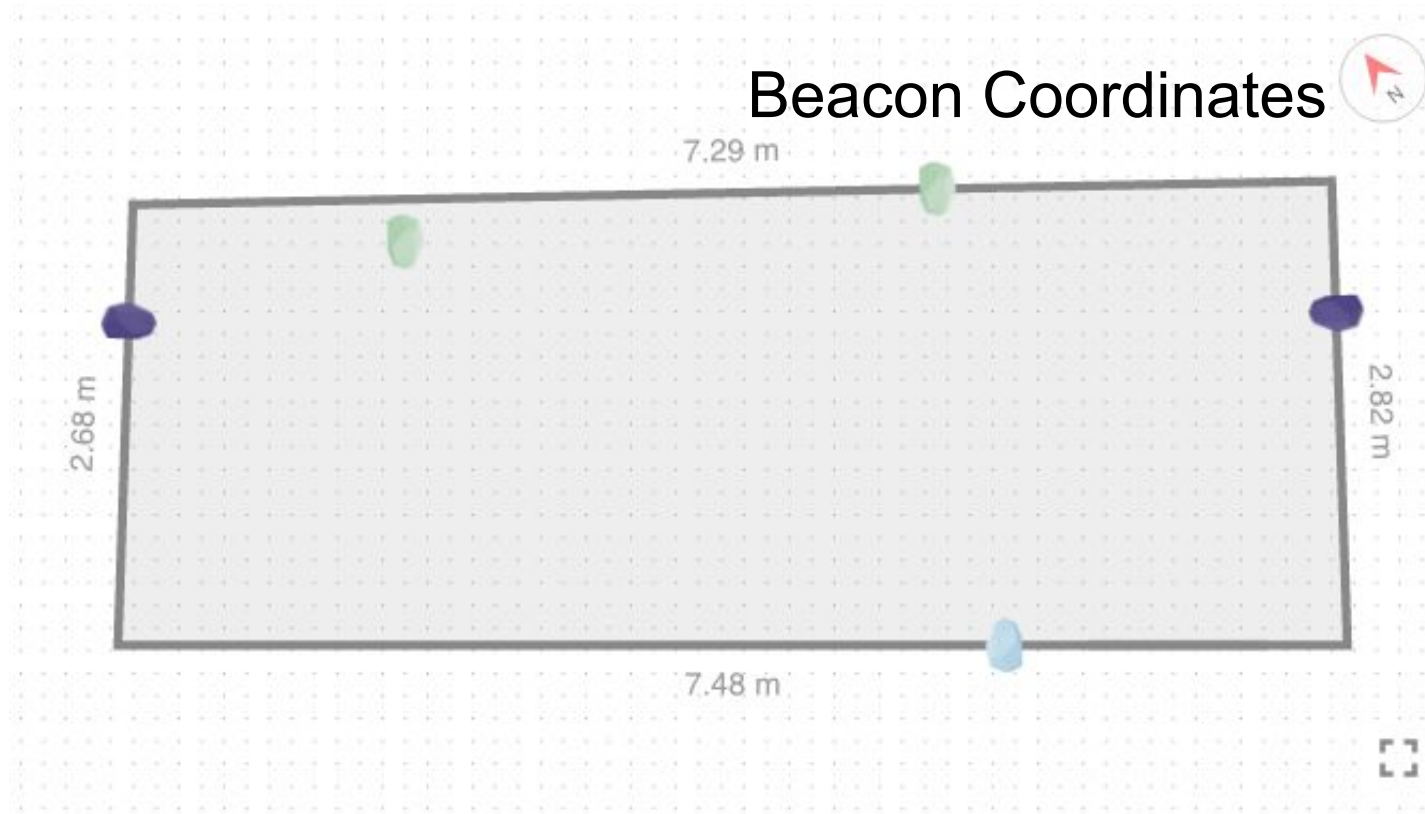
[Forgot your Username or Password?](#)

Apple Indoor Map

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Map Interface Demo



Mercator Projection

We want to map **Beacon** Coordinates onto the **Google Maps** Coordinates



Technology

Fingerprint Payment

Make purchases with a single touch

~~billing~~

~~shipping~~

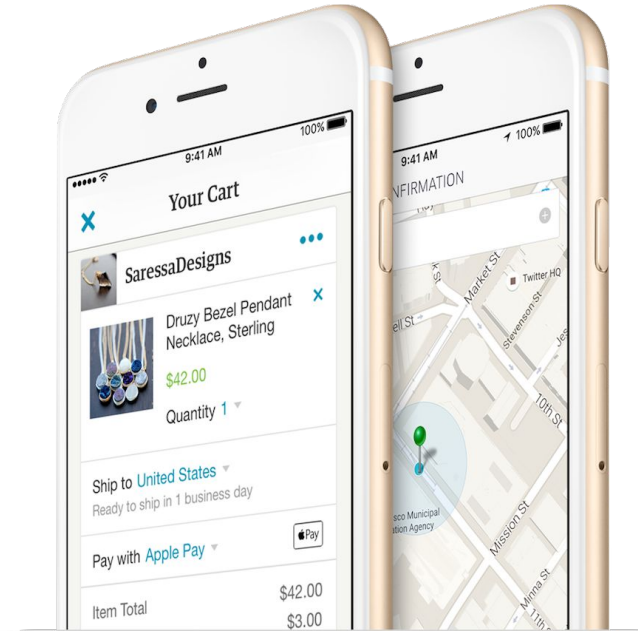
~~contact details~~

Prerequisite for **Apple Pay** in-app purchase API:

In addition to implementing Apple Pay with the PassKit framework, which will release the payment credential token, you must:

- Set up an account with **a payment processor or gateway**, if you don't already have one. You can find a list on developer.apple.com/apple-pay.
- Register a **Merchant Identifier** via Certificates, Identifiers & Profiles
- Submit a **Certificate Signing Request** to obtain Public and Private keys that will be used to encrypt and decrypt Payment Tokens
- Include an **Apple Pay entitlement** in your app.

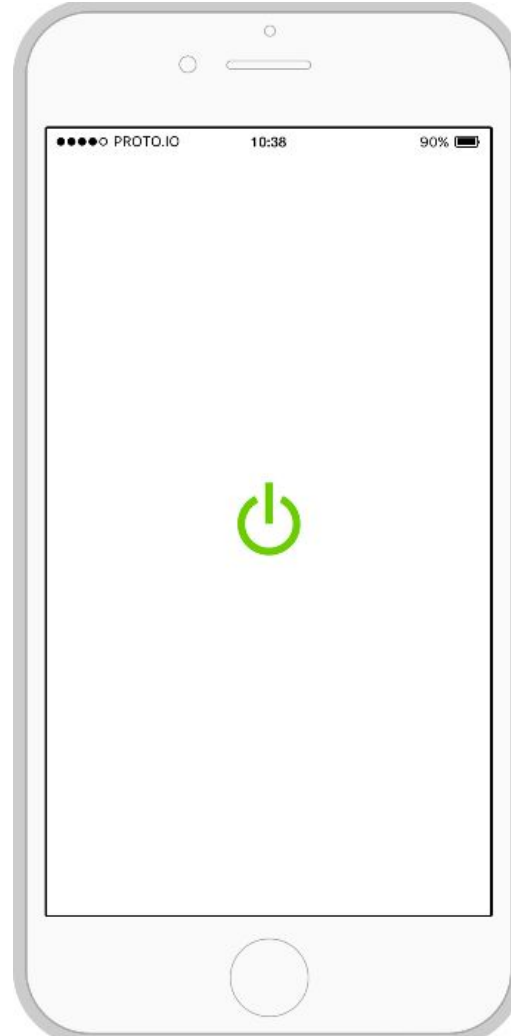
Android Pay in-app purchase API is on its way



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Prototype Design Demo



User-story:

Mary



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Conclusion

- Website:
<https://BrandeisXDemandware.github.io>
- Github Repo:
<https://github.com/BrandeisXDemandware>
open source under the MIT licence
- Prototype:
<http://brandeisxdemandware.github.io/Interface-Design-Prototype/>
- Report:
<http://tinyurl.com/demandwarexbrandeis-report>
- Presentation:
<http://tinyurl.com/demandwarexbrandeis>

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Q & A



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Thank you!

Mia Stern

Amy Croot

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Demandware Team

Pito Salas