Description and models

easiBeacon Mini: round form-factor, 2.5 cm diameter and CR2032 battery. Small, cheap and convenient, it can be hidden anywhere.

easiBeacon Pro: square form-factor, 4 cm side and CR2450 battery. Increased distance range for larger area coverage.

easiBeacon Ultra Waterproof: square form-factor, 4 cm side and CR2477 battery. Increased battery life and IP67 for waterproof/outdoor use.
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easiBeacon USB: USB form-factor, no battery required, can be plugged on a power socket with an AC adapter.

All of them share the same configuration and operation model described in this guide, with some minor exceptions regarding the USB model.

Default configuration

easiBeacon units come already pre-configured with the following default values:

Mode	Mini/USB/Pro/Ultra Waterproof: 0x02 (only iBeacon enable)
Broadcast rate	Mini/Pro/Ultra Waterproof: 0x0A (10 x 100 ms = 1 second) USB: 0x01 (100 ms)
Power value at 1 meter	-69 dBm (easiBeacon Mini/USB no antenna) -59 dBm (easiBeacon Pro/Ultra Waterproof) -52 dBm (easiBeacon USB external antenna)
PIN	111111 (you can leave it blank in the app)
UUID	A7AE2EB7-1F00-4168-B99B-A749BAC1CA64
Major	1
Minor	1
Eddystone URL	http://easibeacon.com or https://easycontext.com

These and all the other parameters can be configured via our configuration app or directly accessing the Bluetooth 4.0 GATT profile.

Configuring your easiBeacon

In order to configure your easiBeacon unit, you must wake-up the device for configuration

1. Tap your easiBeacon unit 3-5 times against a hard surface (eg: a table) until you hear a buzz sound from the device alerting that is ready for configuration. In the case no sound is generated, please try again a little harder (different easiBeacon units may have different sensitivity). In case of USB model connect unit to a USB port or AC adapter.
2. In models Mini, Pro and Ultra Waterproof after hearing the buzzing sound, your easiBeacon unit will be available for the next 45 seconds waiting for the configuration app. The USB model is automatically available after plugged-in for 45 seconds. After that period without being connected by the app, the unit will enter sleep mode again. If you want to start configuration again return to step 1.
3. Open the easiBeacon app and search for surrounding easiBeacons. Units ready for configuration will appear with an indication with text in stronger color.
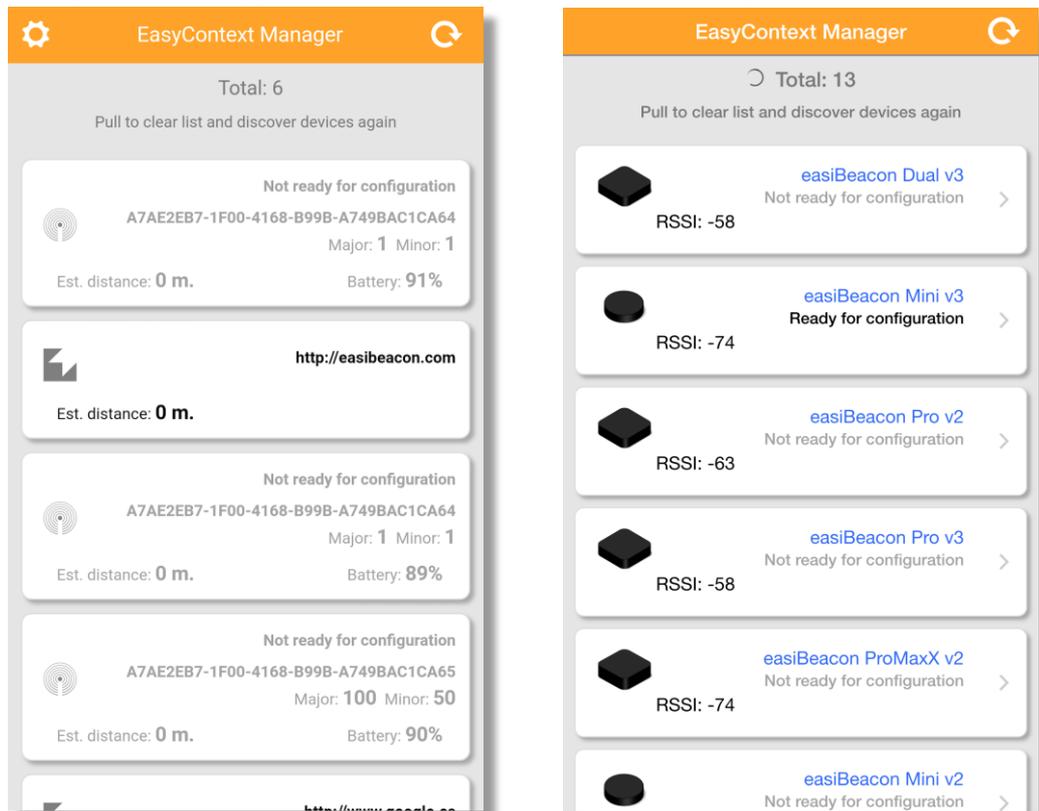

4. Click on the unit you want to configure and enter the PIN or click on default PIN if you did not change it from the original value. NOTE: if you enter the wrong PIN 10 consecutive times, the unit will lock for 30 minutes rejecting further configuration requests during that period.

5. Now you can modify the parameters as desired. There are 4 different tabs: General, iBeacon, Eddystone and Sensors.

6. The first one refers to general settings such as mode, battery status, broadcast rate, distance calibration, transmission power and device security pin.
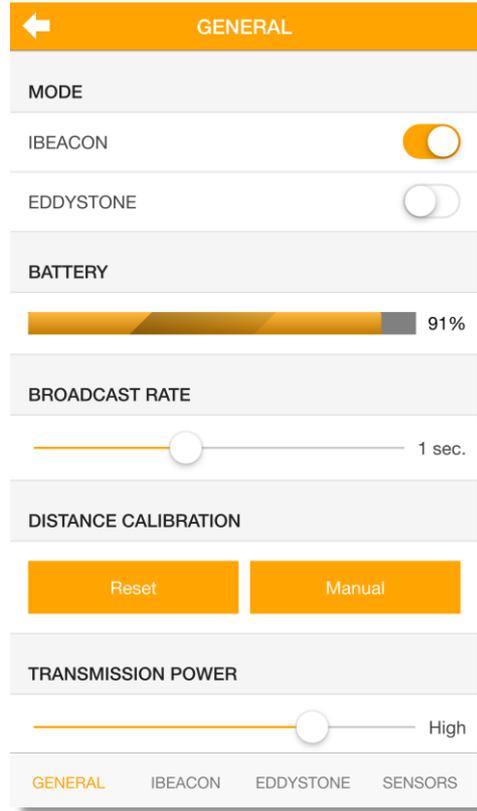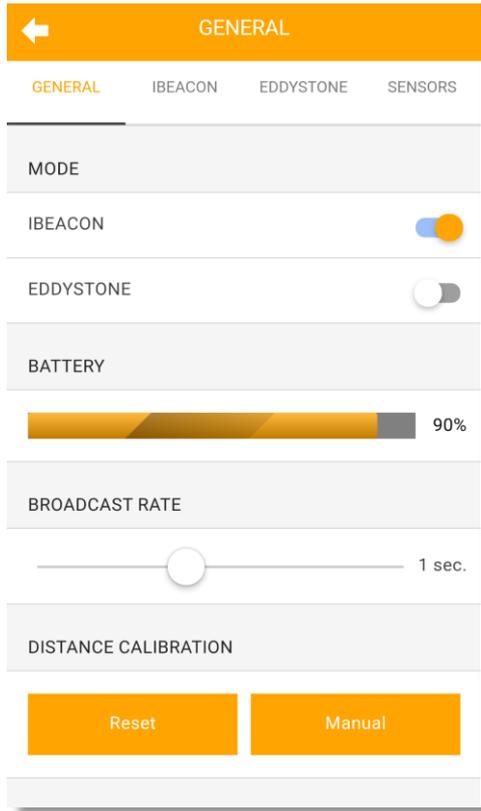

NOTE: our easiBeacon units implement an efficient energy management scheme to extend battery life, keeping the battery in a very low-energy mode. Due to this low-energy mode you may receive inconsistent battery reports over time with values even in the range 50%-60% while the battery is almost full. You don't have to worry about that: the battery will last for months and eventually will report the right battery level (even 100% after some weeks of use).

7. The next tab refers to iBeacon settings, where UUID, Major and Minor values can be edited.
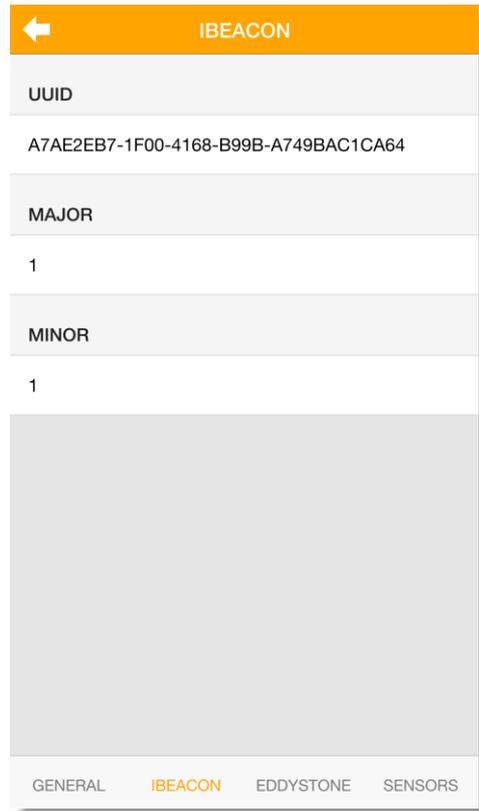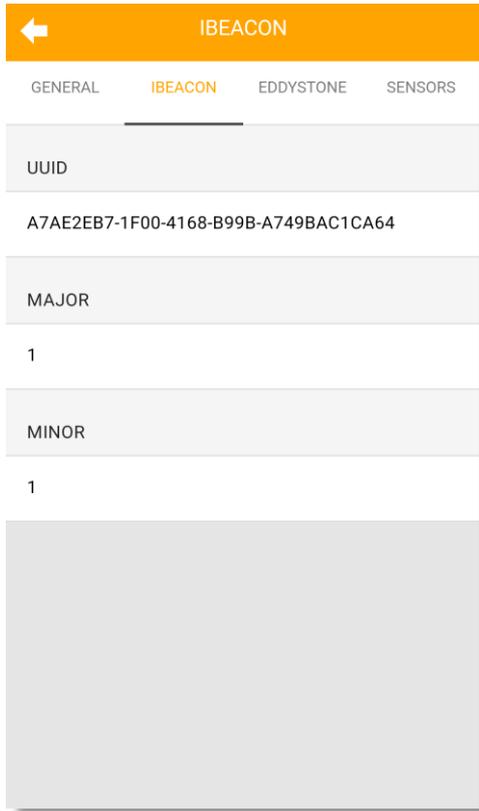
8. The tab named Eddystone contains Eddystone settings where you can modify URL address for your easiBeacon or Eddystone-UID parameters (namespace id and instance id).
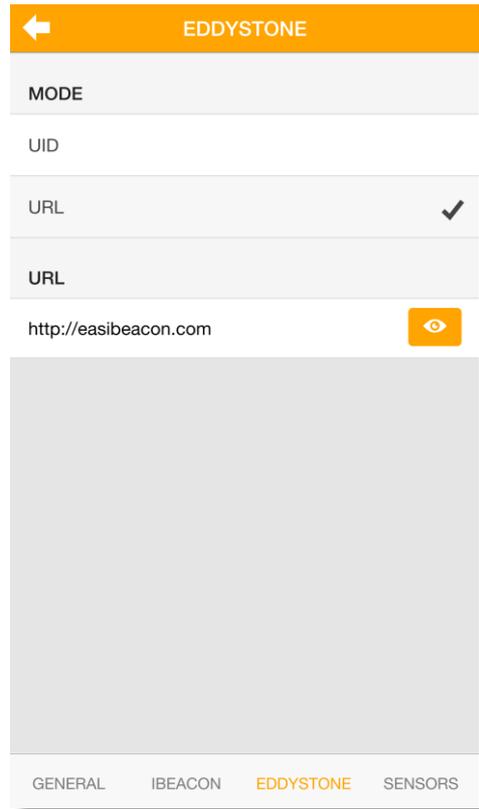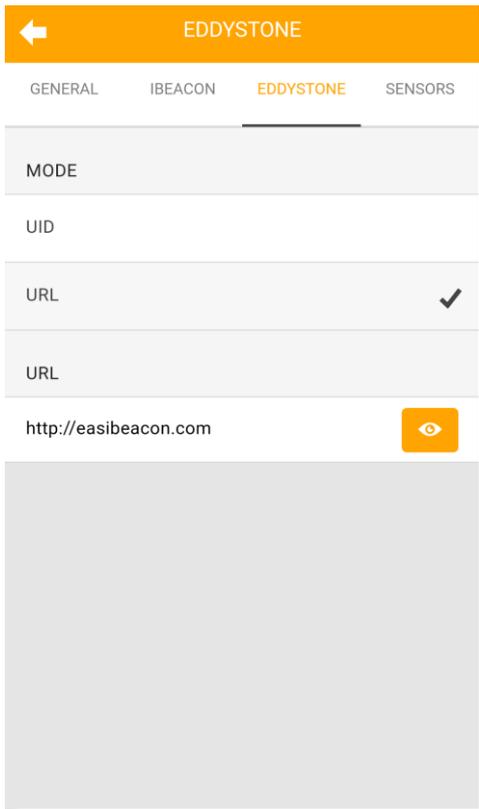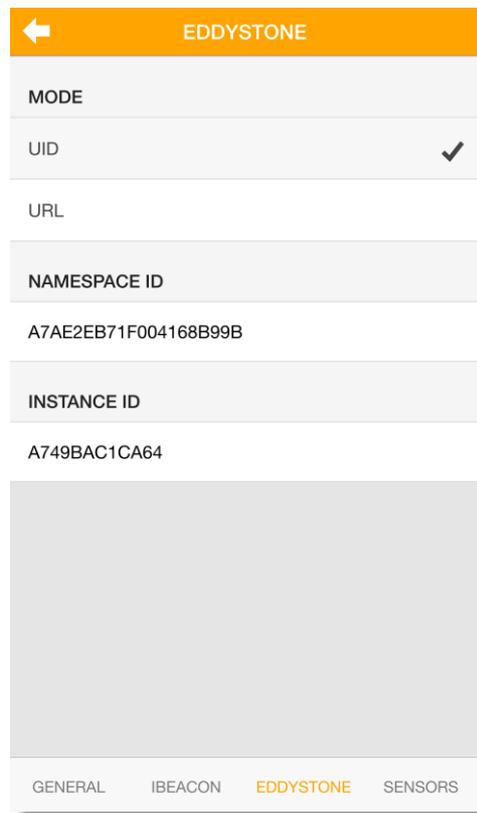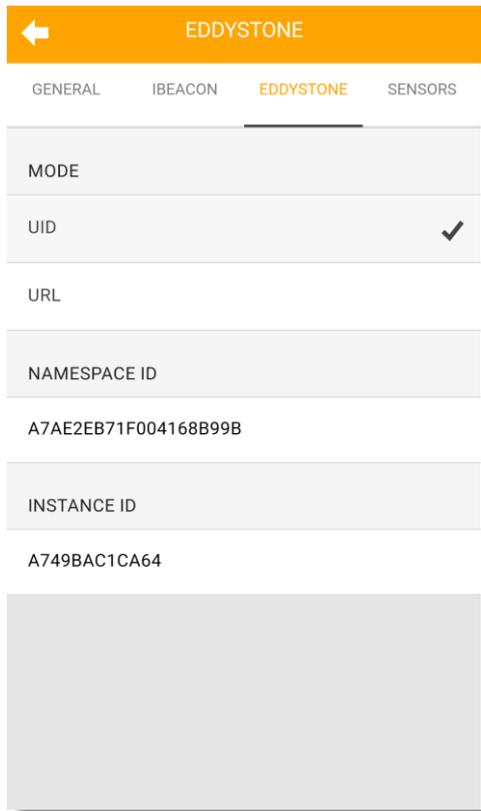
9. Finally, the last tab named Sensors contains beacon sensor settings where you can modify motion sensibility and mode for Ultra Waterproof model.
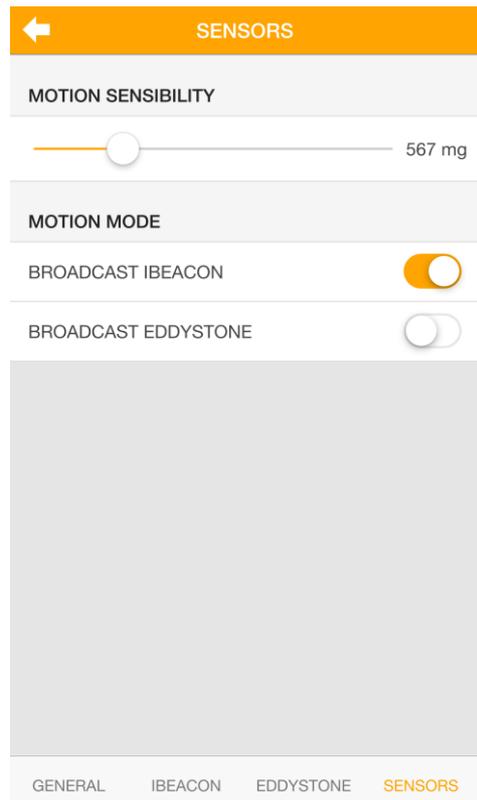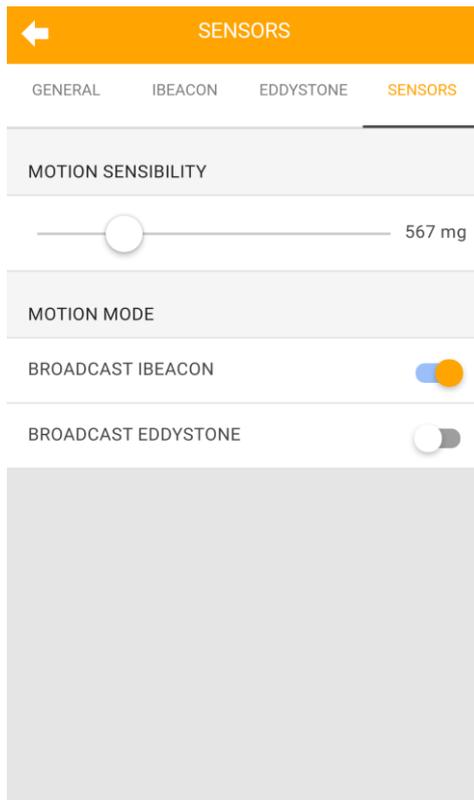
Accessing the Bluetooth 4.0 GATT Profile

You can also read and write the GATT Profile services and characteristics of your easiBeacon unit.

In order to access your easiBeacon GATT profile, you must first wake-up the device for configuration as described in the previous section, and write the PIN to the 0xFFF1 characteristic (Enter PIN) within the 45 seconds period after wake-up:

    a.   If the PIN is correct, you will be able to read and write the available characteristics.
    b.   If the PIN is wrong, the easiBeacon unit will close the Bluetooth 4.0 connection.

Please, find below the list of services and characteristics.

Description	Service	Characteristic	Length	Example (hexadecimal)
Enter PIN to access (write only)	0xFFF0	0xFFF1	3 bytes	0x111111
UUID	0xFFF0	0xFFF2	16 bytes	0xA7AE2EB71F004168B99B A749BAC1CA64
Major	0xFFF0	0xFFF3	2 bytes	0x0001
Minor	0xFFF0	0xFFF4	2 bytes	0x0001
Power value at 1 meter	0xFFF0	0xFFF5	1 byte (signed)	0xC5 (-59 dBm)
Broadcast rate in periods of 100 ms.	0xFFF0	0XFFF6	1 byte	0x0A (10 x 100 ms = 1 second)
Set new PIN	0xFFF0	0xFFF8	3 bytes	0x222222
State	0xFF70	0x2A80	1 byte	0x01 (disable), 0x02 (only ibeacon), 0x08 (only eddystone), 0x0A (ibeacon and eddystone)
Motion detection intensity (Only in Ultra waterproof)	0xFF70	0x2A83	1 byte	0x01 (63 mg) Valid values: 0x01 (63mg) to 0x7E (8001 mg) (note 1G equals 1000 mg, where G is the acceleration of gravity)
Battery level (read only)	0x180F	0x2A19	1 byte	0x64 (100%)
TX Power	0x1804	0x2A07	1 byte	0x02 (0 dBm)
Eddystone former 20 bytes of data	0xFFD0	0xFFD1	20 bytes	0x0303AAFE1116AAFE10EC 0265617369626561636F
Eddystone latter 8 bytes of data	0xFFD0	0xFFD2	8 bytes	0x6E07000000000000
PIN error lock period	0xFF50	0x2A60	1 byte	0x01 Valid values: 0x01 (30 min) to 0x14 (10 hours)

For the Eddystone format, please check URL coding details at the Eddystone information site.

TX Power valid values and maximum signal range (under lab conditions) are:

Value	0x01	0x02	0x03	0x04	0x05	0x06	0x07	0x08	0x09
TX Power (dBm)	4	0	-4	-8	-12	-16	-20	-30	-40
Mini range (meters)	30	25	20	17	14	10	7	4	2.5
Pro range (meters)	75	65	53	45	30	21	15	8	4
Ultra waterproof (meters)	75	65	53	45	30	21	15	8	4
USB (meters)									

Replacing the battery of your easiBeacon Mini

IMPORTANT: Please, be careful manipulating the electronic board, follow all the regular recommendations about discharging static electricity.

Our black rubber housing is very nice to touch, robust, high quality, and provides an hermetic closing. The easiest way to open it for battery replacement is to insert the edge of a cutter (or very sharp tool) over the part of the closing that looks more separated, apply a small pressure with the edge of the cutter to allow it enter in that separation and then open it by inclining/moving the edge of the cutter.

1. Open your easiBeacon unit with the help of a sharp tool (eg: a cutter) to separate the two parts of the housing at the point most convenient (where they already have a certain separation).
2. Inside the housing you will find two pieces: the main electronics board with the battery holder, and the speaker disc located in a small hole in the housing with the "radio waves" symbol.
3. Extract the battery from the electronics board (eg: pushing it with a pen) and replace it with a new battery. Please, take all the traditional recommendations about discharging static electricity and do not touch the electronics of the board directly.
4. Be sure to place the speaker disc in the right position in the hole, with the complete golden part facing the housing and the golden ring with white center facing the electronics board above it.
5. Once everything is in the right position, close the housing. If the speaker is not placed properly, it will not buzz when the easiBeacon unit enters configuration mode (although you can still configure the unit, there will be no sound feedback). In that case, open the unit again and try to place the speaker properly.

Replacing the battery of your easiBeacon Pro

IMPORTANT: Please, be careful manipulating the electronic board, follow all the regular recommendations about discharging static electricity.

Our black rubber housing is very nice to touch, robust, high quality, and provides an hermetic closing. The easiest way to open it for battery replacement is to insert the edge of a cutter (or very sharp tool) over the part of the closing that looks more separated, apply a small pressure with the edge of the cutter to allow it enter in that separation and then open it by inclining/moving the edge of the cutter.

1. Open your easiBeacon unit with the help of a sharp tool (eg: a cutter) to separate the two parts of the housing at an edge close to the round hole.
2. Extract the battery from the electronics board opening the small metal flap and replace it with a new battery. Please, take all the traditional recommendations about discharging static electricity and do not touch the electronics of the board directly.
3. Close the flap again to secure the battery.
4. Once everything is in the right position, close the housing.

Replacing the battery of your easiBeacon Ultra Waterproof

IMPORTANT: Please, be careful manipulating the electronic board, follow all the regular recommendations about discharging static electricity.

Our black rubber housing is very nice to touch, robust, high quality and providing IP67 protection. Battery replacement in the Ultra model is very easy, just using a small coin to rotate and open the battery cover (please take care to place back properly the elastic ring that provides water/dust isolation).

1. Open your easiBeacon unit with the help of a coin.
2. Extract the battery from the inside and replace it with a new battery.
3. Once the battery is correctly inserted, close the housing with a coin.

Online proximity platform

We invite you to use the EasyContext platform, a white-label cloud-based CMS for rapid creation of segmented contents and campaigns based on user location and profile. Please, visit http://easycontext.com for more details.

Apps and platform development

Our easiBeacon units are suitable for the creation of any proximity-aware iOS or Android app with or without associated cloud-based content management service. Official iOS libraries (CoreLocation[1]) and Android libraries (Bluetooth Low Energy[2]) can be used to create your own apps, as well as most of third-party libraries which are wrappers of the official Apple**™** and Google**™** libraries.

If you want us to develop all or part of your app, or have a customized version of our cloud-based content management service, please contact us at info@easibeacon.com and we will be happy to study your case.

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[1] https://developer.apple.com/library/ios/documentation/CoreLocation/Reference/CoreLocation_Framework/_index.html

[2] https://developer.android.com/guide/topics/connectivity/bluetooth-le.html