PLUTOCON
DATA SHEET

Bluetooth® Low-Energy Proximity Beacon

PLUTOCON

Bluetooth® Low-Energy Proximity Beacon

Key Features

Broadcast data packets based on Bluetooth LE® (4.0)
Compatible with all Bluetooth 4.0 (BLE) devices
Compatible with Apple iBeacon™ standard

Configurable parameters
- Proximity UUID, Major and Minor values
- Device name
- Transmission power level
- Messaging / advertising intervals

Enclosure
- -5C to +60C operating range
- Replaceable CR2477 3V battery

Unique Identification based on GPS data
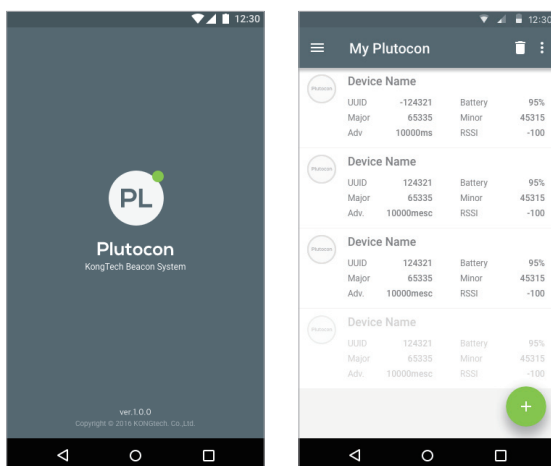-Plutocon UUID: Header-latitude-longitude-spare

Protected by Secure Mode / multiple passwords
Over-The-Air firmware upgrade (OTA DFU)
Cloud-based data backup
Over 36 months of battery lifetime on default settings

Plutocon Beacon Image

Plutocon Demo Application

- Proximity Demo App
- Notify Demo App
- Distance Demo App
- Coverage and distance Demo App
- Movement sensing Demo App
- Over-The-Air firmware upgrade Demo App
- Indoor Location Demo App

Plutocon Application

Android App available on Google Play™
- Android 5.0 and newer devices
- Search 'Plutocon'

SDK

Support PLUTOCON SDK

http://github.com/plutocon

Applications

- Micro-location and movement tracking
- Indoor / outdoor navigation
- Contextual offer promotion and advertising
- Customer loyalty and reward programs
- Enter / exit events
- Providing menus, catalogs, and inventory overviews
- Inventory tracking and logistics
- Healthcare and patient tracking
- Interactive tours and exhibitions
- City games and geocaching

General Description

Size

60mm diameter

Color

chiffon white, Majolica Blue, Blue Radiance
(Custom colors available)

Plutocon Type

Proximity Beacon
Motion Sensor Beacon

Bluetooth 4.1

Nordic nRF51822 Bluetooth low energy
ARM Cortex™-M0 32bit Processor

Memory

256kB embedded flash program memory
16kB RAM

Power Supply

Default battery life 3 years
Maximum battery life 5+ years
Replaceable CR2477 Coin Battery
Battery voltage: 3V

Antenna

2.4Ghz transceiver
Omnidirectional antenna up to 70meter

Operating Range

-5C to +60C operating range
Weather proof (IP-64 rating)

Broadcasting Profile

KongTech Plutocon (Based on Apple iBeacon)
Apple iBeacon
Google EddyStone

2.4GHz Multi-protocol Radio

-30dBm output power in whisper mode
-96dBm RX sensitivity at 250kbps
-90dBm RX sensitivity at 1Mbps
-85dBm RX sensitivity at 2Mbps
2Mbps, 1Mbps and 250kbs supported data rates
Excellent co-existence performance

Broadcasting Interval

100msec to 12000msec (0.1sec to 12sec)

Transmit Power

-30dBm to +4dBm

Plutocon Packets Structure

Byte	Packets Structure	Default
4	Header	1F4AE6A0
2	Latitude	37
3		402136
2	Longitude	127
3		107018
2	Spare	0000

Plutocon default:
1F4AE6A0-0037-4021-3601-271070180000

*Header: Plutocon UUID Header (fixed: 1F4AE6A0)
*GPS Latitude: Device Latitude data
*GPS Longitude: Device Longitude data
*Default GPS Data: 37.402136, 127.107018
*Spare: Custom data

KongCloud Web Page
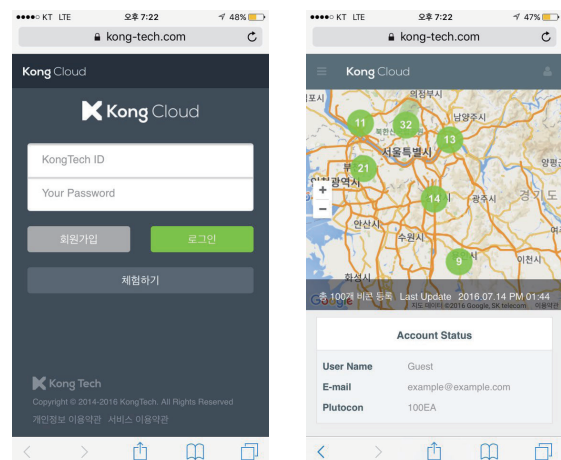
Certifications

 KC

Supported OS

Android 4.3+ or newer

Plutocon System Services

The Beacon has seven services implemented by default. Two of these services are standard Bluetooth SIG's with 16-bits Universally Unique Identifiers (UUID), and the other three are custom services with generated 128-bits UUIDs.
Every service contains one or more characteristics which keep set information or control values.
All services and characteristics are shown in below in order of appearance.

Service1: GAP		
	Generic Access	0x1800
1	Device Name	0x2A00
2	Appearance	0x2A01
3	Peripheral Preferred Connection Parameters	0x2A04

Service2: GATT	
Generic Attribute	0x1801

Service3: Device Information		
	Unknown Service	9FD41000-E46F-7C9A-57B1-2DA3-65E18FA1
1	Manufacturer Name String	9FD41001-E46F-7C9A-57B1-2DA3-65E18FA1
2	Model Number String	9FD41002-E46F-7C9A-57B1-2DA3-65E18FA1
3	Unknown Service	9FD41003-E46F-7C9A-57B1-2DA3-65E18FA1
4	Unknown Service	9FD41004-E46F-7C9A-57B1-2DA3-65E18FA1

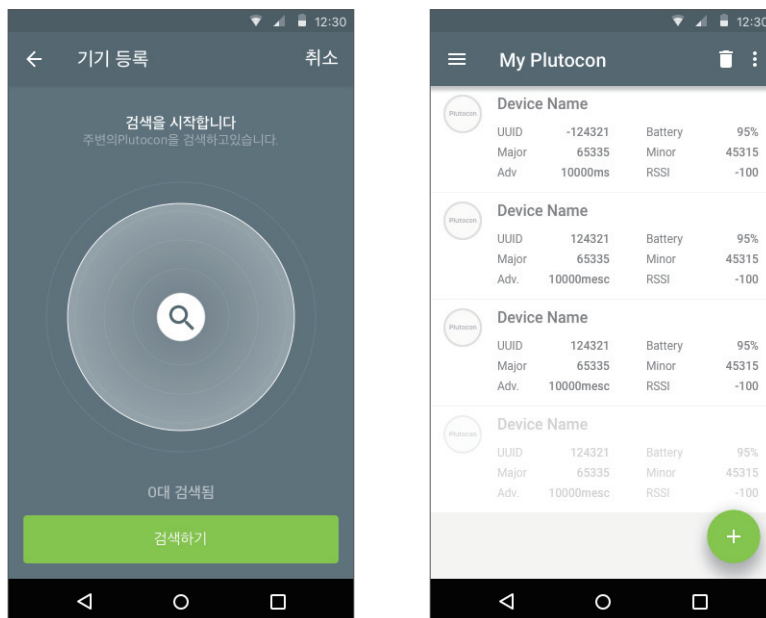| Service4: Beacon Service		
	Unknown Service	9FD41000-E46F-7C9A-57B1-2DA3-65E18FA1
1	Unknown Service	9FD42001-E46F-7C9A-57B1-2DA3-65E18FA1
2	Unknown Service	9FD42002-E46F-7C9A-57B1-2DA3-65E18FA1
3	Unknown Service	9FD42003-E46F-7C9A-57B1-2DA3-65E18FA1
4	Unknown Service	9FD42004-E46F-7C9A-57B1-2DA3-65E18FA1
5	Unknown Service	9FD42005-E46F-7C9A-57B1-2DA3-65E18FA1
6	Unknown Service	9FD42006-E46F-7C9A-57B1-2DA3-65E18FA1

Service5: Sensor Service		
	Generic Access	9FD45000-E46F-7C9A-57B1-2DA3-65E18FA1
1	Unknown Service	9FD45001-E46F-7C9A-57B1-2DA3-65E18FA1
2	Unknown Service	9FD45002-E46F-7C9A-57B1-2DA3-65E18FA1
3	Unknown Service	9FD45003-E46F-7C9A-57B1-2DA3-65E18FA1

| Service6: Battery Service		
Unknown Service		9FD43000-E46F-7C9A-57B1-2DA3-65E18FA1
1	Unknown Service	9FD43001-E46F-7C9A-57B1-2DA3-65E18FA1

Service7: OTA DFU Service		
Generic Access		9FD44000-E46F-7C9A-57B1-2DA3-65E18FA1
1	DFU Packet	9FD44001-E46F-7C9A-57B1-2DA3-65E18FA1
2	DFU Control Point	9FD44002-E46F-7C9A-57B1-2DA3-65E18FA1
3	DFU Version	9FD44003-E46F-7C9A-57B1-2DA3-65E18FA1

PLUTOCON Developer Application for Android

PLUTOCON application is available for download in the Google Play store online.
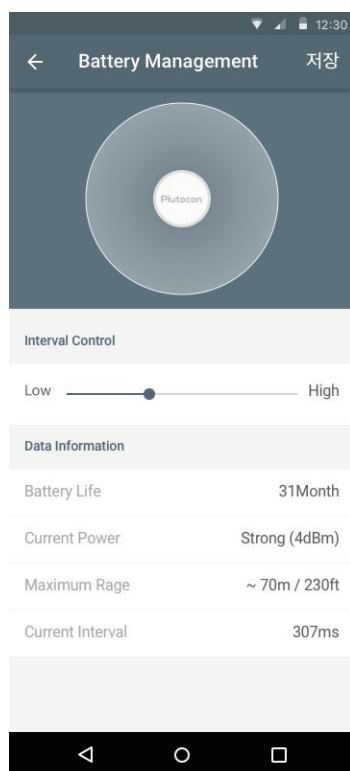The app provides functionality for scanning, ranging, and configuring beacons.

Scanning beacons / Register beacons
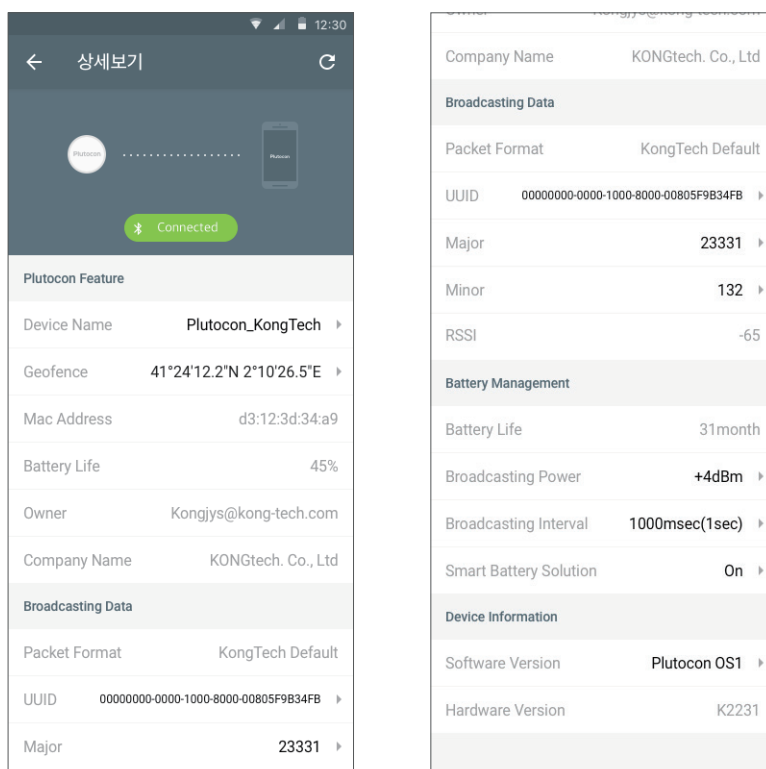
Edit Plutocon Data
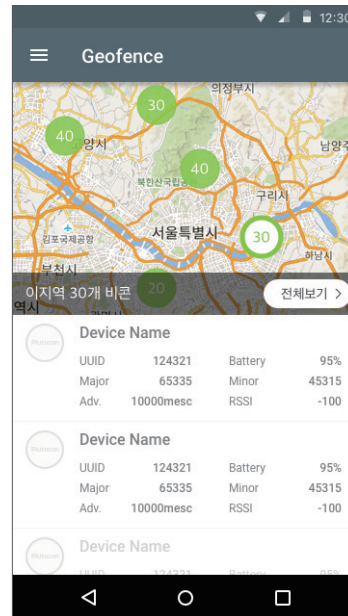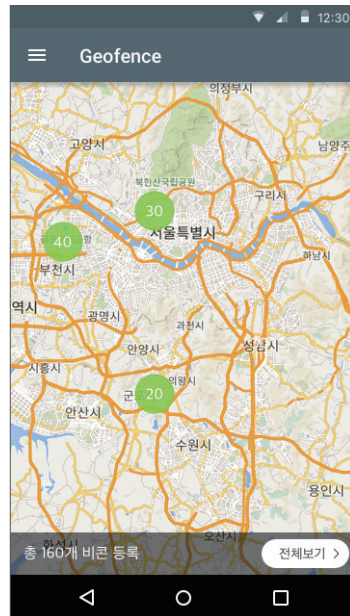
Geofence Infomation
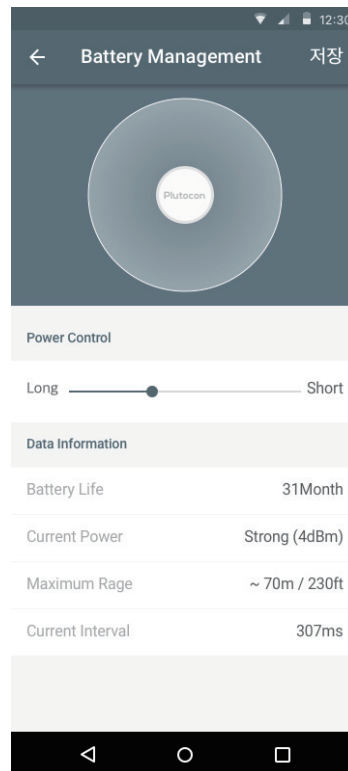
Broadcasting interval / Tx Power Setting

Kong Cloud web page for Plutocon

Support any web page (Desktop, Mac, Mobile...)

PLUTOCON SDK for Android

Condition

Android min-sdk : 21
IDE : Android Studio
Link: http://github.com/plutocon

Installation

Gradle via jCenter
Declare in your Gradle's build.gradle dependency to this library.

```
repositories {
    jcenter()
}

dependencies {
    compile 'com.kongtech.plutocon.sdk:plutocon_sdk:1.0.0'
}
```

Permissions

Basic permissions

The following permissions are included in the sdk

'android.permission.BLUETOOTH'
'android.permission.BLUETOOTH_ADMIN'

Android 6.0 runtime permissions

If running on Android 6.0 or later, Location Services must be turned on.

If running on Android 6.0 or later and your app is targeting SDK < 23 (M), any location permission (ACCESS_COARSE_LOCATION or ACCESS_FINE_LOCATION) must be granted for background beacon detection.

If running on Android 6.0 or later and your app is targeting SDK >= 23 (M), any location permission (ACCESS_COARSE_LOCATION or ACCESS_FINE_LOCATION must be granted.

Tutorials

Quick start for monitoring plutocons

```
private PlutoconManager plutoconManager;

// Initialization
plutoconManager = new PlutoconManager(context);
plutoconManager.connectService(new PlutoconManager.OnReadyServiceListener() {
    @Override
    public void onReady() {
        //do something
    }
});


// Start monitoring foreground with listener
plutoconManager.startMonitoring(PlutoconManager.MONITORING_FOREGROUND, new PlutoconManager.
OnMonitoringPlutoconListener() {
    @Override
    public void onPlutoconDiscovered(Plutocon plutocon, List<Plutocon> plutocons) {
        //do something
    }
});

// Start monitoring background
plutoconManager.startMonitoring(PlutoconManager.MONITORING_BACKGROUND, new PlutoconManager.
OnMonitoringPlutoconListener() {
    @Override
    public void onPlutoconDiscovered(Plutocon plutocon, List<Plutocon> plutocons) {
        //do something
    }
});

// Stop Monitoring
plutoconManager.stopMonitoring();

// Disconnect from manager service.
plutoconManager.close();
```

Quick start for connecting sensor

```
// Initialization
PlutoconConnection plutoconConnection = new PlutoconConnection(context);

// Connect to plutocon
plutoconConnection.connect(new PlutoconConnection.OnConnectionStateChangeCallback() {
    @Override
    public void onConnectionStateDisconnected() {
        //do something
    }

    @Override
    public void onConnectionStateConnected() {
        //do something
    }
});

// Read plutocon property
plutoconConnection.getBatteryVoltage();
plutoconConnection.getBroadcastingPower();
plutoconConnection.getAdvertisingInterval();

plutoconConnection.getUuid();
plutoconConnection.getLatitude();
plutoconConnection.getLongitude();

plutoconConnection.getSoftwareVersion();
plutoconConnection.getHardwareVersion();
plutoconConnection.getManufactureName();
plutoconConnection.getModelNumber();

// Disconnect from plutocon
plutoconConnection.disconnect();
```
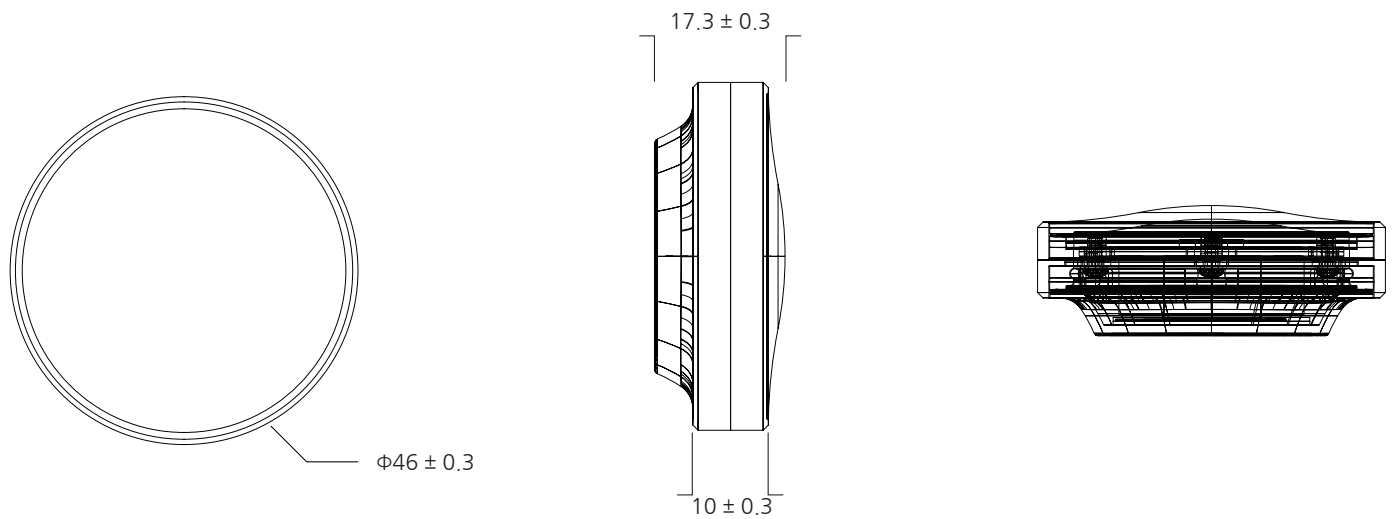
Product Outline Dimensions

17.3 ± 0.3

Φ46 ± 0.3

10 ± 0.3

ORDERING INFORMATION

PLUTOCON	(Beacon Type)	(Manufacture Code)	(Housing type)
Base Part Number	PB: Proximity SB: Sensor DK: Developer Kit UT: Usb Type	Hardware Version + Firmware Version	N01: Nomal, logo N02: Nomal, no slik P01: Only PCB, Version C01: Customer, Versio

Order Number	Description	Minimum Order Quantity
PLUTOCON-PB2231-N01	Proximity beacon, Developer samples	3
PLUTOCON-PB3341-N02	Proximity beacon, Industry	500
PLUTOCON-PB3341-P01	Proximity beacon, Industry, Only PCB	1000
PLUTOCON-PB2231-C01	Proximity beacon, Custom	100
PLUTOCON-SB2231-N01	Sensor beacon, Developer samples	3
PLUTOCON-SB3341-N02	Sensor beacon, Industry	500
PLUTOCON-SB3341-P01	Sensor beacon, Industry, Only PCB	1000
PLUTOCON-SB2231-C01	Sensor beacon, Custom	100
PLUTOCON-DK1172-P01	Developer Kit samples	1
PLUTOCON-DK1172-C01	Developer Kit samples, Custom	100
PLUTOCON-UT6632-P01	UBS Type beacon, Developer samples	1
PLUTOCON-UT6632-P01	UBS Type beacon, Custom	100

For More Information

www.kong-tech.com
kongtech@kong-tech.com
Copyright © 2016 KONGtech Co., Ltd.

Contact

konglhk@kong-tech.com
B-410, U Space2, 682, Sampyeong-dong, Bundang-gu,
Seongnam-si, Gyeonggi-do, Korea