

GETTING PHYSICAL WITH THE BEACON- ENABLED WEB

JEN LOOPER
DEVELOPER ADVOCATE, TELERIK
@JENLOOPER

\$WHOAMI

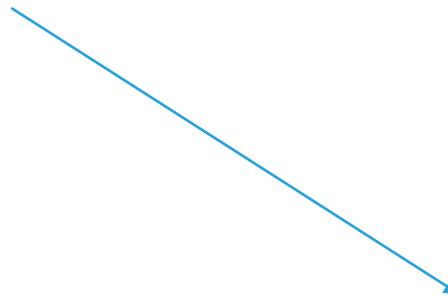
Ph.D.... in Medieval French

Retrained!

Programmer | 4 yrs+

ladeezfirstmedia.com, thinglearn.com

Now DevRel@Telerik



THE CHALLENGE

- Craft a magnetic cultural experience
- Do no harm
- Zero entrance barrier
- Use bleeding-edge tech



The bleeding edge

WHAT ARE MUSEUMS DOING NOW?

Ain't no school like the old school...



BUT THEY ARE FLIRTING WITH TECHNOLOGY!



WHAT ARE MUSEUMS DOING NOW?

Musée de Cluny (Paris) - QR installation

rt Musée de Cluny Retweeted

Muséologie NvxMédias @mnm_p3 2h

Les @mnm_p3 en plein tournage au sein du @museecluny pour notre prototype d'application mobile de QR codes #MNM15



0:13

◀ 2 3

Muséologie NvxMédias @mnm_p3 5d

#BehindTheScenes Nos figurantes Anne-Solène @AsDelfolie et Audrey @audreydg testent un des QR codes #ProjetCluny



0:09

◀ 3 6

WHAT ARE MUSEUMS DOING NOW?

MOMA (NYC)

iTunes Preview

MoMA
By MoMA, The Museum of Modern Art
Open iTunes to buy and download apps.

 View in iTunes

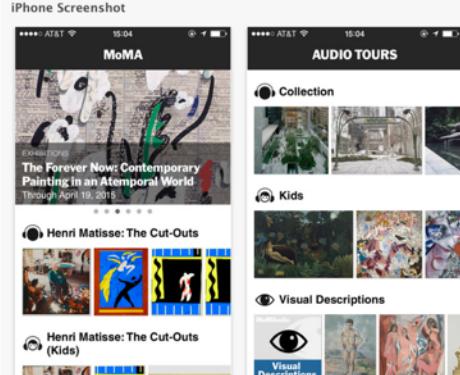
Description
With the MoMA app, you can take The Museum of Modern Art wherever you go. Hear from artists and curators, plan your visit, and see a calendar of events and exhibitions. Explore the Museum's world-class collection of modern and contemporary art and design, create personal collections of media and artworks, snap photos, and share it all with friends.

[MoMA, The Museum of Modern Art Web Site](#) [MoMA Support](#) [Application License Agreement](#) [...More](#)

What's New in Version 2.0.512

- You can now listen to our audio tours with your screen turned off or while using other apps.
- Design and performance enhancements
- Bug fixes

iPhone Screenshot



Customer Ratings
Current Version:
★★★ 6 Ratings
All Versions:
★★★★ 1539 Ratings

Customer Reviews

Membership Card ★★
by ewilund
No way to add your membership ID to the app, which would eliminate the need to carry a physical card. The Guggenheim app has that feature and it's very handy. Selecting Membership in the app currently just gives you info on becoming a member, which I would guess a lot of users already are if they've taken the time to install the app...

Inflating, virtually useless ★
by SFgymboy

iTunes Preview

MoMA Art Lab
By MoMA, The Museum of Modern Art
Open iTunes to buy and download apps.

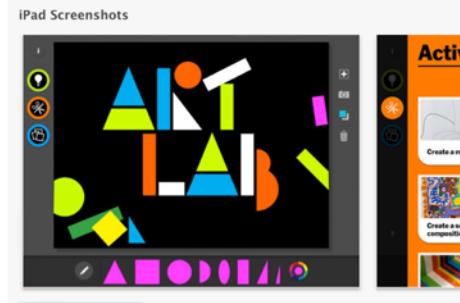
 View in iTunes

Description
MoMA Art Lab creates one of the most creative and inspiring experiences that I've encountered since the iTunes Store opened. The tools are easy to use and produce fascinating artwork. The six [now nine] activities based on the work of real artists make brilliant use of the iPad.

[MoMA, The Museum of Modern Art Web Site](#) [MoMA Art Lab Support](#) [Application License Agreement](#) [...More](#)

What's New in Version 1.2.2
Miscellaneous optimizations.

iPad Screenshots



Customer Ratings
Current Version:
★★★★ 50 Ratings
All Versions:
★★★★ 71 Ratings

Customer Reviews
Great colors ★★★★
by BellyHopper126
The colors that are provided are so great! I've been looking for an app that gave many colors and this app delivered just that! The only thing that I am a little bit disappointed by is the art tools you can only use. There really isn't many! Also when you want to shrink the shapes it is a bit hard since you have to touch the shape with both fingers ...More

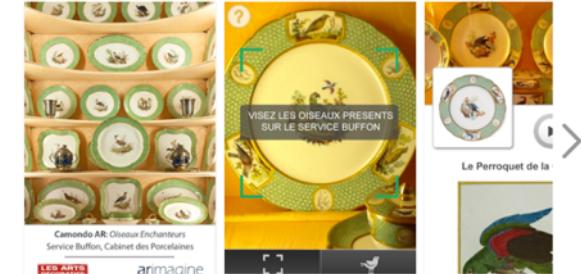
Love it ★★★★
by Amfitz76
I work for hours there is so much to work with. And I just discovered the many trays of colors. One thing I would love is the ability to email my work to friends.

My daughters love this app ★★★★
by MamSoSe
It is important for me to expose my children to as much art as possible. This app is perfect for creating art on the go. I love the MoMA website and this app does not disappoint.

WHAT ARE MUSEUMS DOING NOW?

Musée Nissim de Camondo (Paris)

 **Camondo AR**
ARIMAGINE Education
Unrated
This app is compatible with some of your devices.





Translate the description into English using Google Translate? [Translate](#)

Camondo AR vous permet de vivre une expérience immersive sur votre smartphone, au Musée Nissim de Camondo.
Dans le Cabinet des Porcelaines du musée, grâce à la réalité augmentée mise en place par Arimagine, les oiseaux ornant le service Buffon chantent pour vous directement sur votre smartphone !
Pour utiliser l'application en réalité augmentée, c'est simple :
1. Téléchargez l'application sur Google Play et installez-la.

[READ MORE](#)

REVIEWS [Write a Review](#)

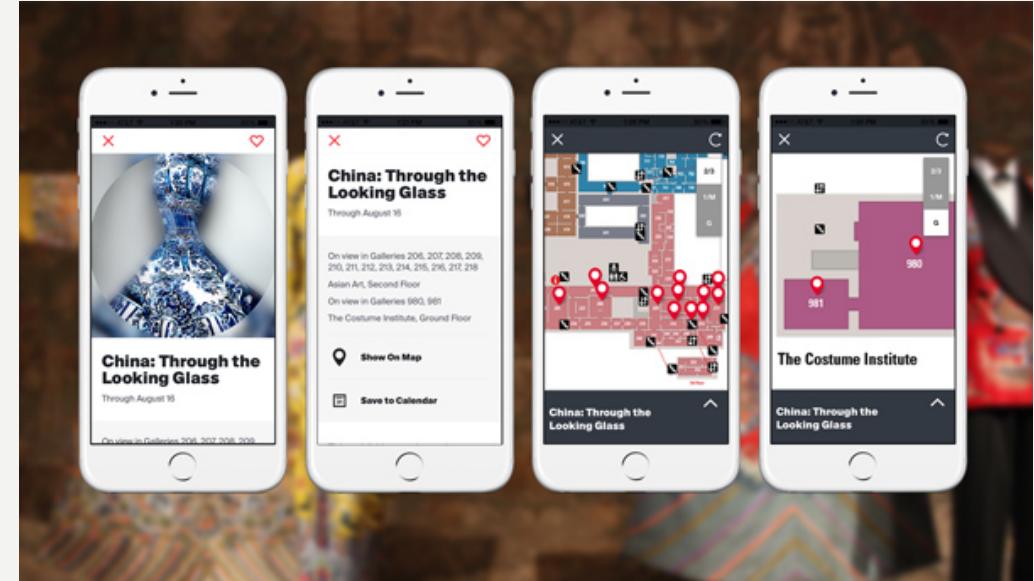
2.6 
5 total

Rating	Count
★ 5	1
★ 4	1
★ 3	0
★ 2	1
★ 1	2

ADDITIONAL INFORMATION

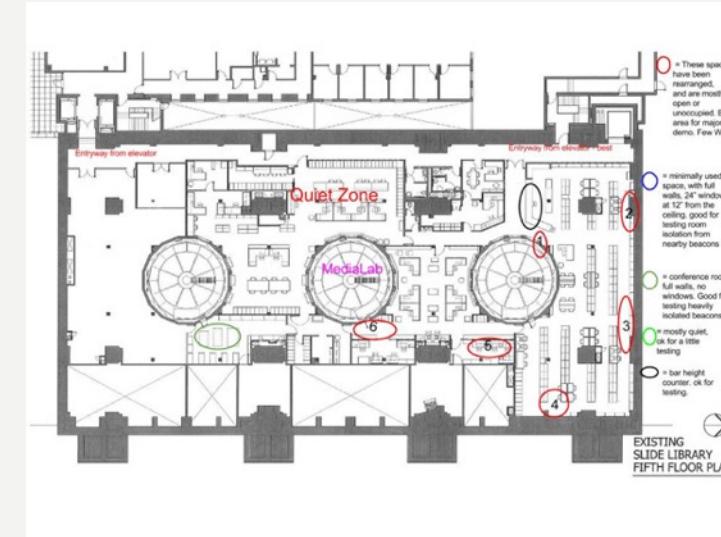
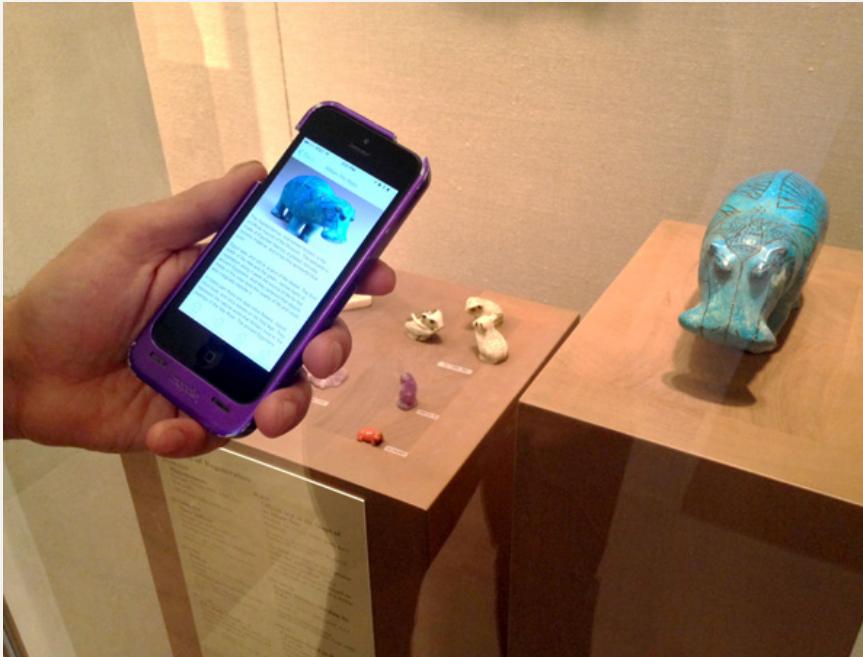
WHAT ARE MUSEUMS DOING NOW?

Metropolitan Museum (NYC)



WHAT ARE MUSEUMS DOING NOW?

Metropolitan Museum (NYC)



WHAT'S WRONG WITH THESE APPROACHES?

I do not want your stupid app

I will not use this siloed crap.

I do not like them, Sam-I-am.

I do not want this mobile spam!

(Thanks, Techcrunch)



THERE MUST BE A BETTER WAY!

A museum wants:

- To not maintain an app
- A scalable tech solution
- Flexibility

A visitor wants:

- No/minimal downloads
- An active/immersive experience
- Something to take away

Allegra at the
Phillips
Collection,
Washington DC

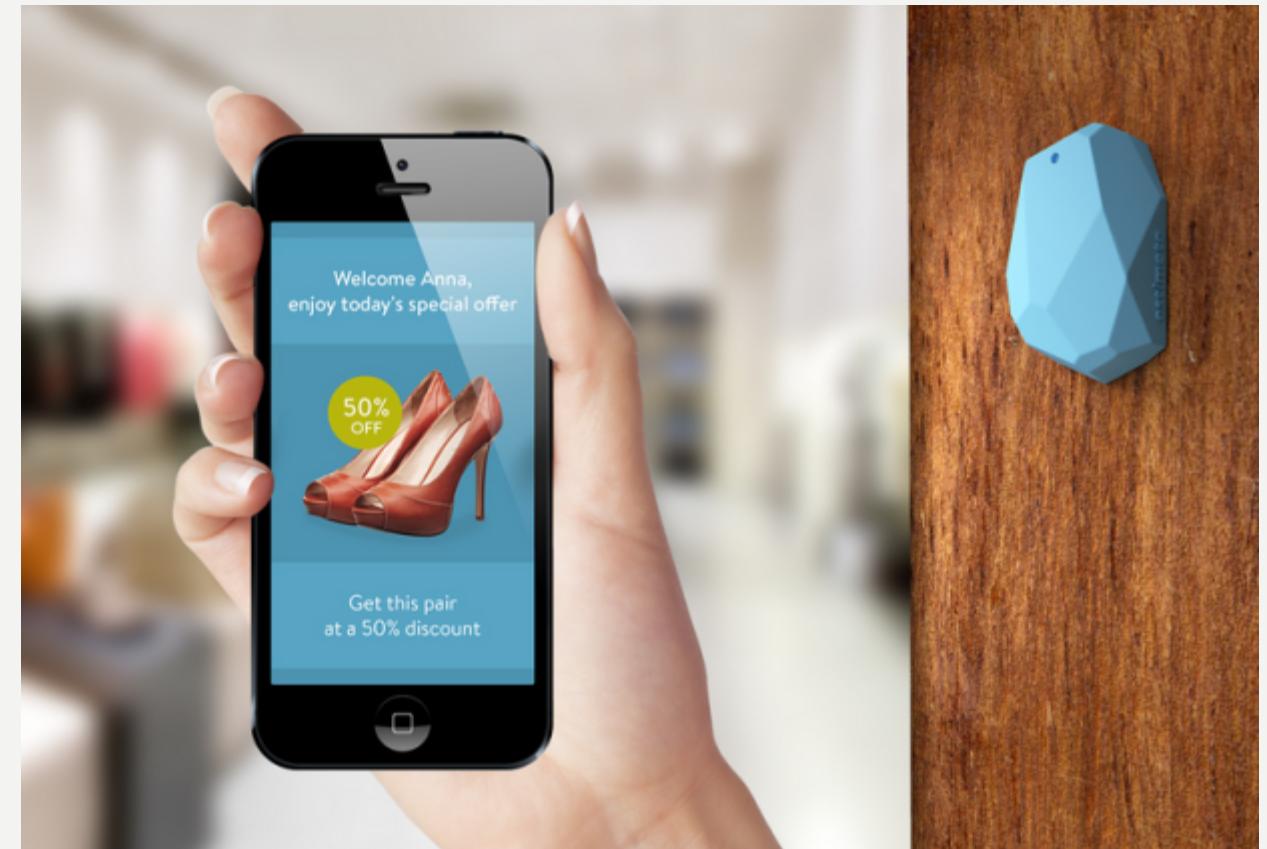
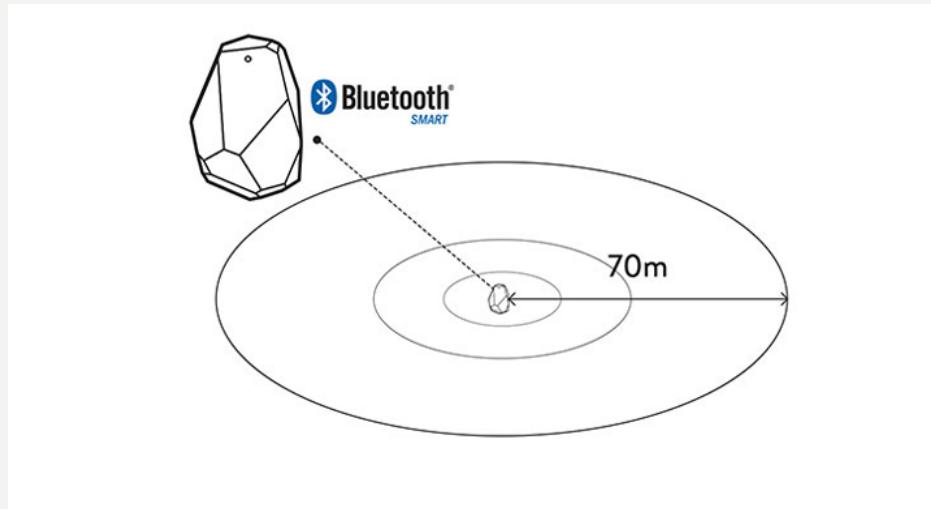


TREASURE BOXES

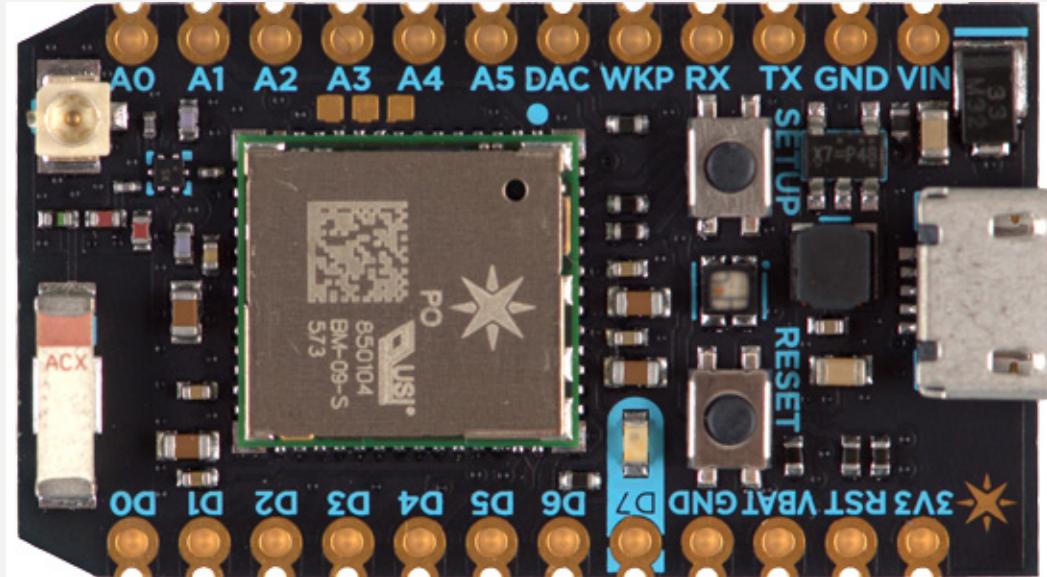
A NEW CONCEPT



BEACON-ENABLED TREASURE BOXES

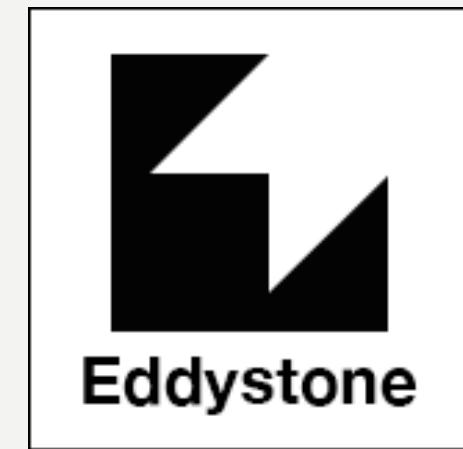


PHOTON-DRIVEN TREASURE BOXES

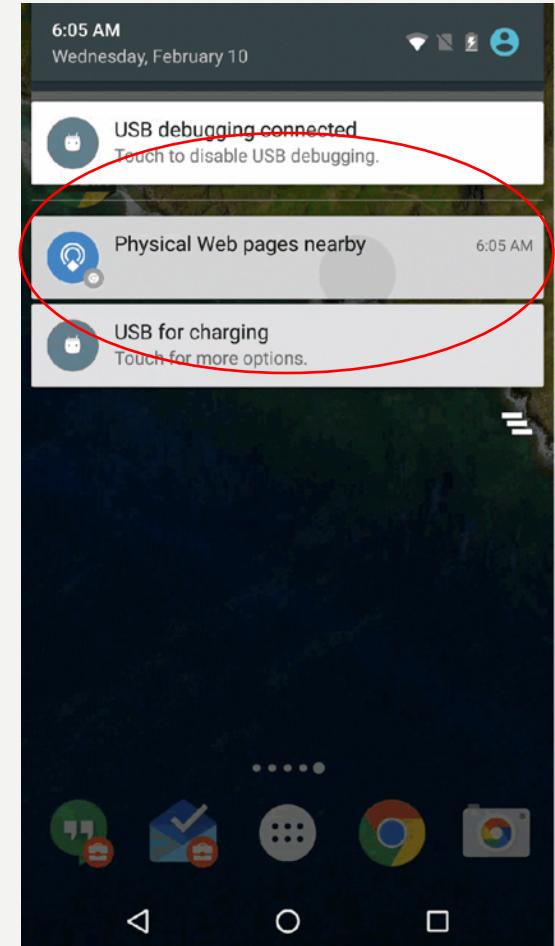
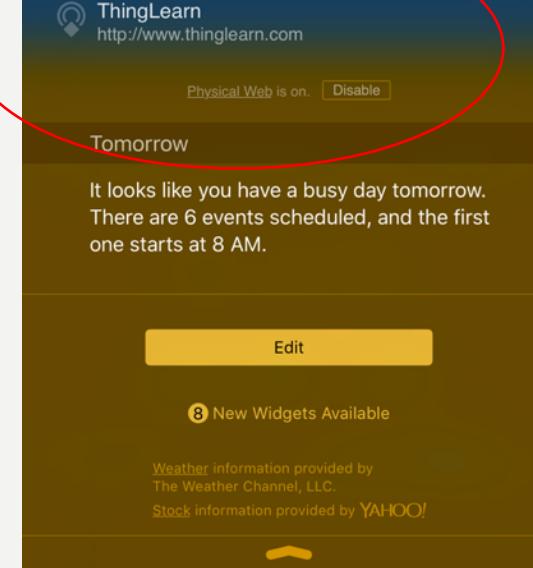
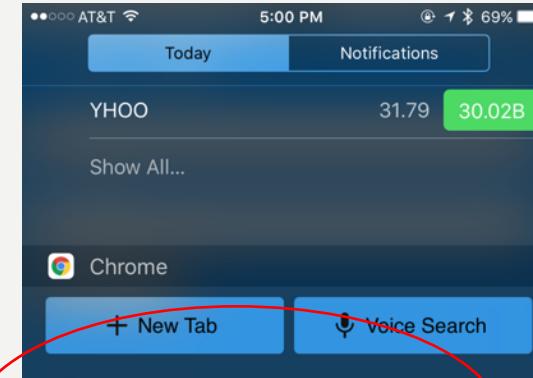
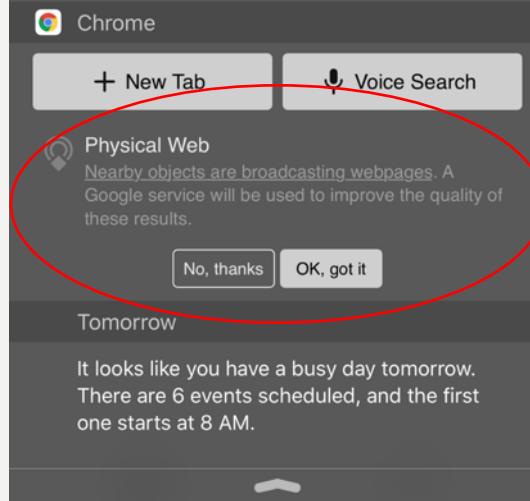
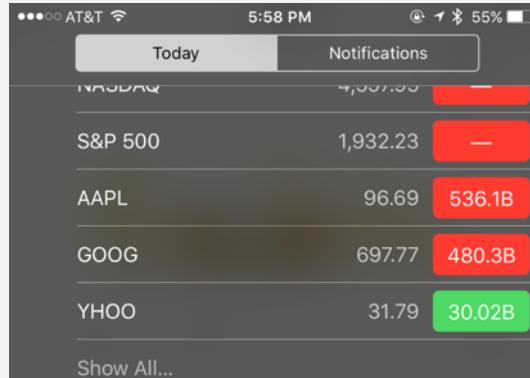
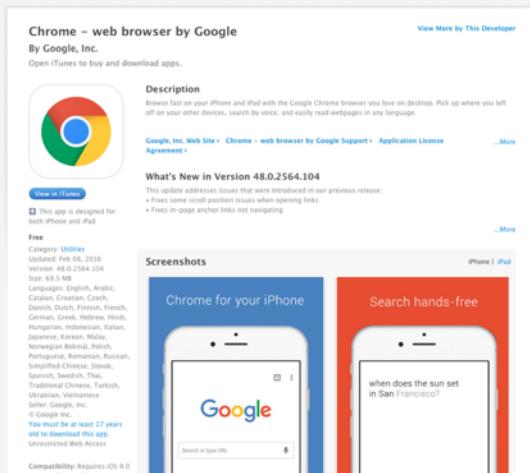


Particle

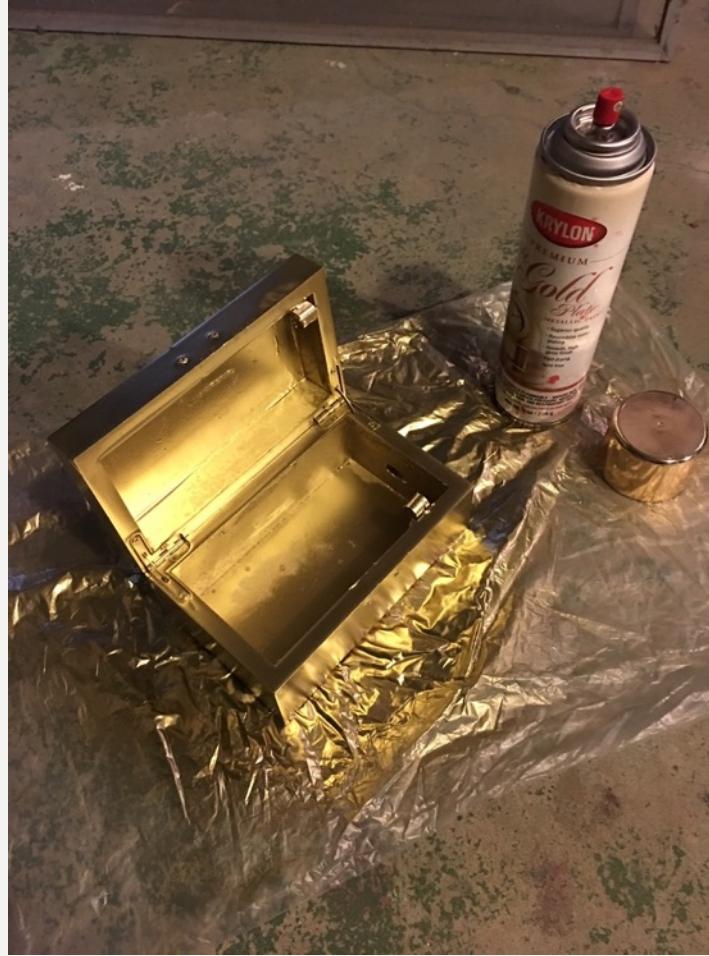
BUT I THOUGHT BEACONS ONLY SENT OUT UUIDS?



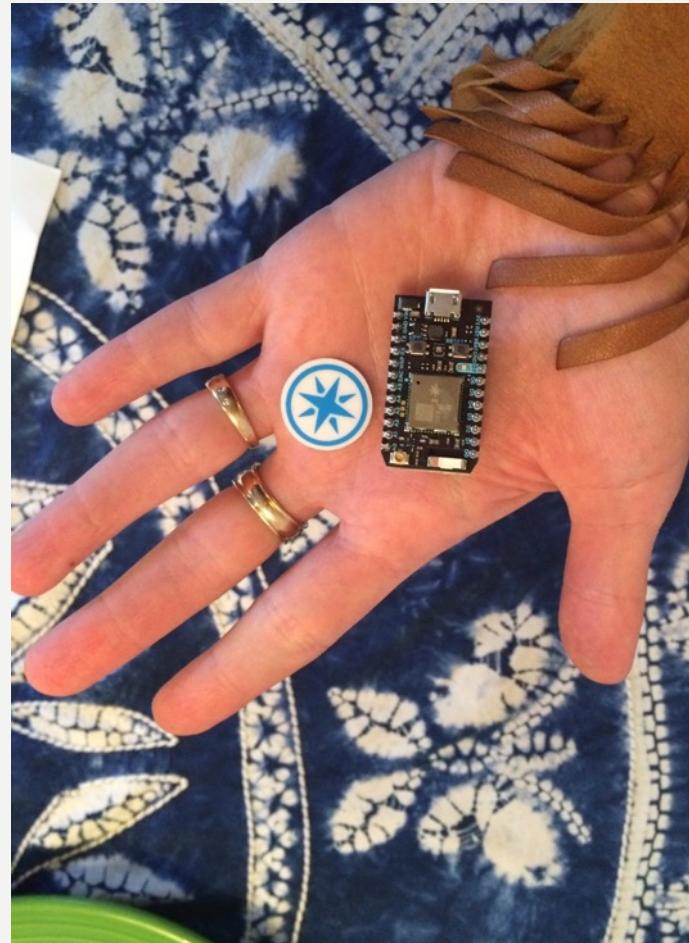
LEVERAGE THE PHYSICAL WEB



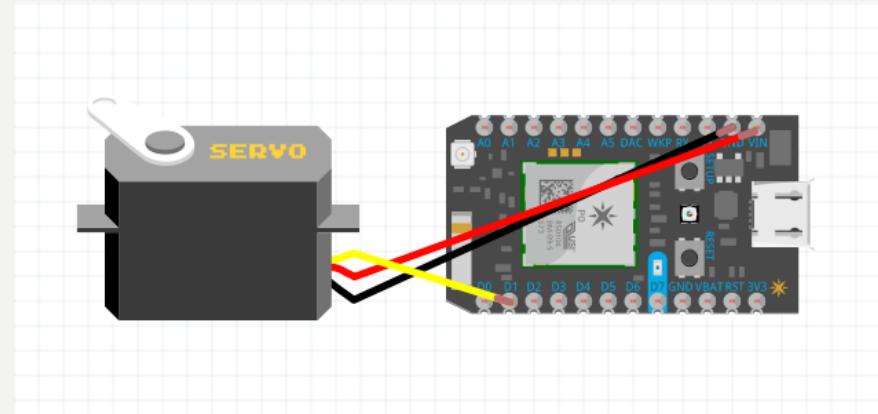
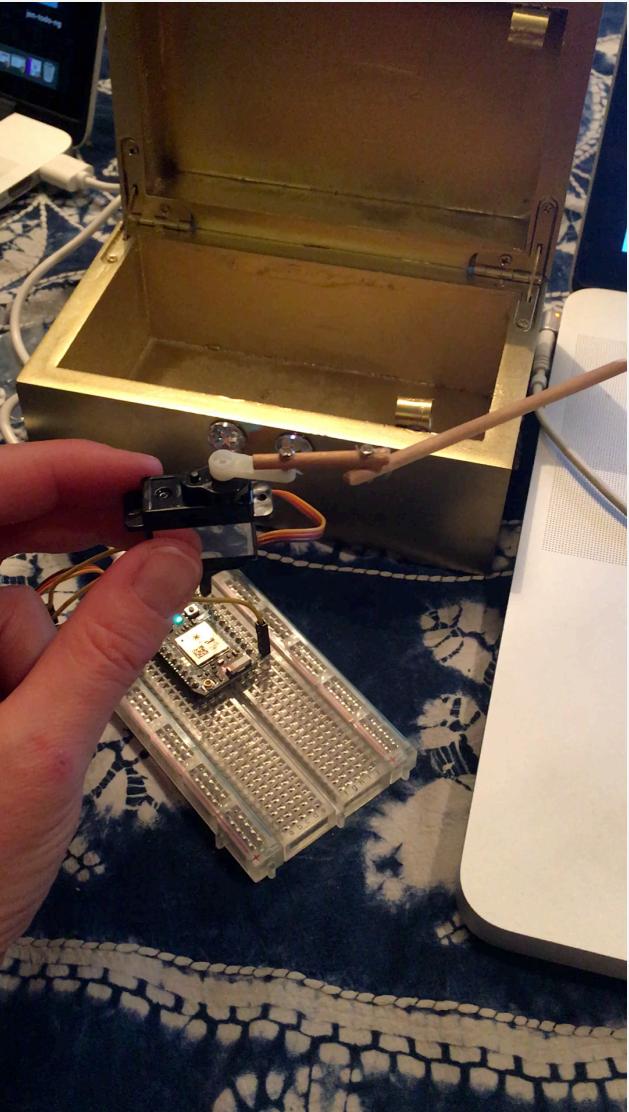
LET'S MAKE A TREASURE BOX!



CONFIGURE A PHOTON



CONSTRUCT AN INTERNAL BOX LATCH



FINAL LATCH CONSTRUCTION



CONFIGURE A BEACON

The image displays two side-by-side screenshots illustrating the configuration of a beacon named "blueberry".

Left Screenshot (Mobile App):

- Header:** AT&T, 5:37 PM, 63%.
- Section: Beacon Details**
- CLOUD DATA:**
 - Name: blueberry
 - Owner: jen.looper@telerik.com
 - Indoor Location: Unknown
 - Geo Location: Assign current location >
 - Remote Management: Synced with Cloud >
- TRANSMITTED PACKETS:**
 - Primary Packet Type: Eddystone-URL >
 - URL: http://bit.ly/1XWdRUG >
 - Transmit Power (Tx): Weak (-12 dBm) >
 - Advertising Interval: 950 ms >

Right Screenshot (Web Interface):

- Header:** Logged in as jen.looper@telerik.com.
- Section: Beacons > Beacon Settings**
- Beacon Name:** blueberry
- Buttons:** Edit Settings
- Table (Configuration Details):**

Setting	Value	Notes	
Beacon Name	blueberry	Broadcasting Power	Weak (-12 dBm)
Beacon Color	Blueberry Pie	Maximum Range	~15m / 50 ft
Tags	-	Advertising Interval	950 ms
Broadcasting Scheme	Eddystone-URL	Remaining Battery Life	36 months
URL	http://bit.ly/1XWdRUG	Basic Battery Saving	Off
Mac Address	F8:41:58:BC:99:89	Smart Battery Saving	Off
		Conditional Advertising	Off
		Firmware Version	A3.1.1
		Hardware Version	D3.4

INSTALL BEACON INTO BOX



Fork me on GitHub

BUILD A WEB SITE TO CONNECT TO THE PHOTON



express



FLASH CODE TO THE PHOTON

The screenshot shows the Particle App interface. On the left, there's a sidebar with icons for lightning, checkmark, and folder, followed by sections for "Particle Apps", "My apps", "Example apps", and a bottom row of icons for code editor, bookmark, document, clock, and gear.

Particle Apps

Current App
REMOTE SERVO
Optional description

Files
REMOTE-SERVO.INO

REMOVE APP

My apps

- KID-SUMMONER
- SANTA SENSOR
- PHOTORESISTOR
- LIGHT + MOTION SENSOR
- REMOTE SERVO

CREATE NEW APP

Example apps

1. BLINK AN LED
2. WEB-CONNECTED LED
3. FUNCTION VARIABLE
4. PUBLISH
5. SUBSCRIBE
6. TINKER

remote-servo.ino

```
1 Servo treasureServo;
2 int currentPosition = 0;
3
4 void setup() {
5   treasureServo.attach(D1);
6   Particle.function("setPosition", setPosition);
7 }
8
9 void loop() {
10 }
11
12 int setPosition(String position) {
13   currentPosition = position.toInt();
14   treasureServo.write(currentPosition);
15   Particle.publish("Position", String(currentPosition));
16   return currentPosition;
17 }
```

Ready.

setPosition function makes the servo arm change position

CONNECT WEBSITE TO PHOTON VIA PARTICLE.IO API

```
var dataToPost = {  
    params: 140,  
    access_token:access  
};
```

Tell Photon how far to move
the servo arm, give access
token to Photon

```
$.ajax({  
    url: 'https://api.particle.io/v1/devices/' + device_id + '/setPosition',  
    type: 'POST',  
    data: dataToPost  
}).done(function() {  
    toastr.success("The box has been opened!");  
}).fail(function() {  
    toastr.error("Sorry, there was a problem opening this box");  
});
```

Post to the Particle API to
tell the Photon to move

NOW, SET UP YOUR VENUE*

***ASSUMES YOU HAVE PERMISSION**

- Connect Photon to the venue's wifi
- Connect treasure box to power (cord or battery)
- Set up box near target exhibit
- Educate visitors on how to experience it on their devices

THE RESULT!





CHALLENGES

MAINTAINING A FLEET OF BOXES

- Breakage
- Power issues (battery and external power)
- Memento maintenance
- Maintaining beacons (battery issues)

MAINTAINING A WEB PRESENCE

- Security issues
- Scaling your site to support multiple boxes

WHAT'S NEXT?

- Bluz.io could simplify the Photon integration (Bluetooth + Battery + Photon all in one)
- Content management of a web presence to support entire cultural site
- Android integration!!
- More browser support

LET'S PLAY!

Download Chrome and enable the physical web.
Make sure bluetooth is on, and find the box!

@jenlooper

<http://www.ladeezfirstmedia.com>

Telerik DevRel @telerik
jen.looper@telerik.com