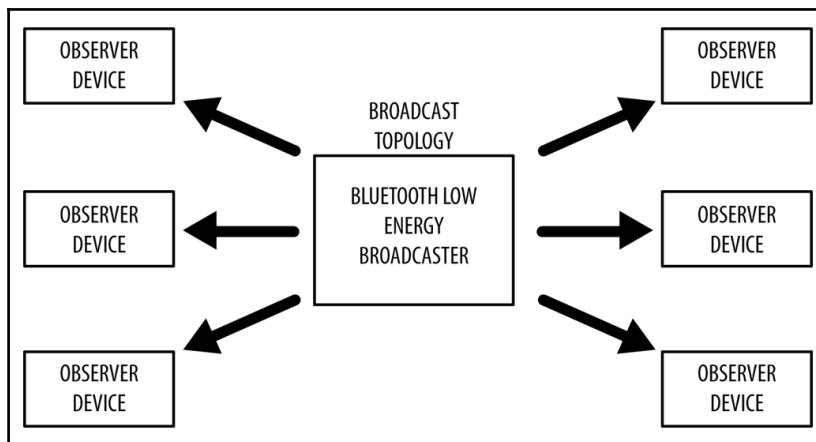
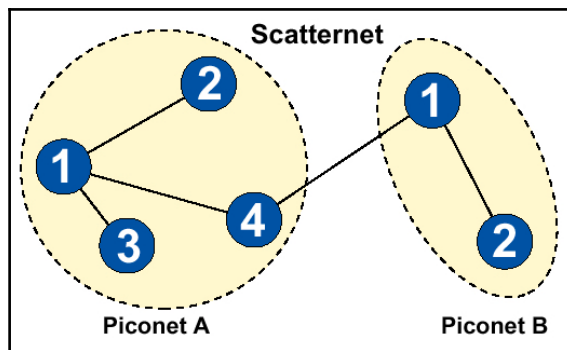
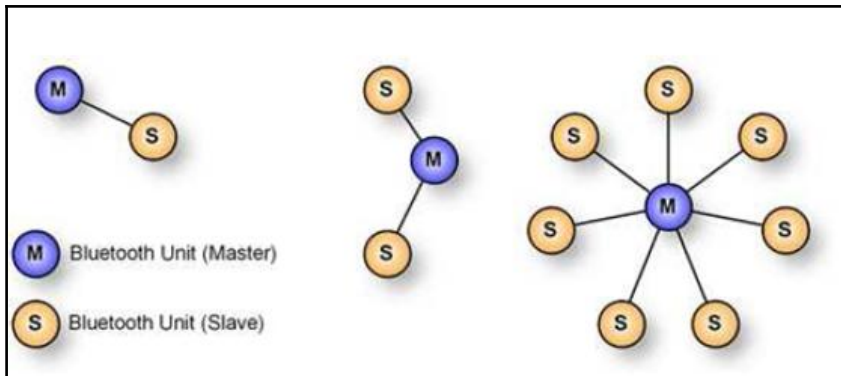
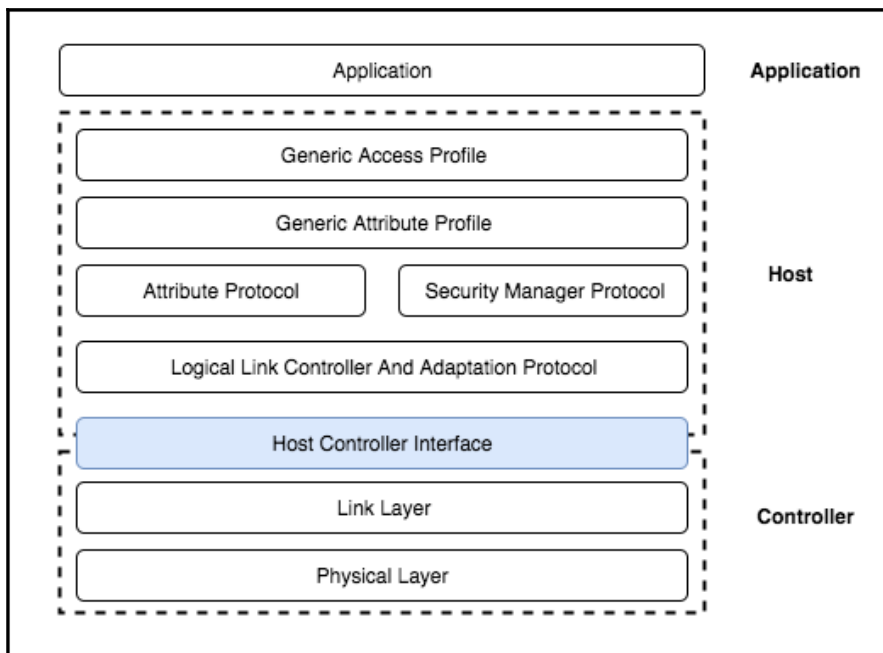
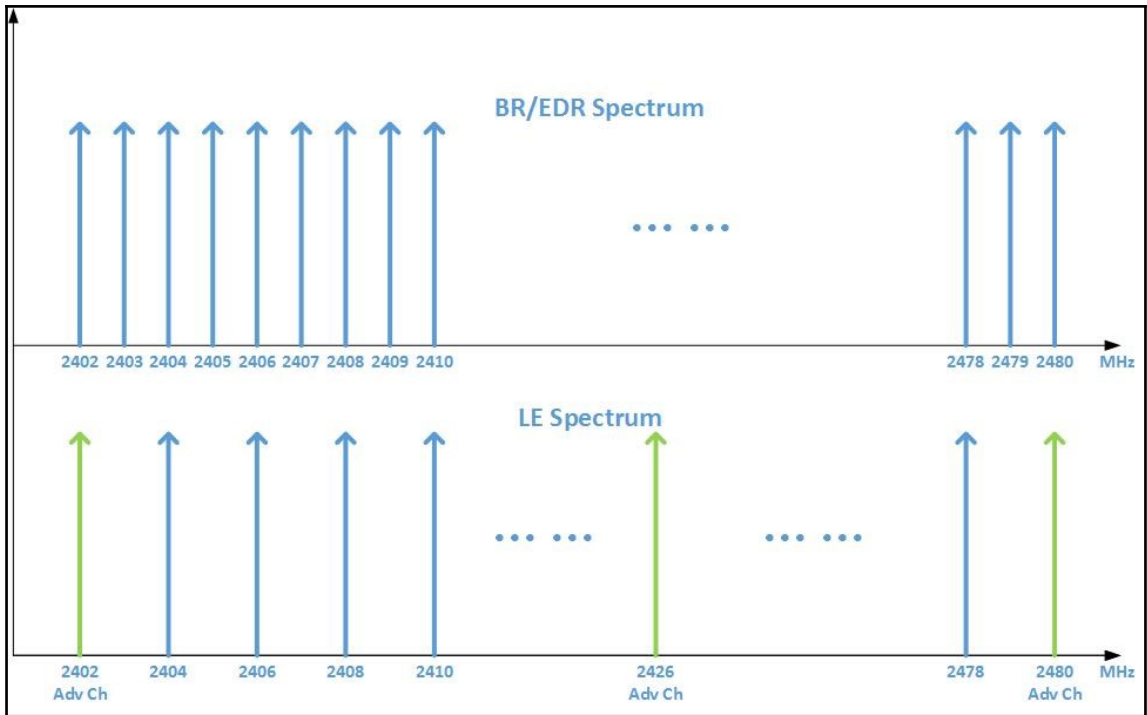
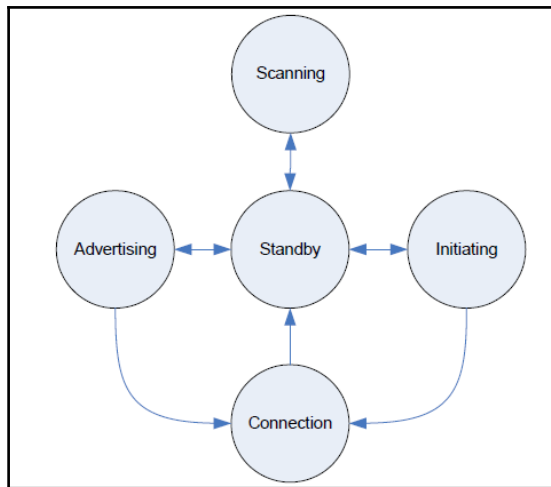
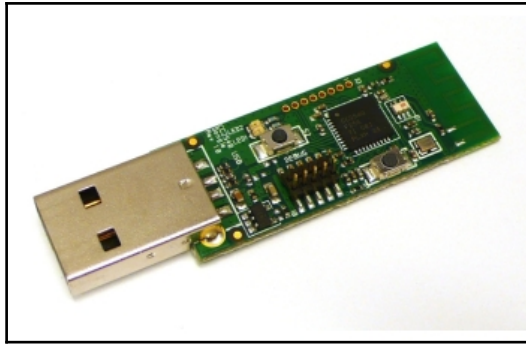


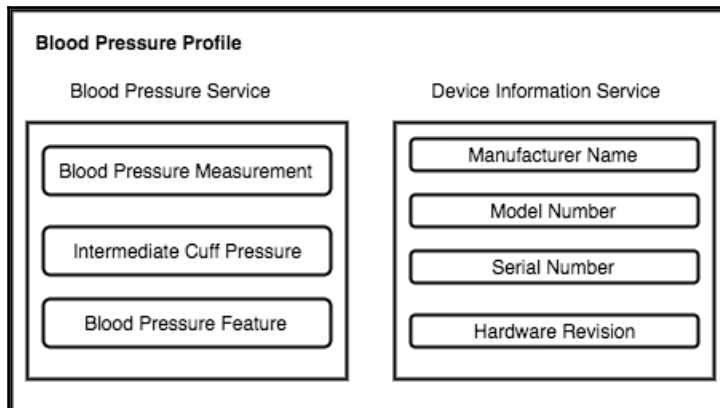
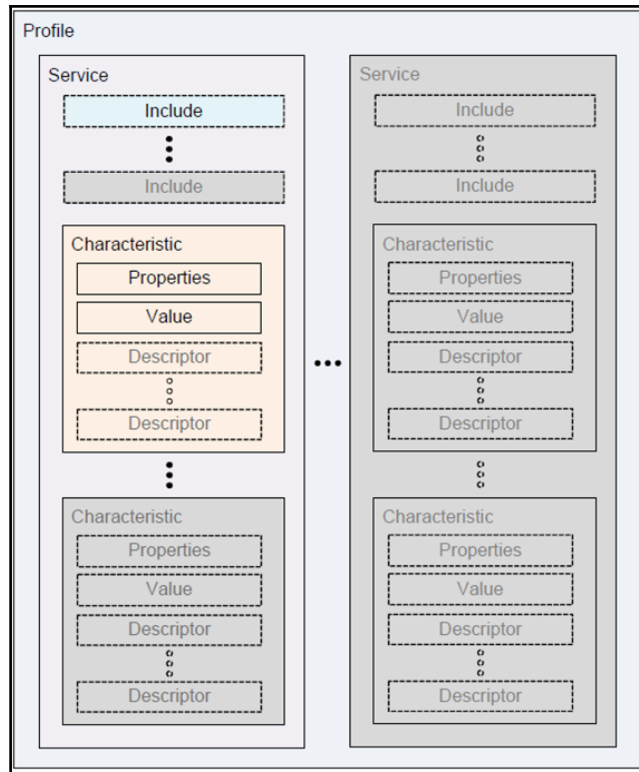
Chapter 01: What is Bluetooth Low Energy?

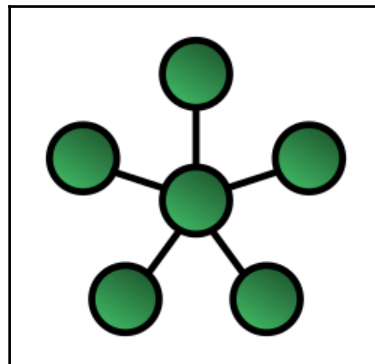
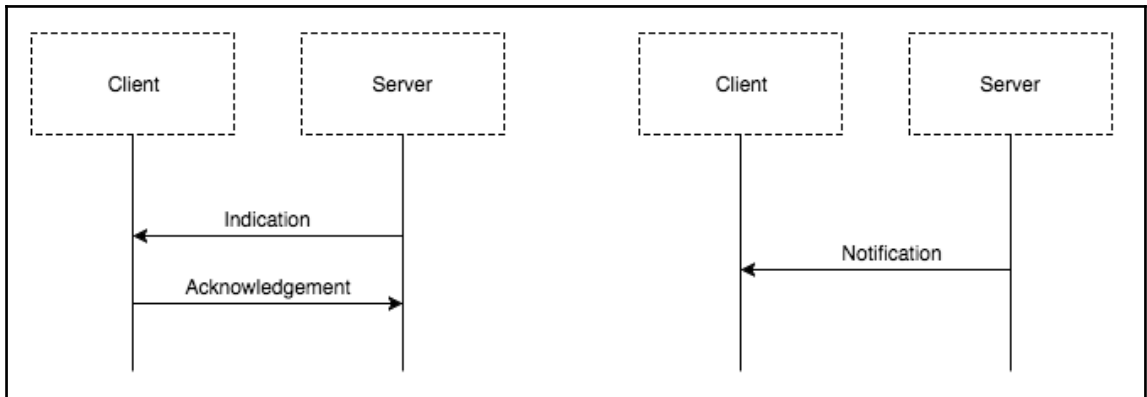
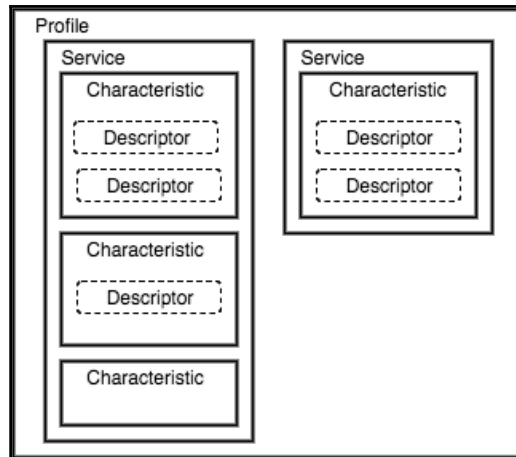


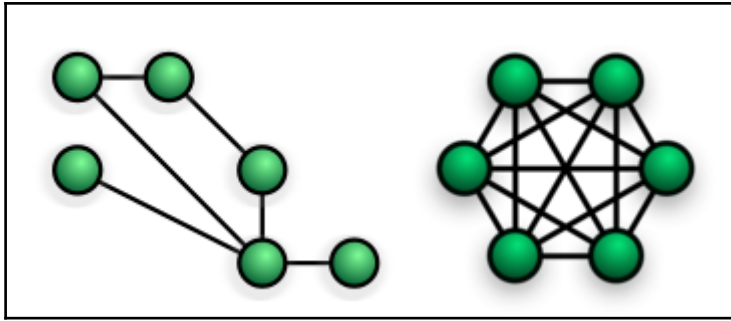












Chapter 02: Setting Up

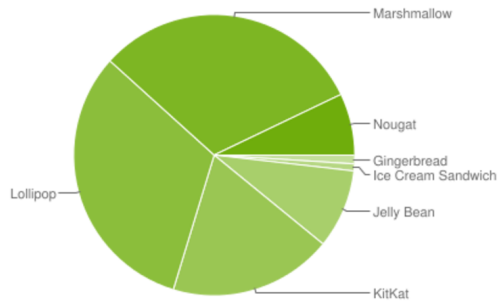




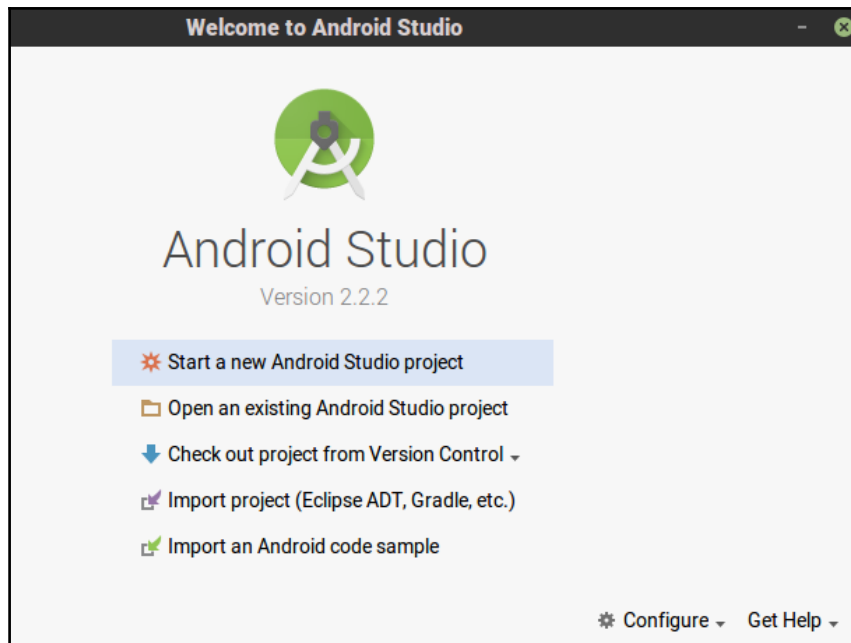


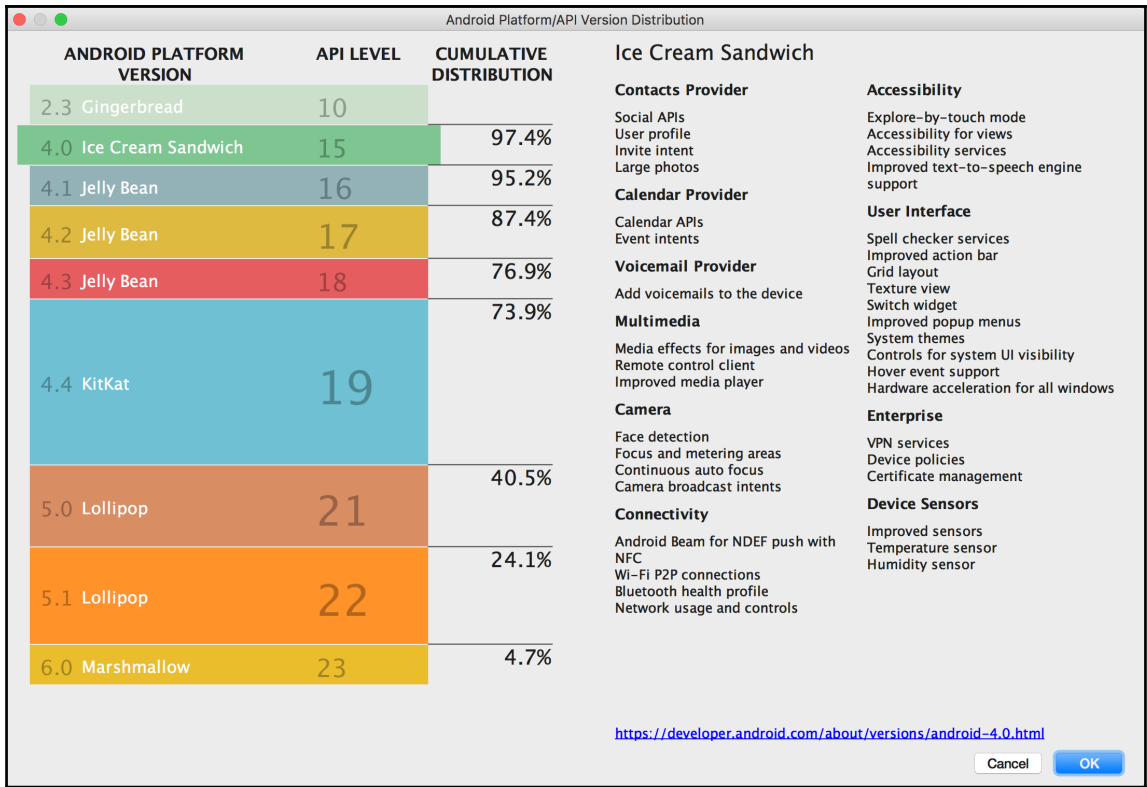
Code name	Version number	Initial release date	API level
(No codename) ^[4]	1.0	September 23, 2008	1
(Internally known as "Petit Four") ^[4]	1.1	February 9, 2009	2
Cupcake	1.5	April 27, 2009	3
Donut ^[5]	1.6	September 15, 2009	4
Eclair ^[6]	2.0–2.1	October 26, 2009	5–7
Froyo ^[7]	2.2–2.2.3	May 20, 2010	8
Gingerbread ^[8]	2.3–2.3.7	December 6, 2010	9–10
Honeycomb ^[9]	3.0–3.2.6	February 22, 2011	11–13
Ice Cream Sandwich ^[10]	4.0–4.0.4	October 18, 2011	14–15
Jelly Bean ^[11]	4.1–4.3.1	July 9, 2012	16–18
KitKat ^[12]	4.4–4.4.4	October 31, 2013	19
Lollipop ^[14]	5.0–5.1.1	November 12, 2014	21–22
Marshmallow ^[15]	6.0–6.0.1	October 5, 2015	23
Nougat^[16]	7.0–7.1.2	August 22, 2016	24–25
O	8.0	TBA	26

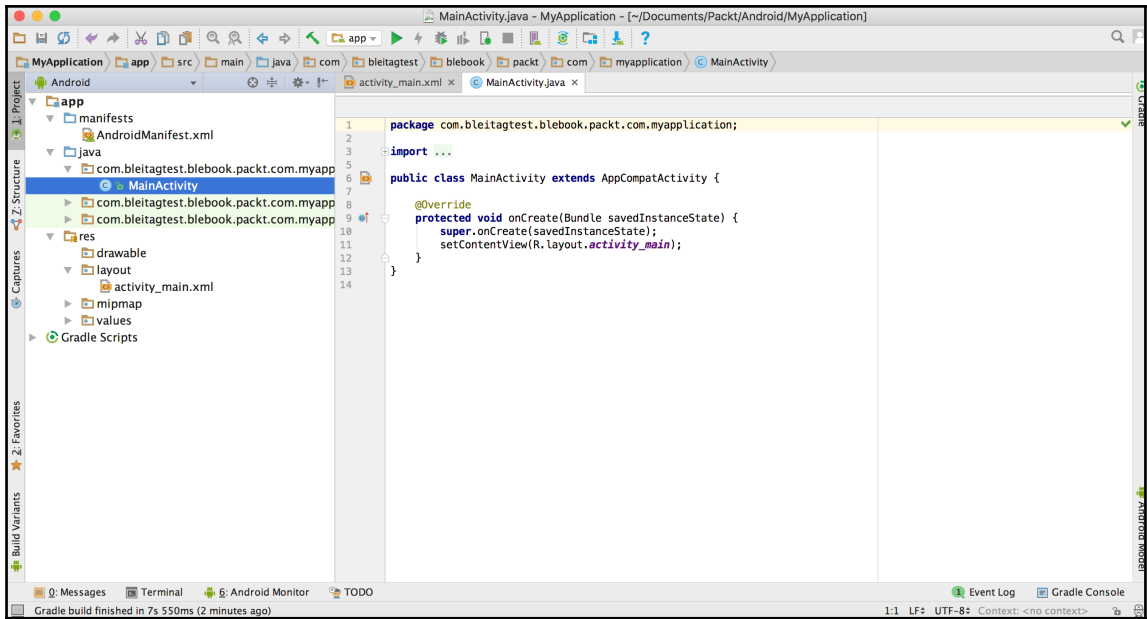
Version	Codename	API	Distribution
2.3.3 - 2.3.7	Gingerbread	10	1.0%
4.0.3 - 4.0.4	Ice Cream Sandwich	15	0.8%
4.1.x	Jelly Bean	16	3.2%
4.2.x		17	4.6%
4.3		18	1.3%
4.4	KitKat	19	18.8%
5.0	Lollipop	21	8.7%
5.1		22	23.3%
6.0	Marshmallow	23	31.2%
7.0	Nougat	24	6.6%
7.1		25	0.5%



Data collected during a 7-day period ending on May 2, 2017.
Any versions with less than 0.1% distribution are not shown.









iOS 10 is compatible with these devices.

iPhone



- iPhone 7
- iPhone 7 Plus
- iPhone 6s
- iPhone 6s Plus
- iPhone 6
- iPhone 6 Plus
- iPhone SE
- iPhone 5s
- iPhone 5c
- iPhone 5

iPad



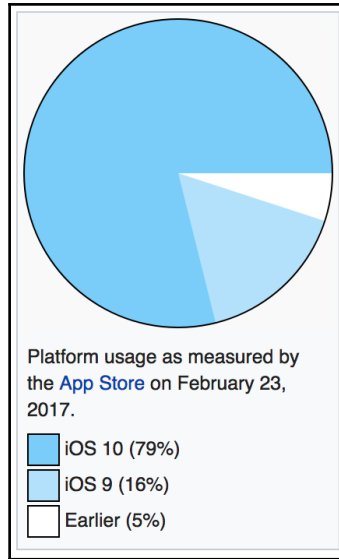

- iPad Pro 12.9-inch
- iPad Pro 9.7-inch
- iPad Air 2
- iPad Air
- iPad 4th generation
- iPad mini 4
- iPad mini 3
- iPad mini 2

iPod






- iPod touch 6th generation

Version ↕	Release date ↕	Distribution (as of Feb. 2017) ↕	Devices shipped with version ↕
iOS 10	September 13, 2016	79%	iPhone 7, iPhone 7 Plus, iPad (7th generation)
iOS 9	September 16, 2015	16%	iPhone 6S, iPhone 6S Plus, iPhone SE, iPad Pro, iPad Mini 4
iOS 8 and earlier	N/A	5%	N/A

Welcome to Xcode

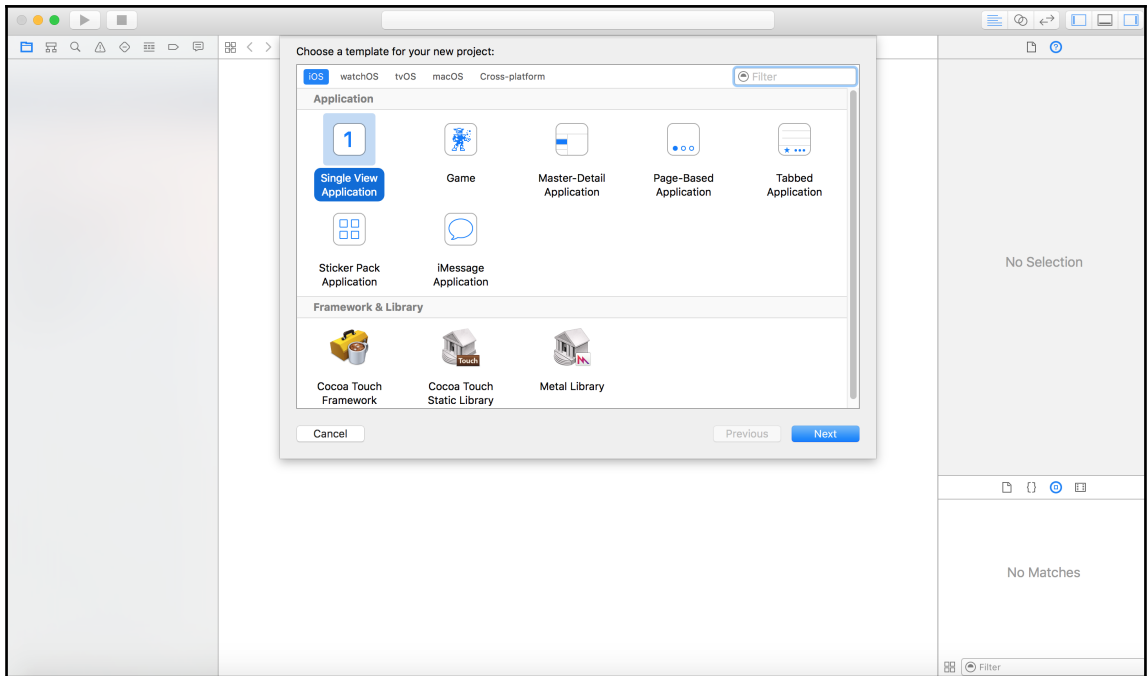
Version 8.0 (8A218a)

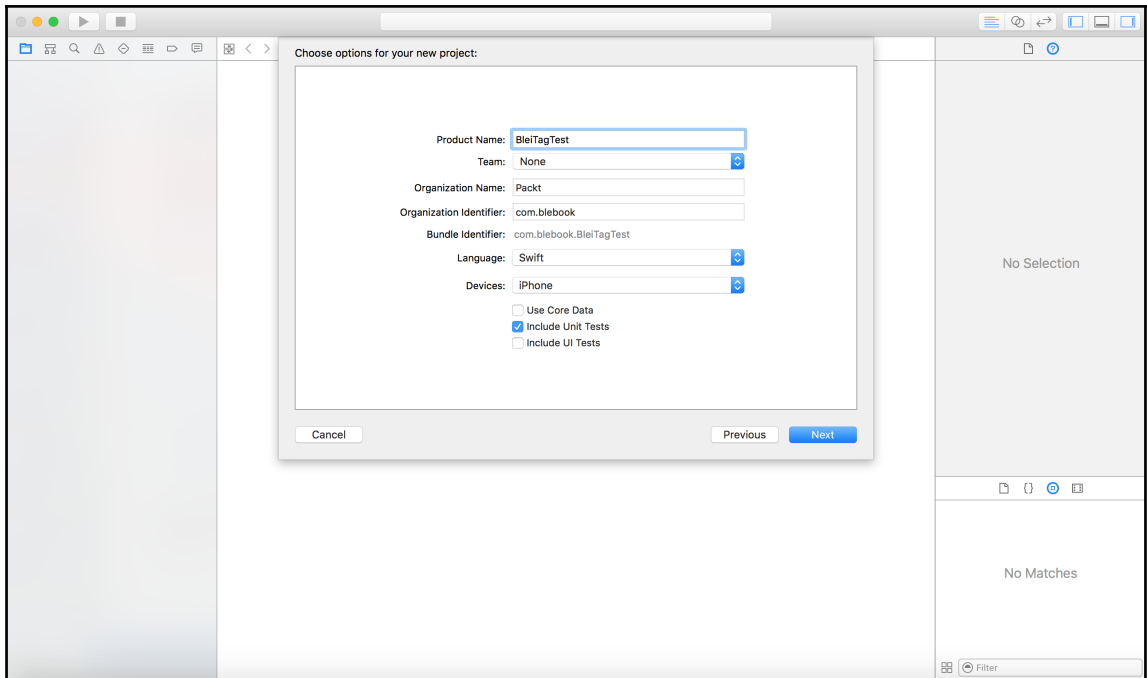
-  **Get started with a playground**
Explore new ideas quickly and easily.
-  **Create a new Xcode project**
Create an app for iPhone, iPad, Mac, Apple Watch or Apple TV.
-  **Check out an existing project**
Start working on something from an SCM repository.

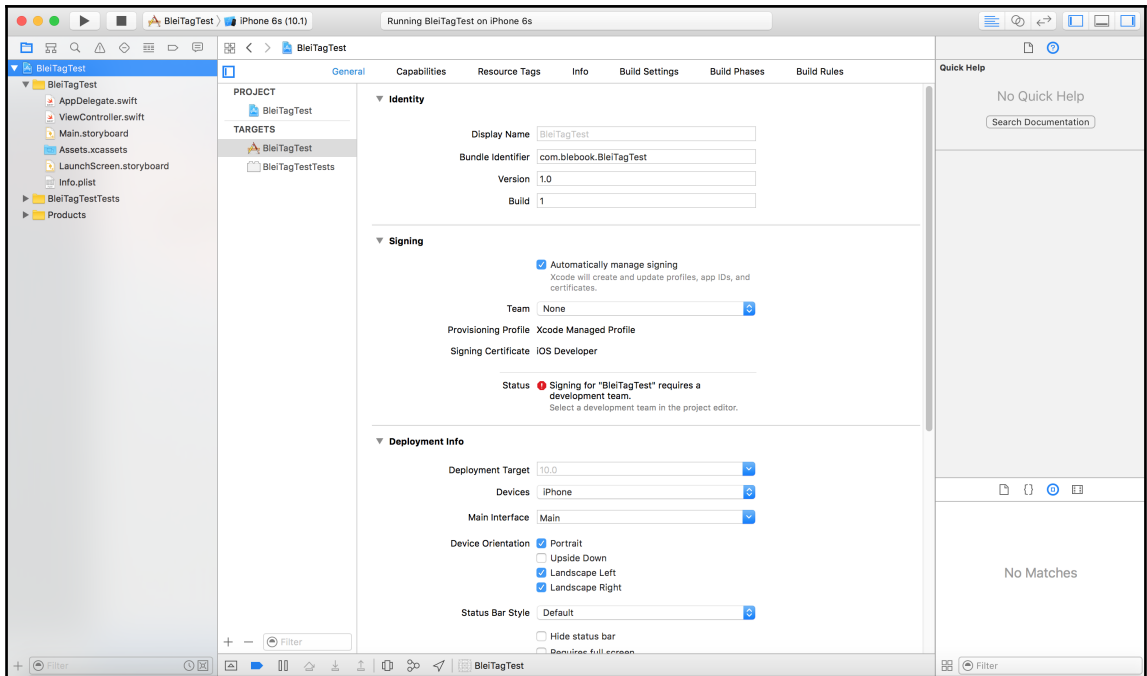
Show this window when Xcode launches

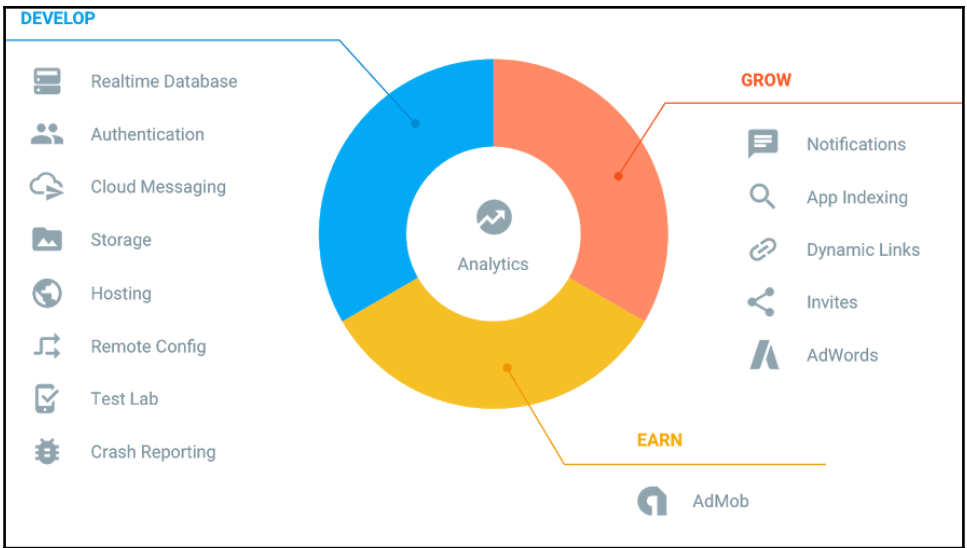
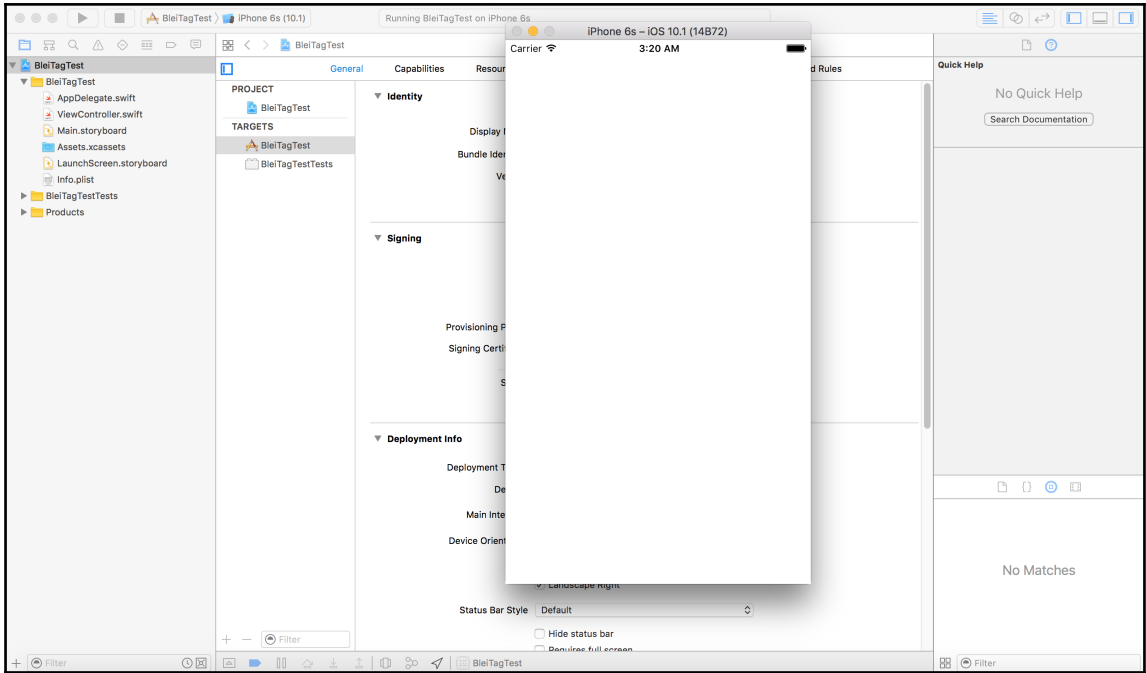
No Recent Projects

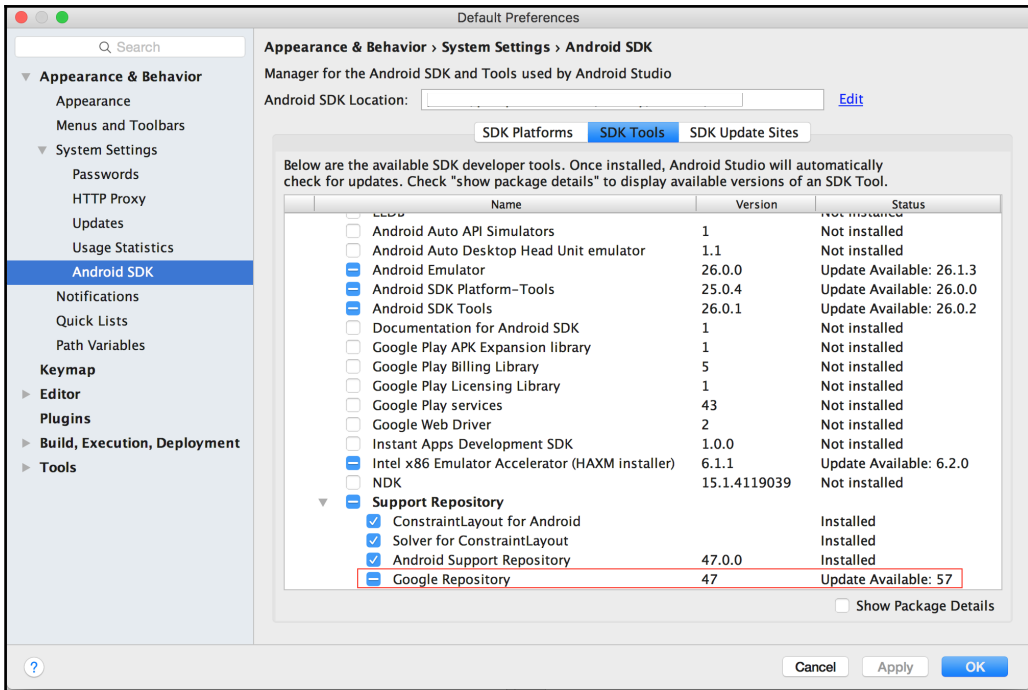
Open another project...















Assistant  


 **Firebase**

Firebase gives you the tools and infrastructure from Google to help you develop, grow and earn money from your app. [Learn more](#)


▼  **Analytics**

Measure user activity and engagement with free, easy, and unlimited analytics. [More info](#)


▶ [Get Started with Firebase Analytics](#)

▶  **Cloud Messaging**

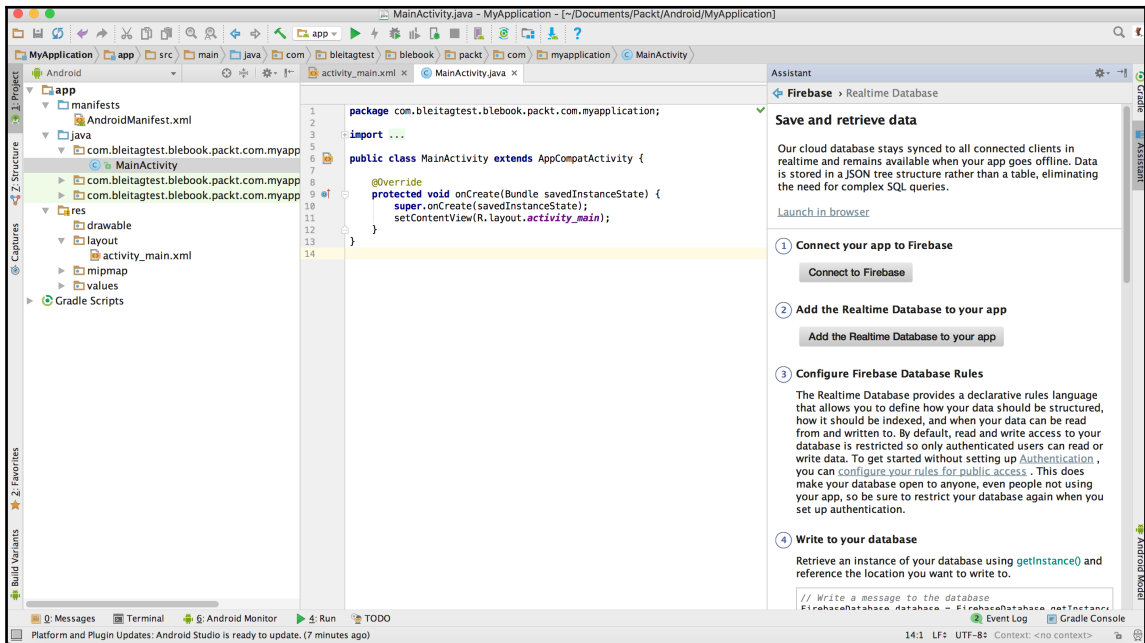
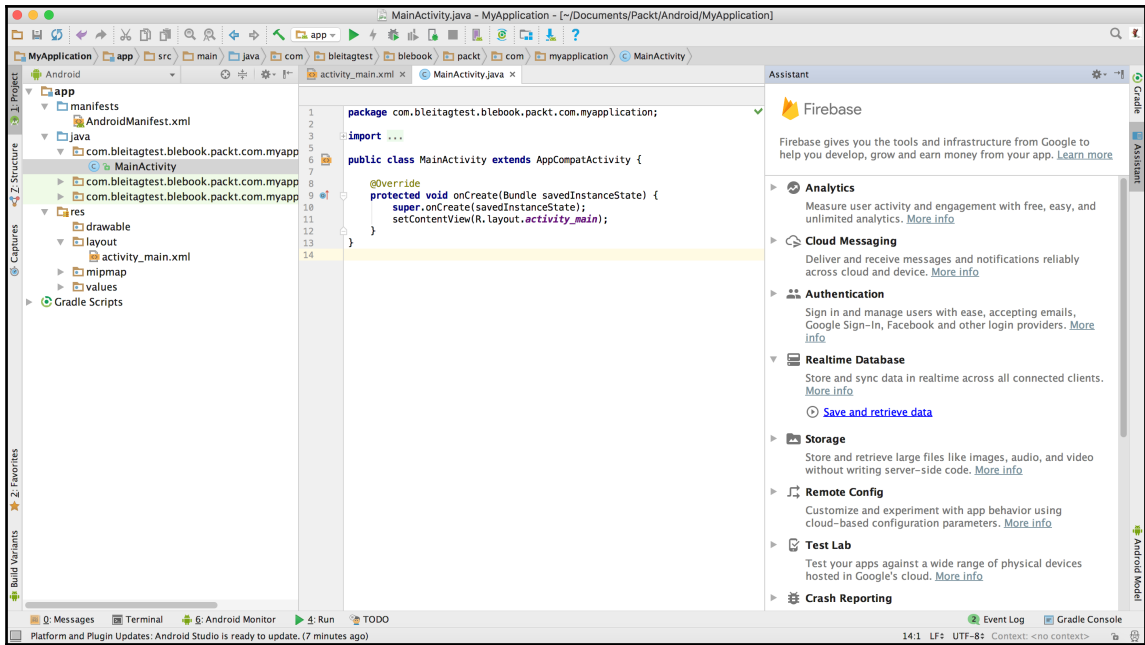
Deliver and receive messages and notifications reliably across cloud and device. [More info](#)

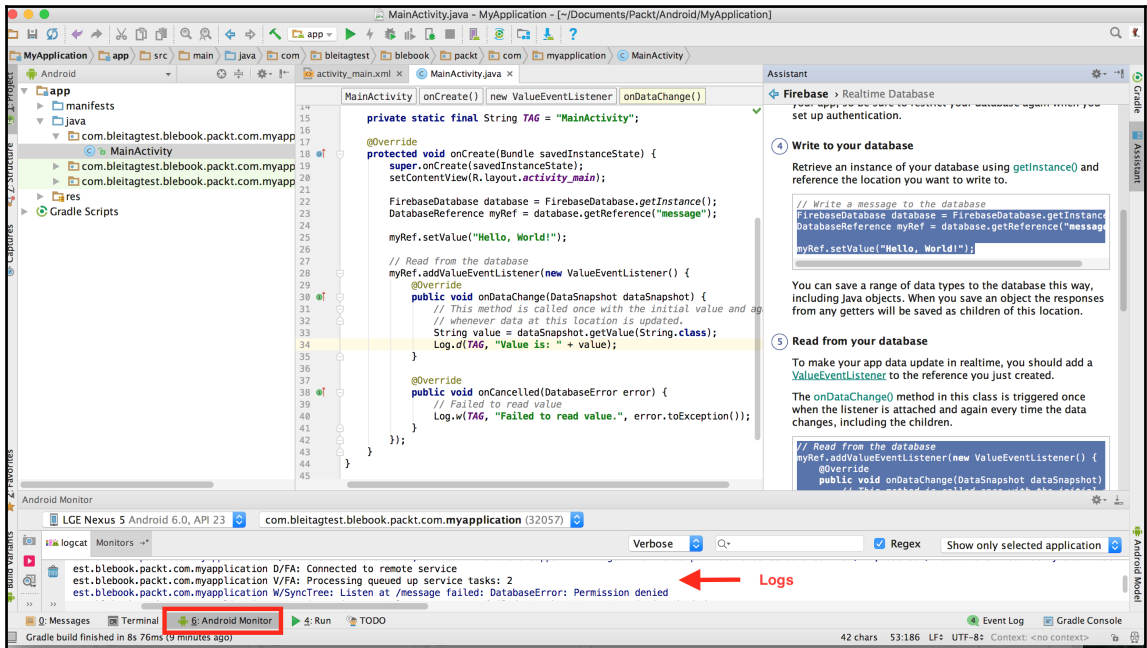
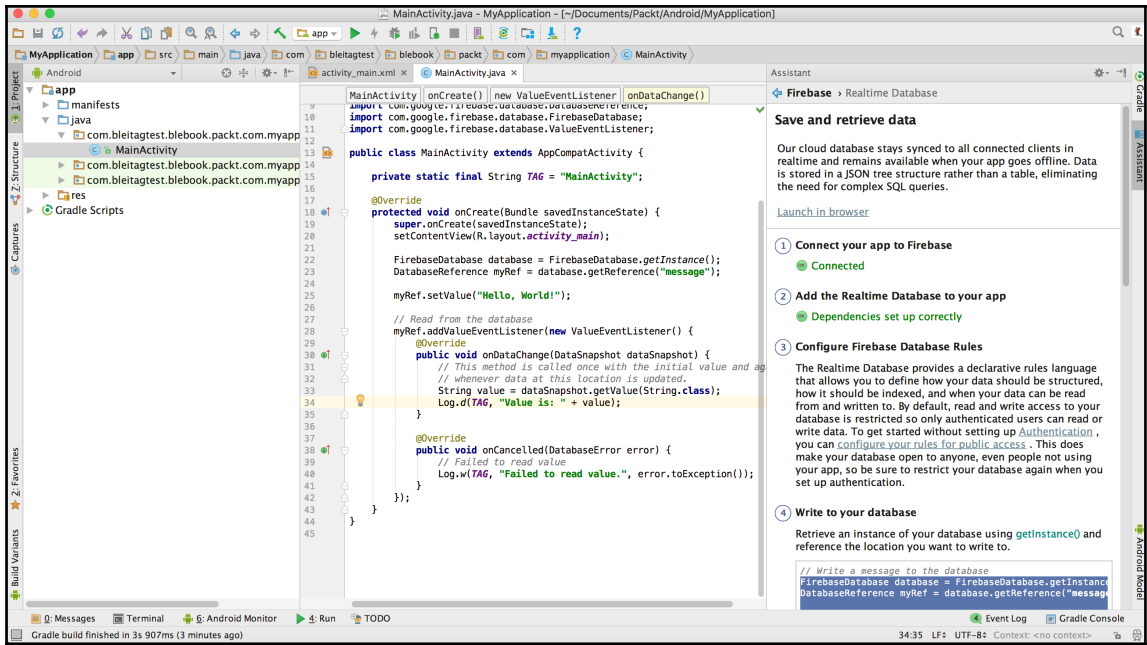
▶  **Authentication**

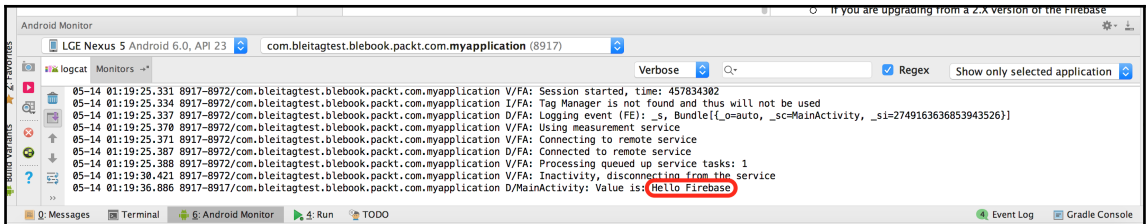
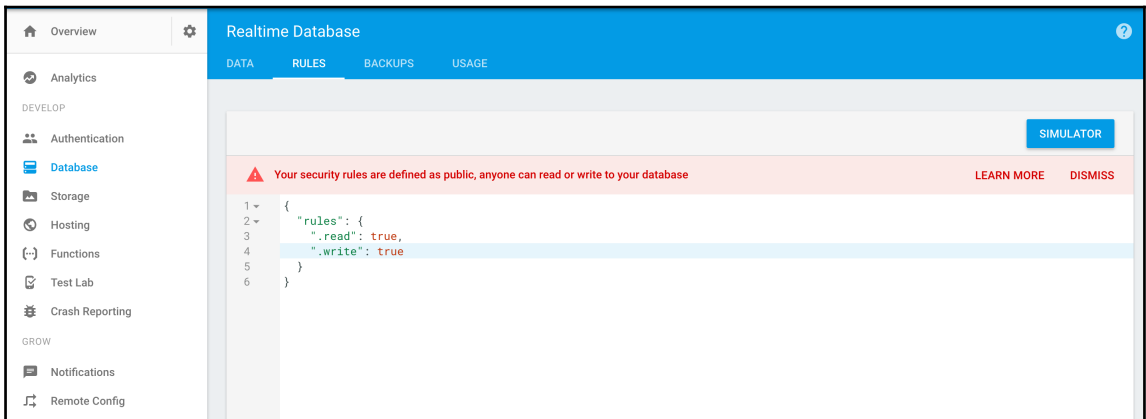
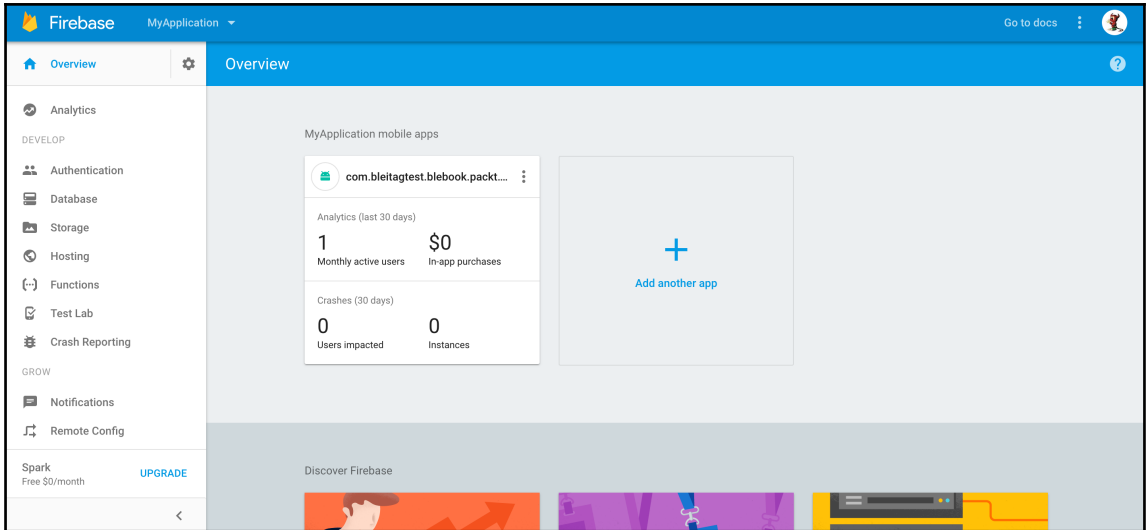
Sign in and manage users with ease, accepting emails, Google Sign-In, Facebook and other login providers. [More info](#)

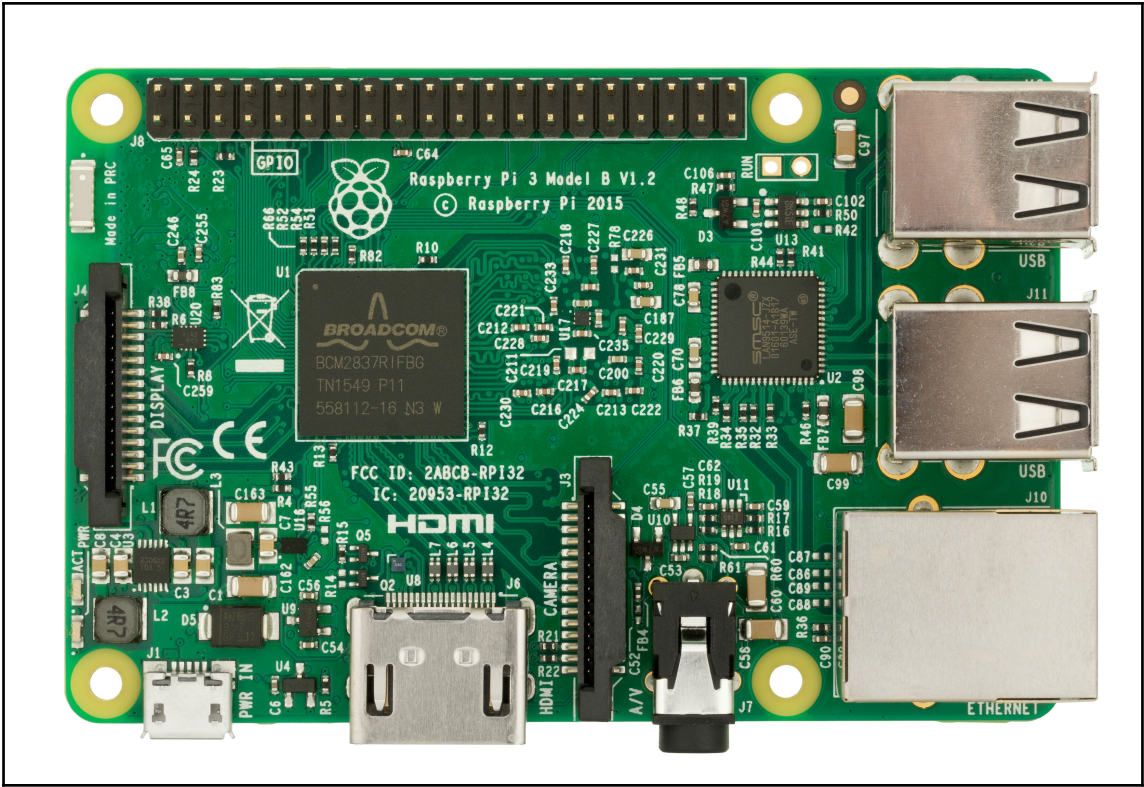
▶  **Realtime Database**

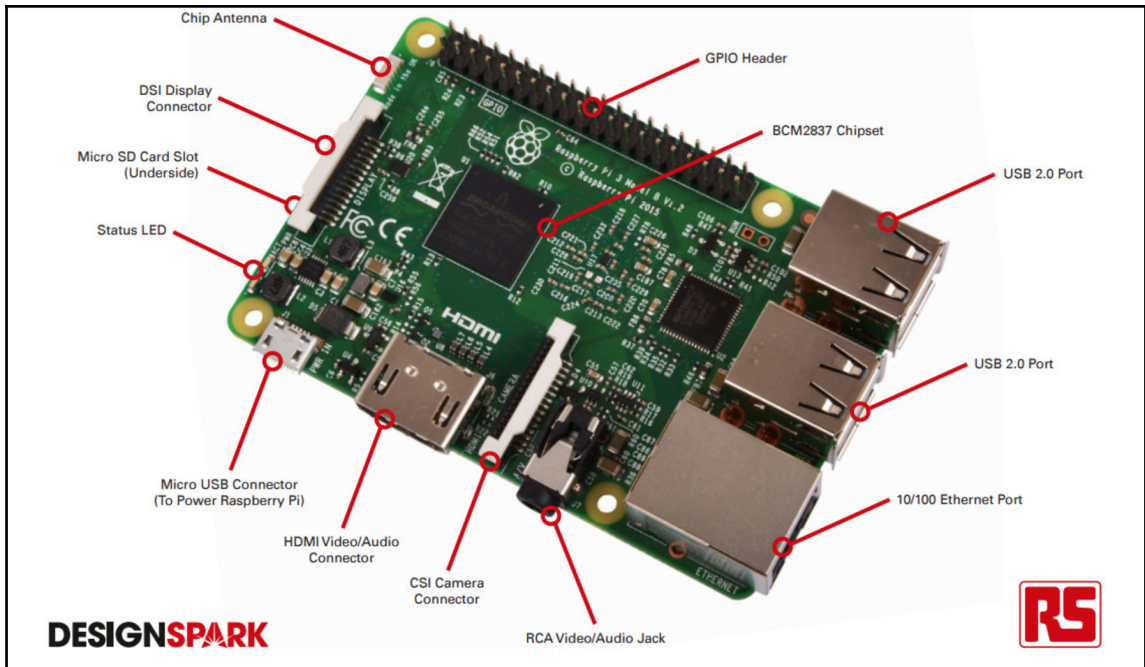
Store and sync data in realtime across all connected clients. [More info](#)





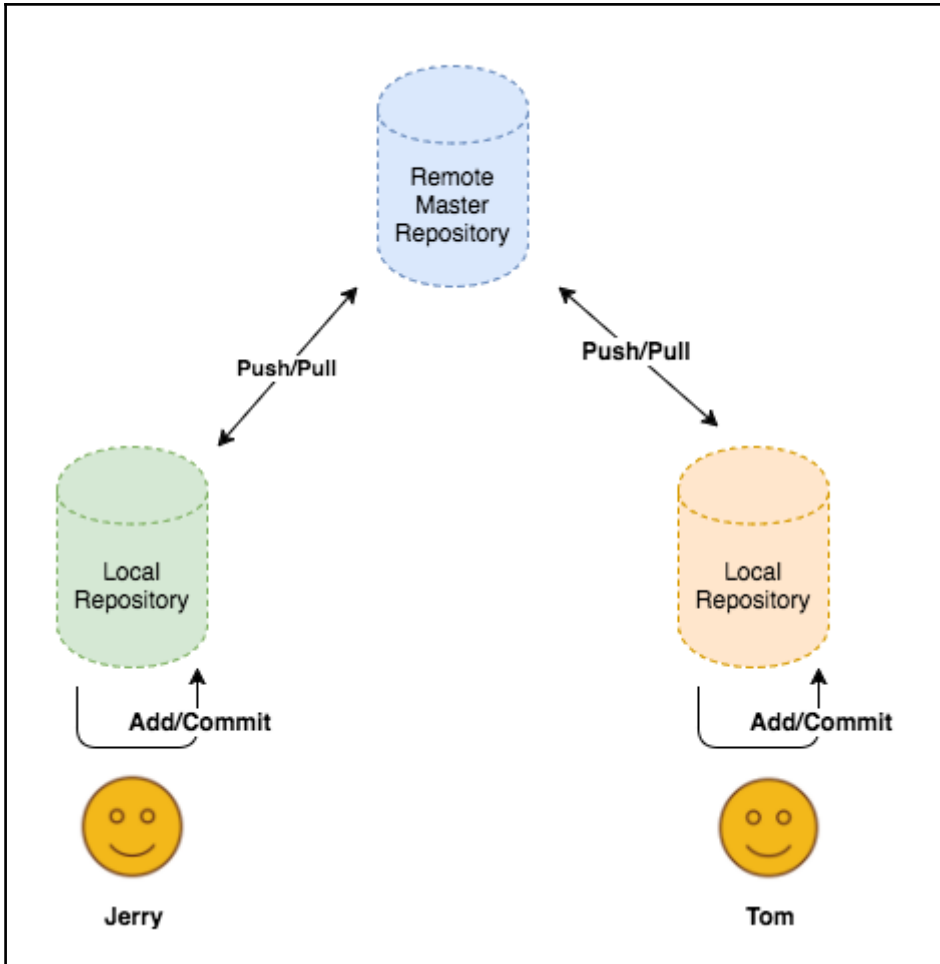




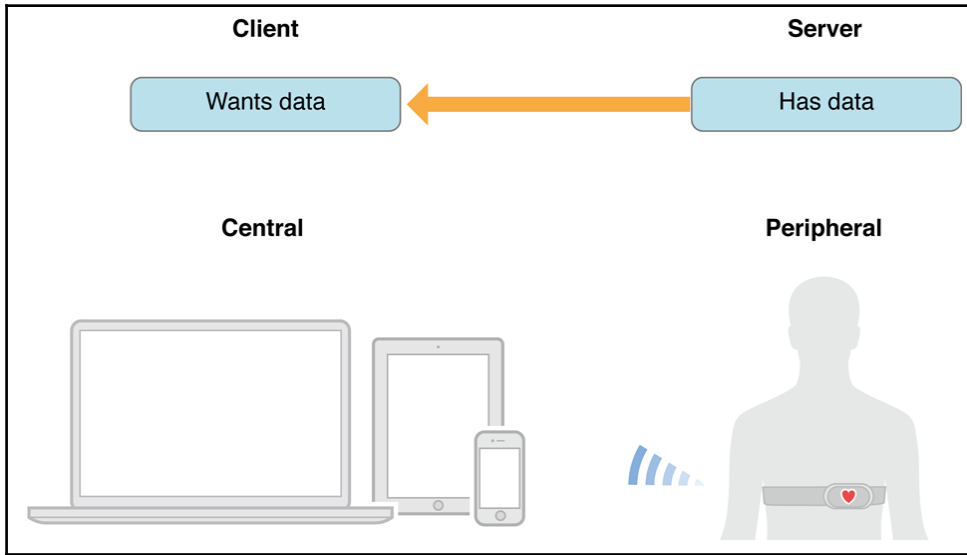


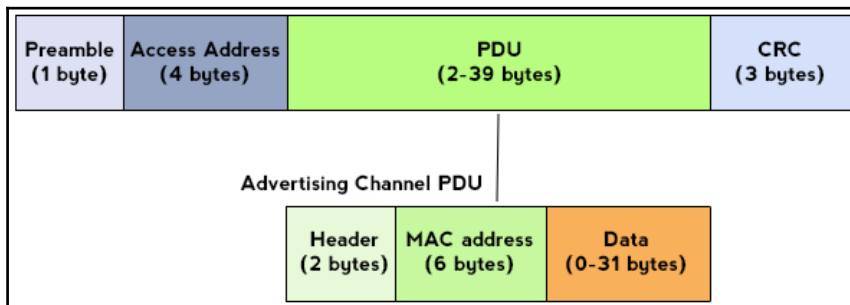
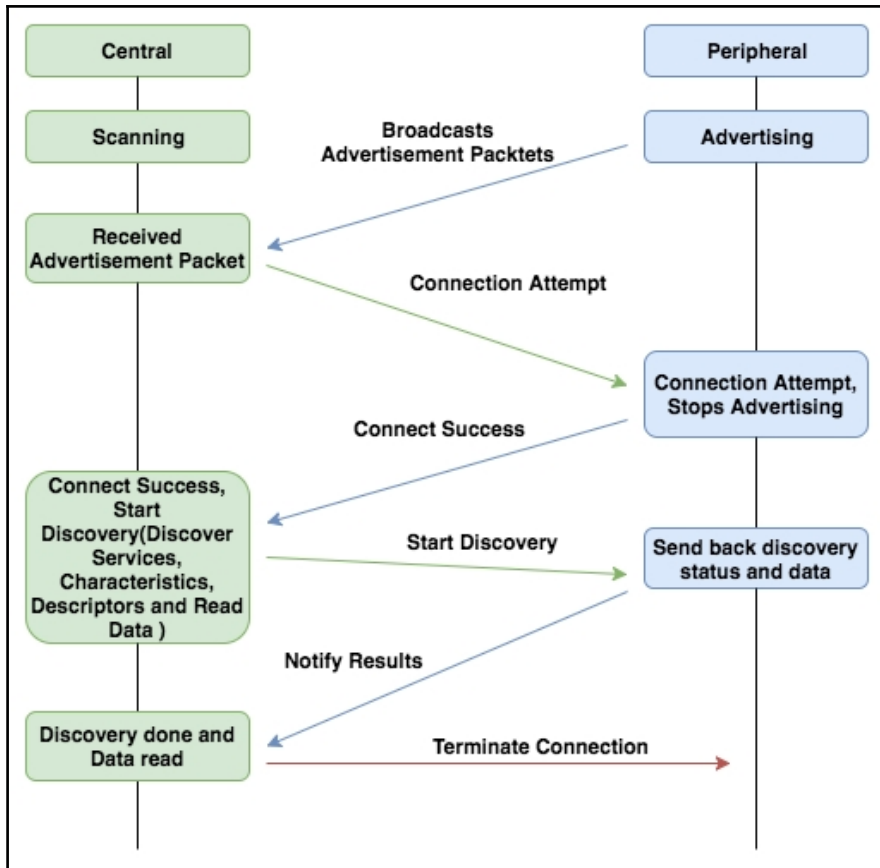
Parameters	Description
SoC	Broadcom BCM2837
CPU	4x ARM Cortex-A53, 1.2GHz
GPU	Broadcom VideoCore IV
RAM	1GB LPDDR2
Networking	10/100 Ethernet, 2.4GHz 802.11n wireless
Bluetooth	Bluetooth 4 Classic, Bluetooth Low Energy
Storage	MicroSD
GPIO	40-pin header, populated
Ports	HDMI, 3.5mm analogue audio-video jack, 4xUSB, 2.0 Ethernet, Camera Serial Interface (CSI), Display Serial Interface (DSI)

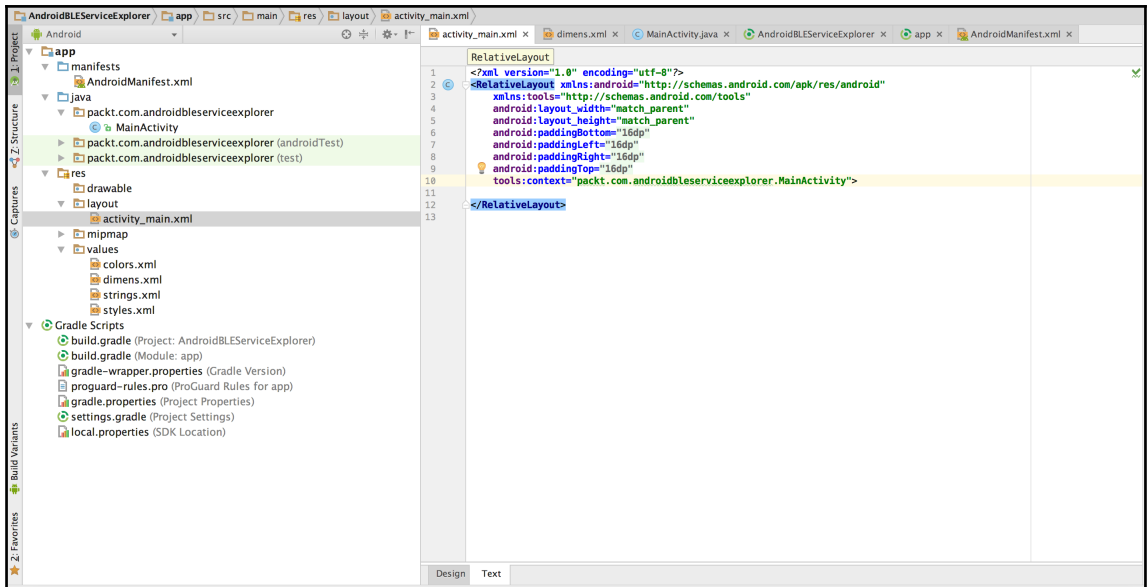


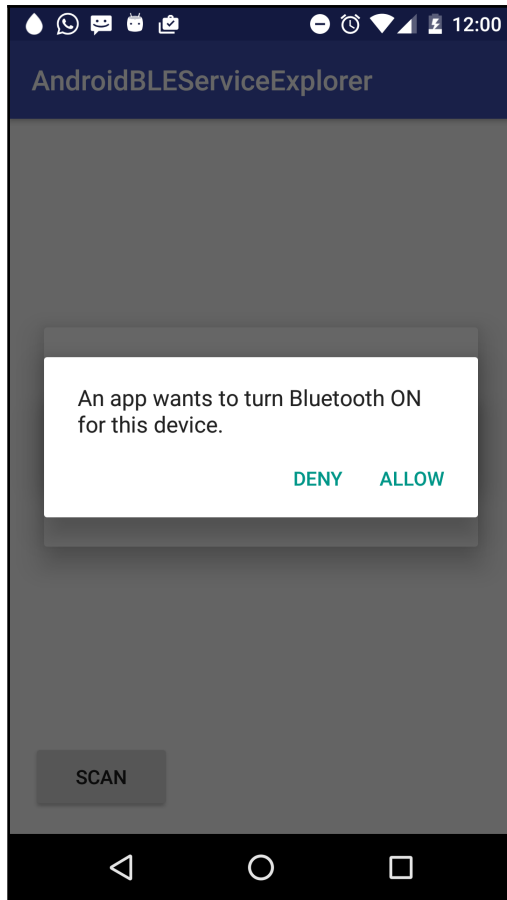


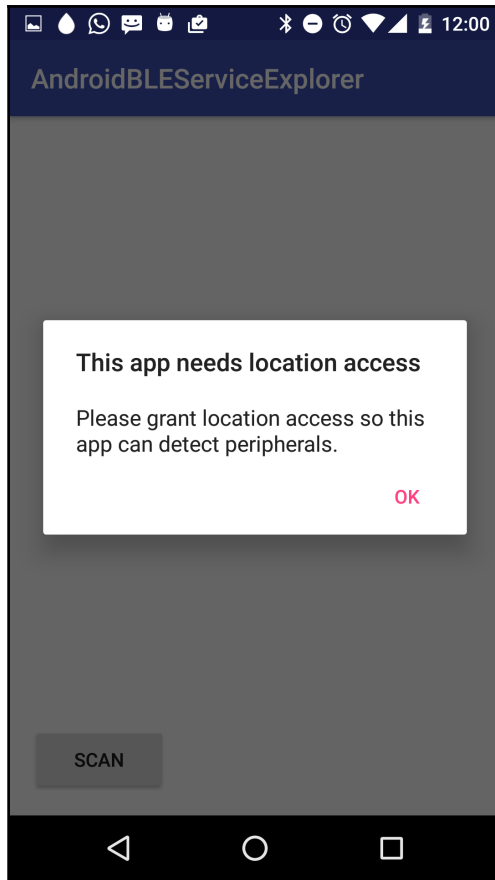
Chapter 03: Building a Service Explorer App

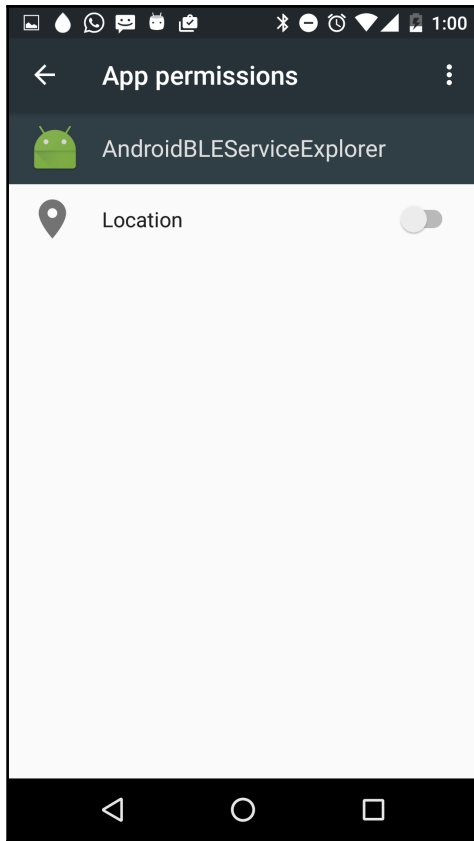


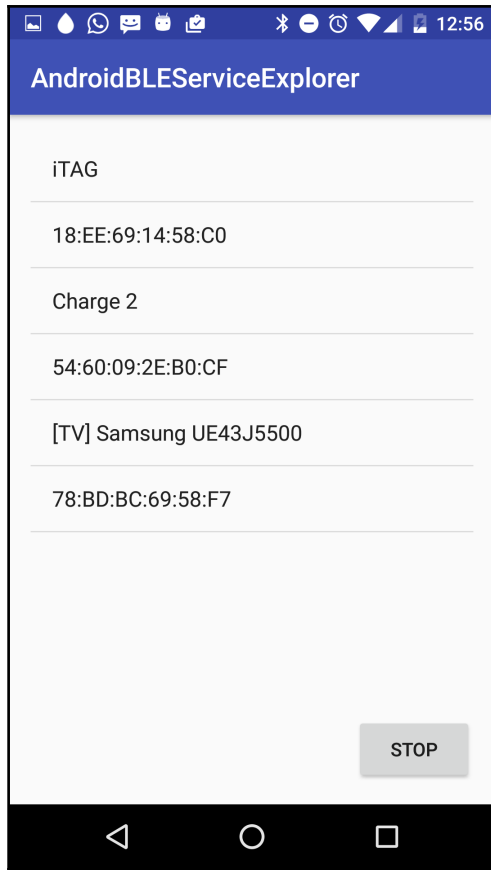


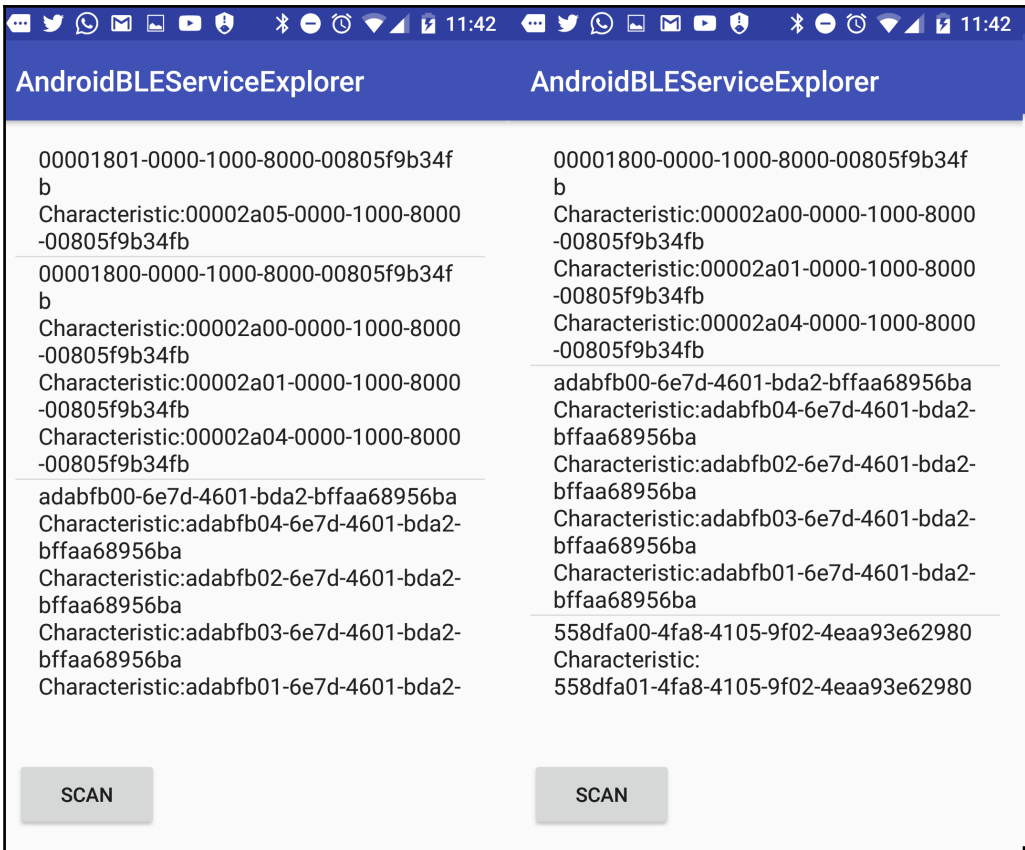


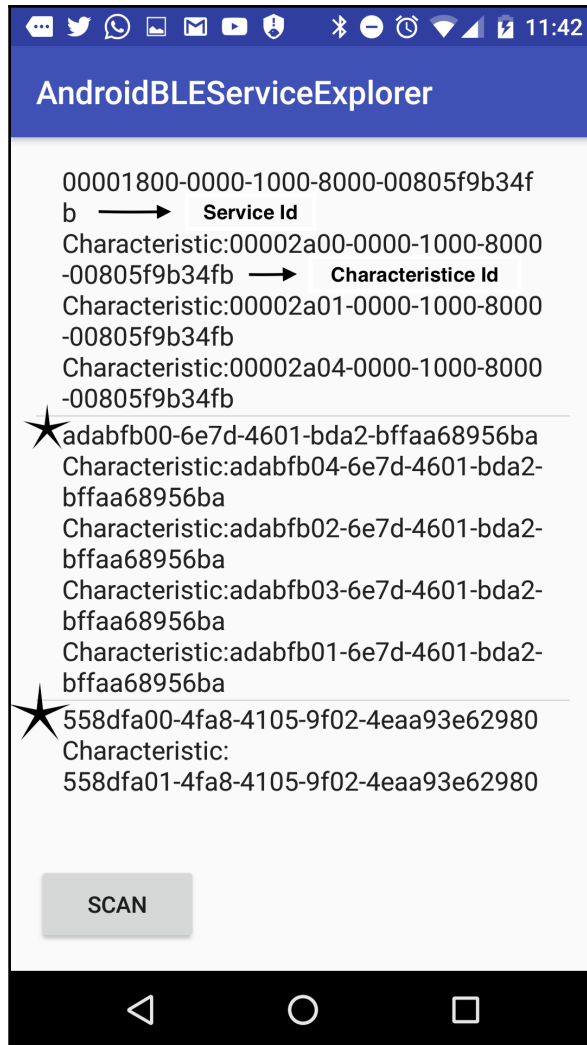


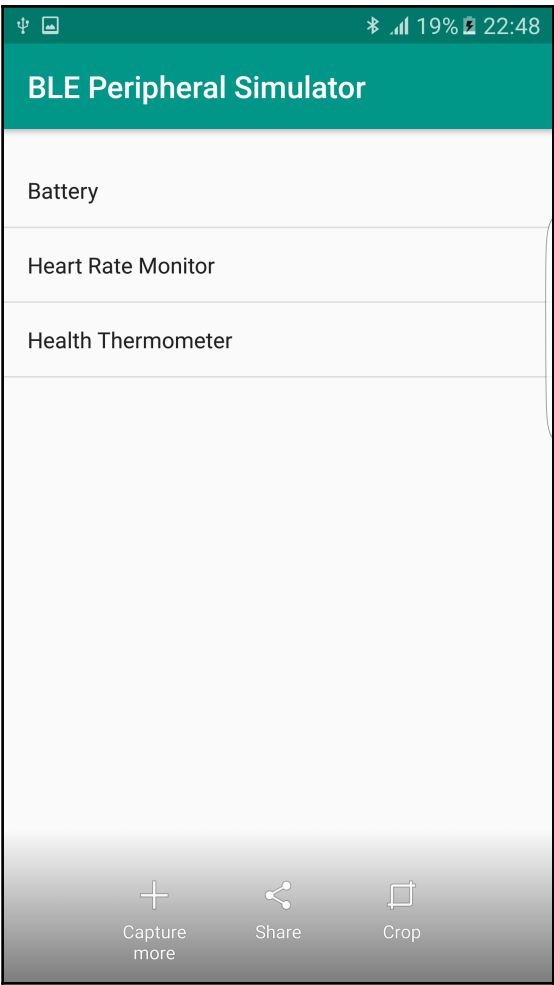


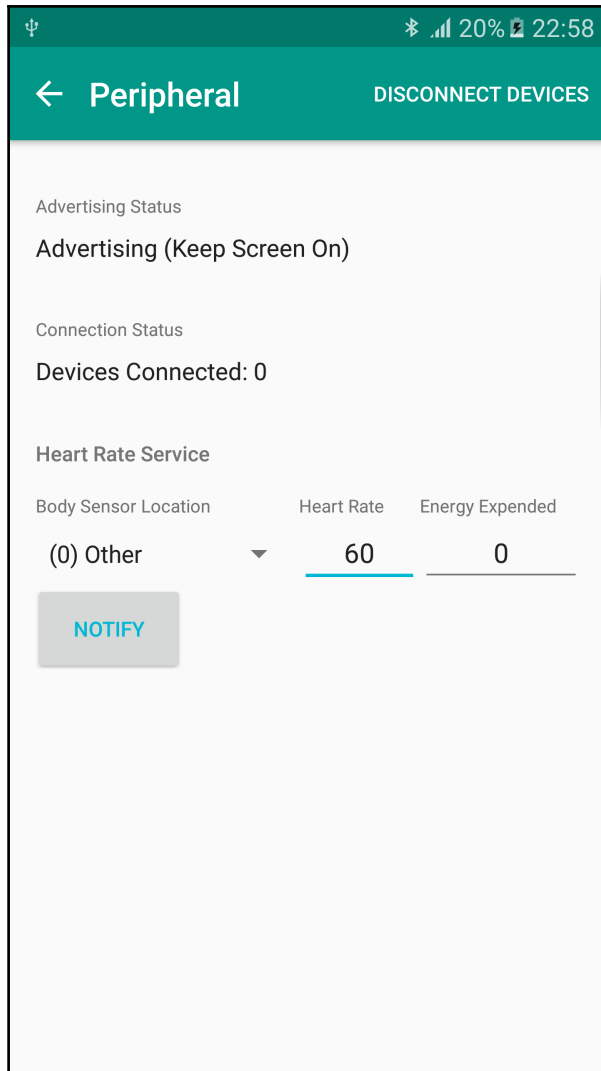


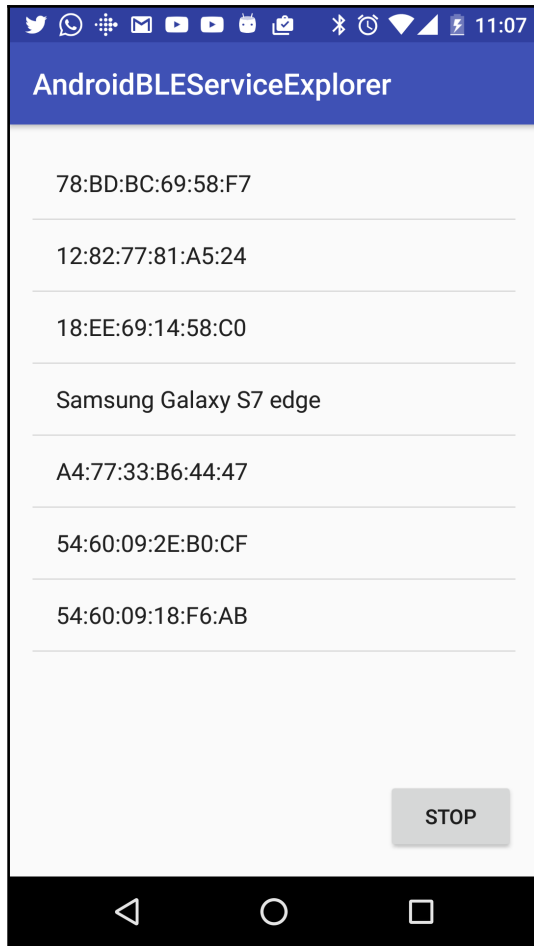


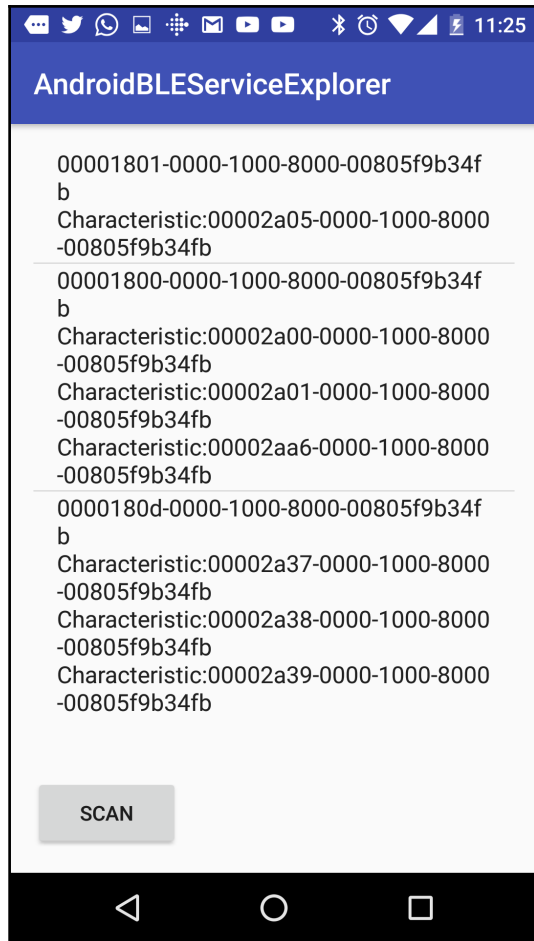


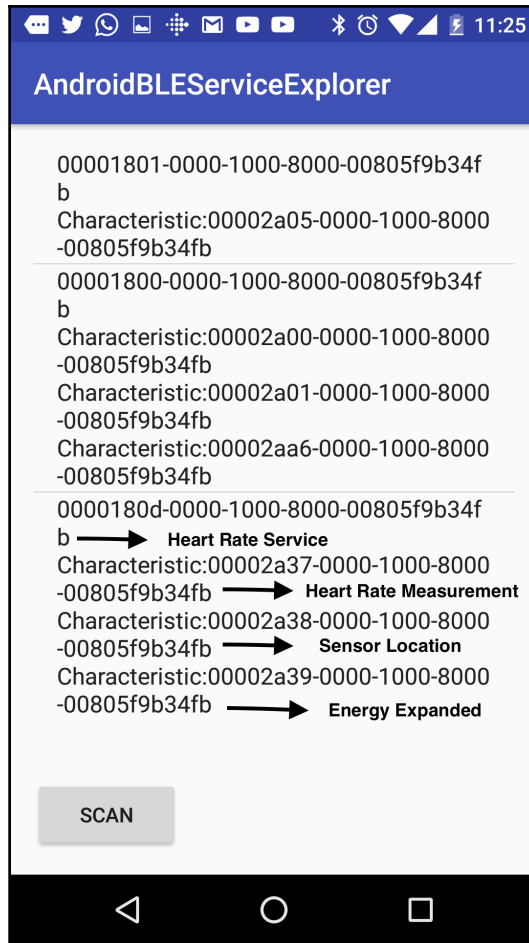


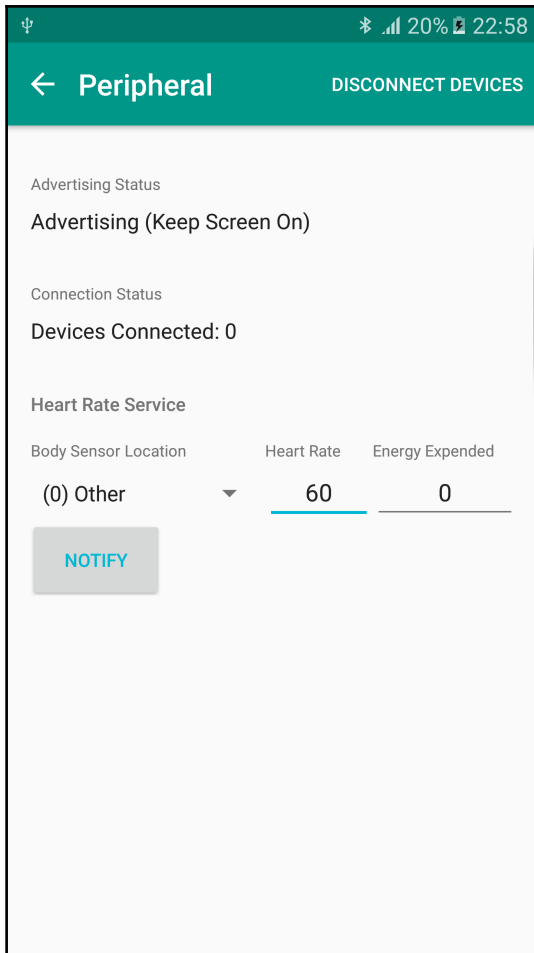




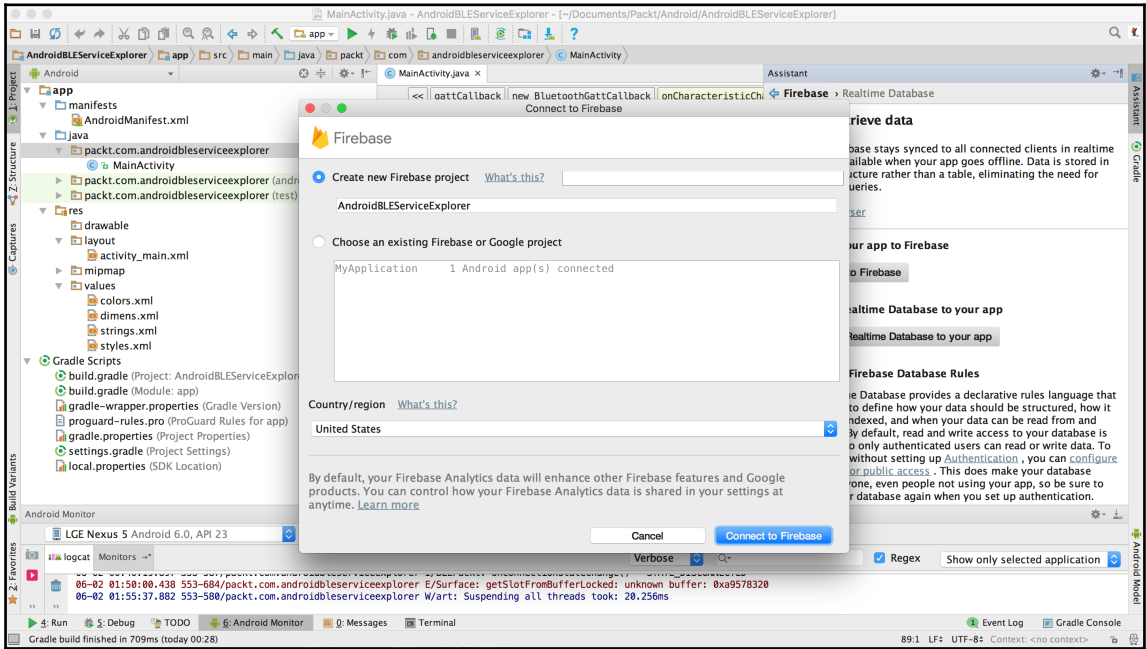
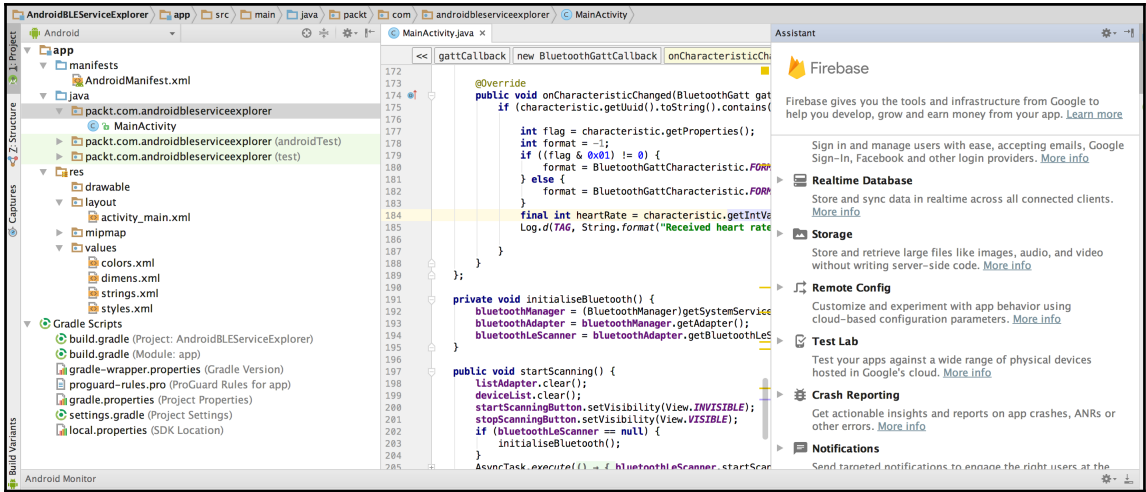






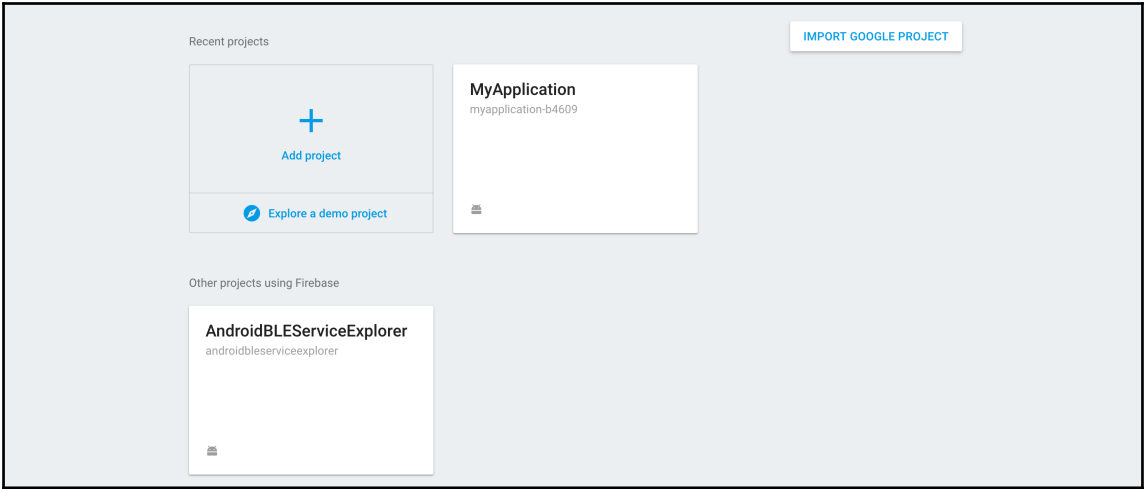
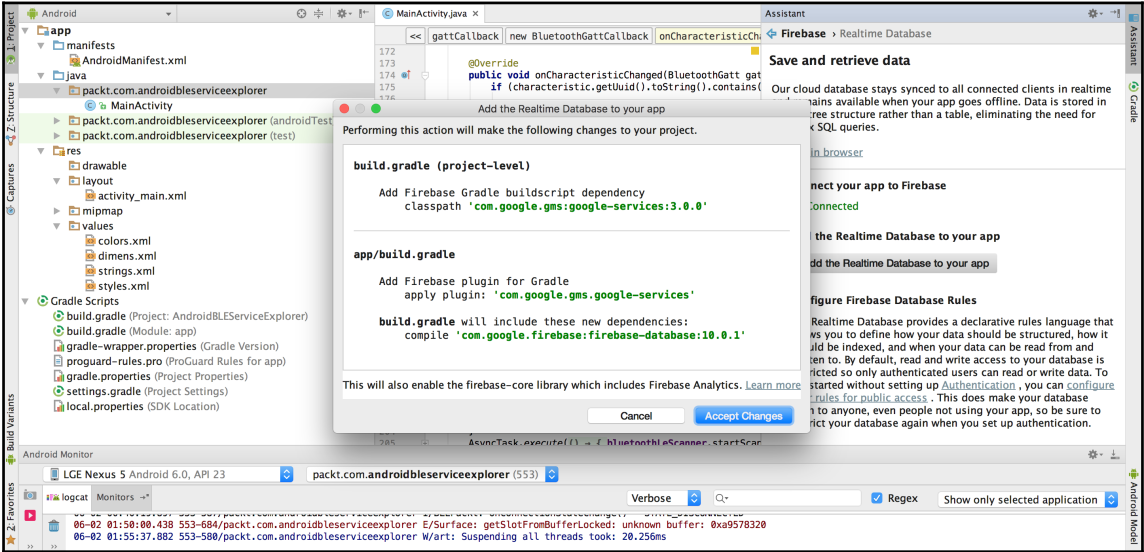


```
packt.com.androidbleserviceexplorer D/BLEPackt: Received heart rate: 60
```



1 Connect your app to Firebase

OK Connected

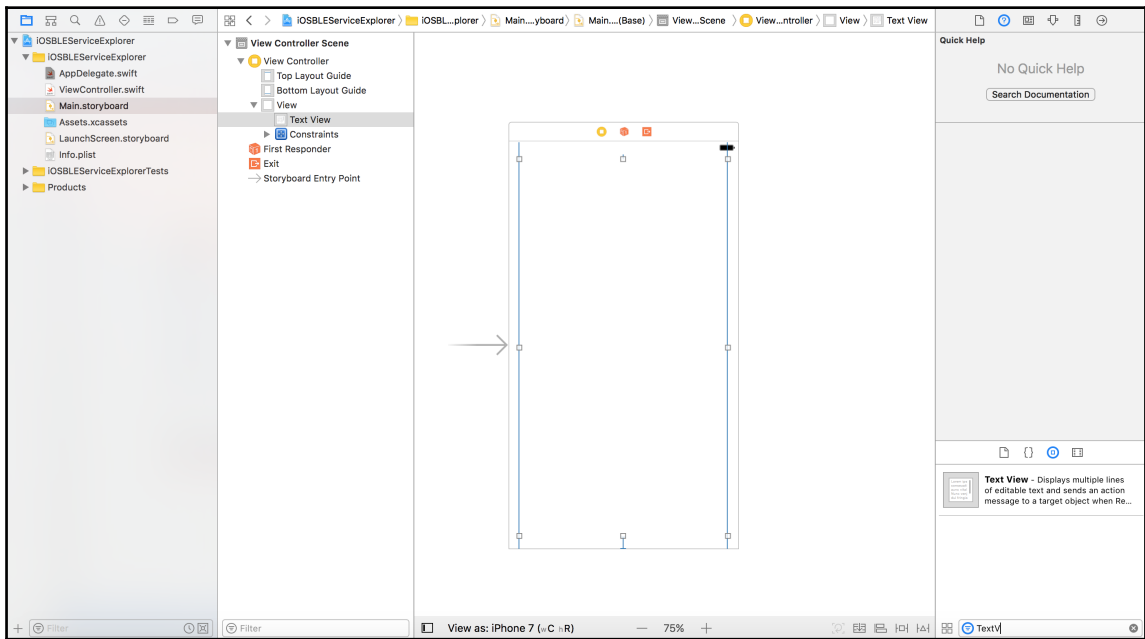
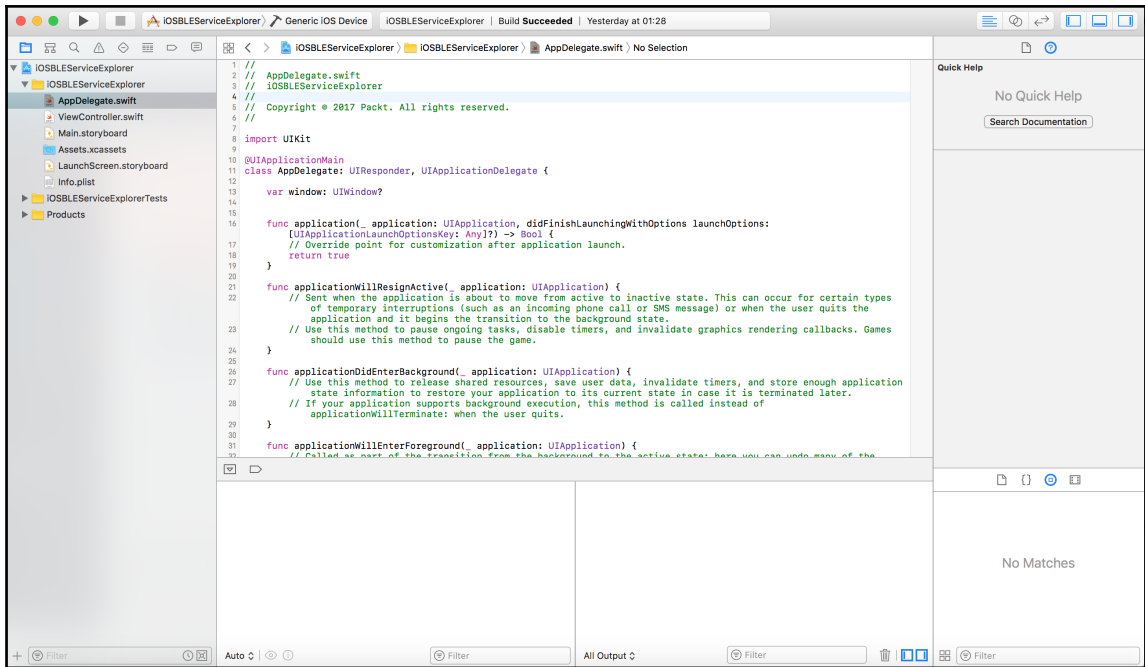


The screenshot shows the Firebase Realtime Database Rules editor. The left sidebar contains navigation options: Overview, Analytics, DEVELOP (Authentication, Database, Storage, Hosting, Functions, Test Lab, Crash Reporting), and GROW (Notifications, Remote Config). The main area has tabs for DATA, RULES, BACKUPS, and USAGE. A red warning banner at the top states: "Your security rules are defined as public, anyone can read or write to your database" with "LEARN MORE" and "DISMISS" links. A "SIMULATOR" button is in the top right. The rule editor shows the following JSON configuration:

```
1 {
2   "rules": {
3     ".read": true,
4     ".write": true
5   }
6 }
```

The screenshot shows the Firebase Realtime Database simulator. The left sidebar is similar to the previous image but includes "Performance" under the GROW section. The main area has the same tabs (DATA, RULES, BACKUPS, USAGE). A browser window is open with the URL "https://androidbleserviceexplorer.firebaseio.com/". The data shown is:

```
androidbleserviceexplorer
└─ heartate: "60"
```

No SIM 1:28 AM No SIM 1:28 AM

===Device Name:Optional(Charge 2)
Service found:ADABFB00-6E7D-4601-BDA2-BFFAA68956BA for device Optional("Charge 2")

Service found:
558DFA00-4FA8-4105-9F02-4EAA93E62980 for device Optional("Charge 2")

Characteristic found:ADABFB04-6E7D-4601-BDA2-BFFAA68956BA for
Service:ADABFB00-6E7D-4601-BDA2-BFFAA68956BA for device Optional("Charge 2")

Characteristic found:ADABFB02-6E7D-4601-BDA2-BFFAA68956BA for
Service:ADABFB00-6E7D-4601-BDA2-BFFAA68956BA for device Optional("Charge 2")

Characteristic found:ADABFB03-6E7D-4601-BDA2-BFFAA68956BA for
Service:ADABFB00-6E7D-4601-BDA2-BFFAA68956BA for device Optional("Charge 2")

Characteristic found:ADABFB01-6E7D-4601-BDA2-BFFAA68956BA for
Service:ADABFB00-6E7D-4601-BDA2-BFFAA68956BA for device Optional("Charge 2")

Characteristic found:
558DFA01-4FA8-4105-9F02-4EAA93E62980 for Service:
558DFA00-4FA8-4105-9F02-4EAA93E62980 for device Optional("Charge 2")

===Device Name:Optional(iTAG)
Service found:180F for device Optional("iTAG ")

Service found:1802 for device Optional("iTAG ")

Service found:FFE0 for device Optional("iTAG ")

Characteristic found:2A19 for Service:180F for device Optional("iTAG ")

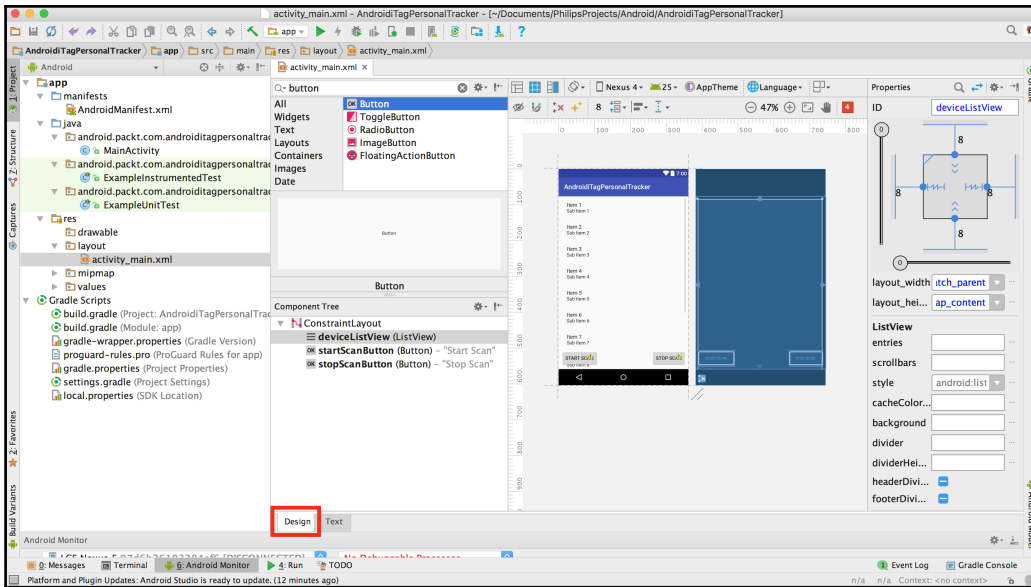
Characteristic found:2A06 for Service:1802 for device Optional("iTAG ")

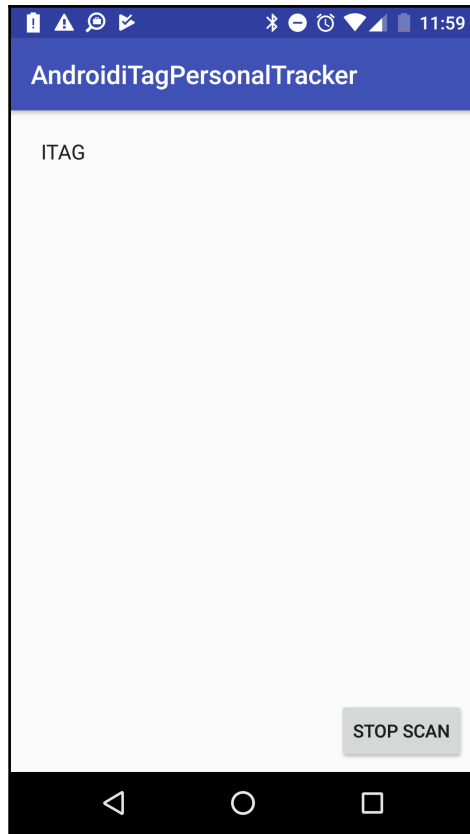
Characteristic found:FFE1 for Service:FFE0 for device Optional("iTAG ")



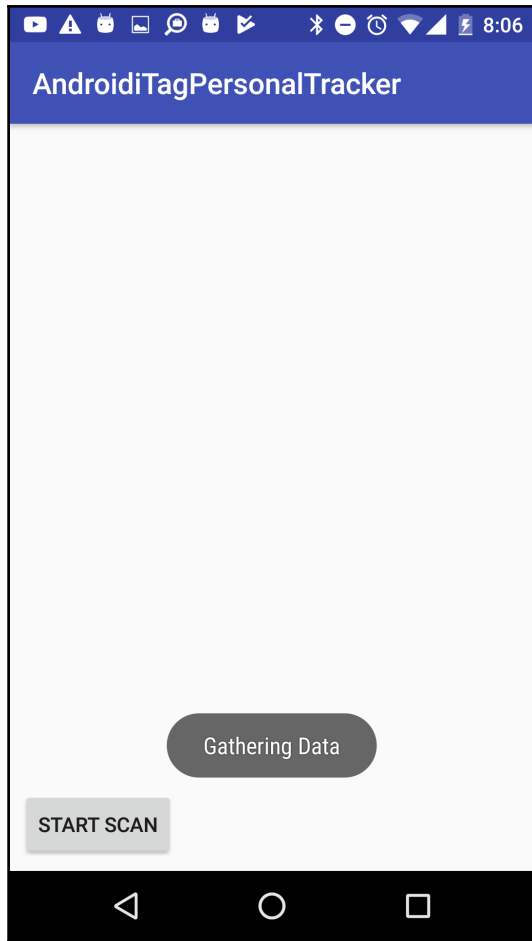
```
activity_main.xml - AndroidTagPersonalTracker - [~/Documents/PhilipsProjects/Android/AndroidTagPersonalTracker]
AndroidTagPersonalTracker > app > src > main > res > layout > activity_main.xml x
Project
  Android
  app
    manifests
      AndroidManifest.xml
    java
      android.pactk.com.androiditagpersonaltra
        MainActivity
      android.pactk.com.androiditagpersonaltra
        ExampleInstrumentedTest
      android.pactk.com.androiditagpersonaltra
        ExampleUnitTest
    res
      drawable
      layout
        activity_main.xml
      mipmap
      values
    Gradle Scripts
      build.gradle (Project: AndroidTagPersonalTrac
      build.gradle (Module: app)
      gradle-wrapper.properties (Gradle Version)
      proguard-rules.pro (ProGuard Rules for app)
      gradle.properties (Project Properties)
      settings.gradle (Project Settings)
      local.properties (SDK Location)
  Build Variants
  Android Monitor
  Messages
  Terminal
  Android Monitor
  Run
  TODO
Platform and Plugin Updates: Android Studio is ready to update. (today 14:32)
9.3 LF: UTF-8 Context: <no context>
```

```
android.support.constraint.ConstraintLayout
1  <?xml version="1.0" encoding="utf-8"?>
2  <android.support.constraint.ConstraintLayout xmlns:android="http://schemas.android.com/apk/res/android"
3      xmlns:app="http://schemas.android.com/apk/res-auto"
4      xmlns:tools="http://schemas.android.com/tools"
5      android:layout_width="match_parent"
6      android:layout_height="match_parent"
7      tools:context="android.pactk.com.androiditagpersonaltracker.MainActivity">
8
9
10
11 </android.support.constraint.ConstraintLayout>
12
```

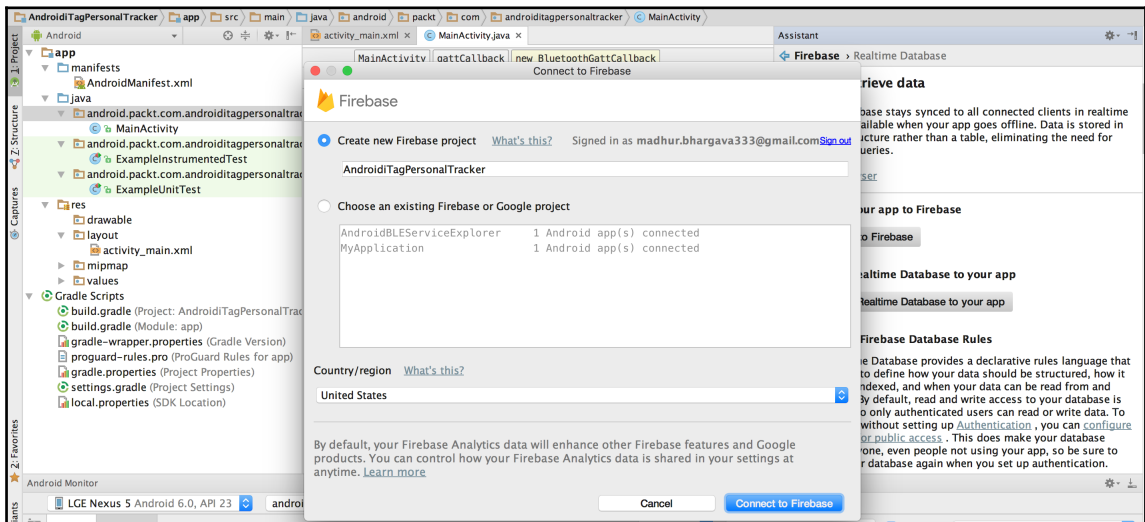
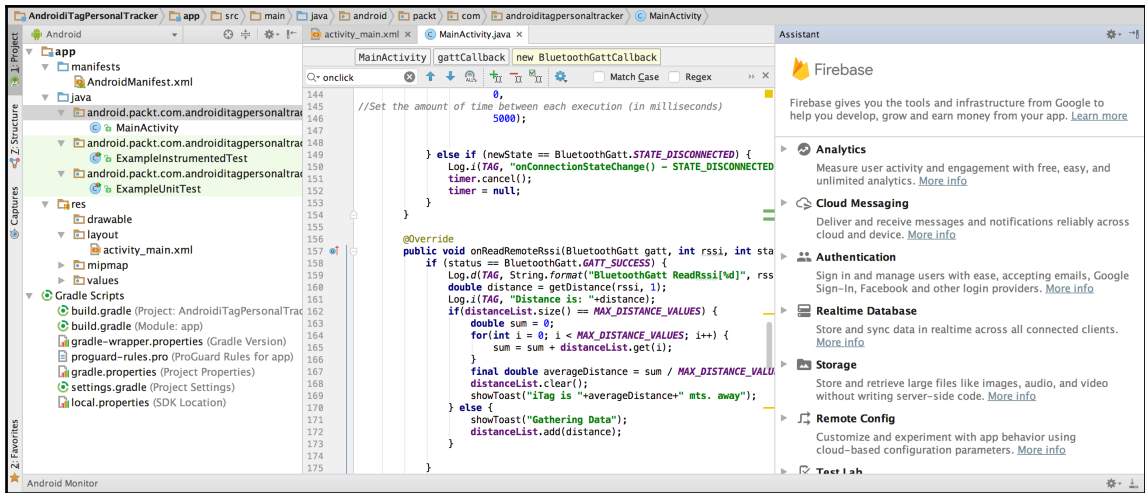




```
android.packt.com.androiditagpersonaltracker D/PacktBLEiTag: BluetoothGatt ReadRssi[-89]  
android.packt.com.androiditagpersonaltracker I/PacktBLEiTag: Distance is: 1.7782794100389228
```

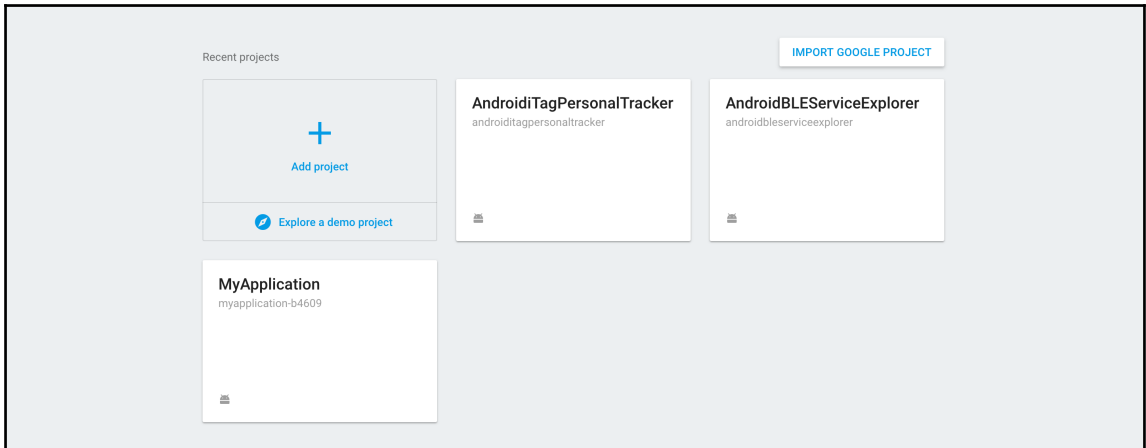
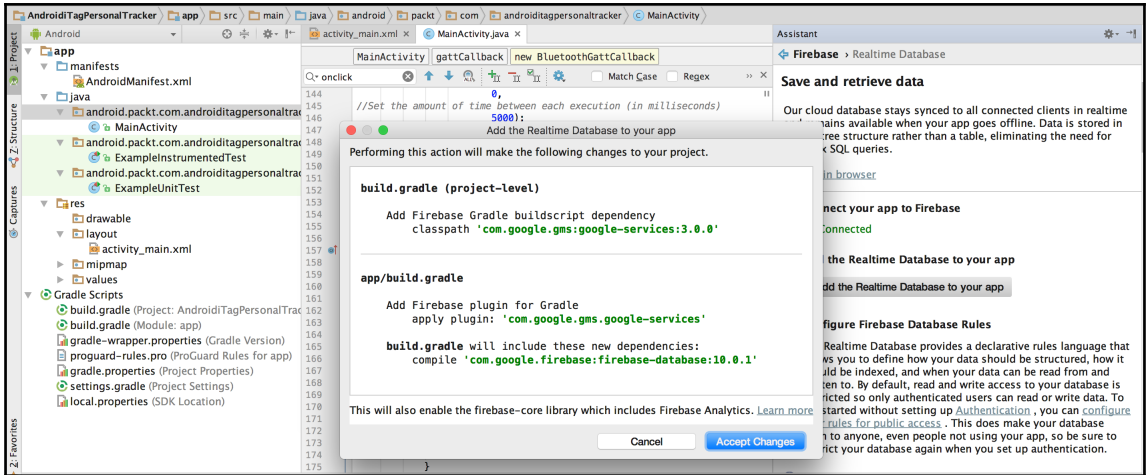


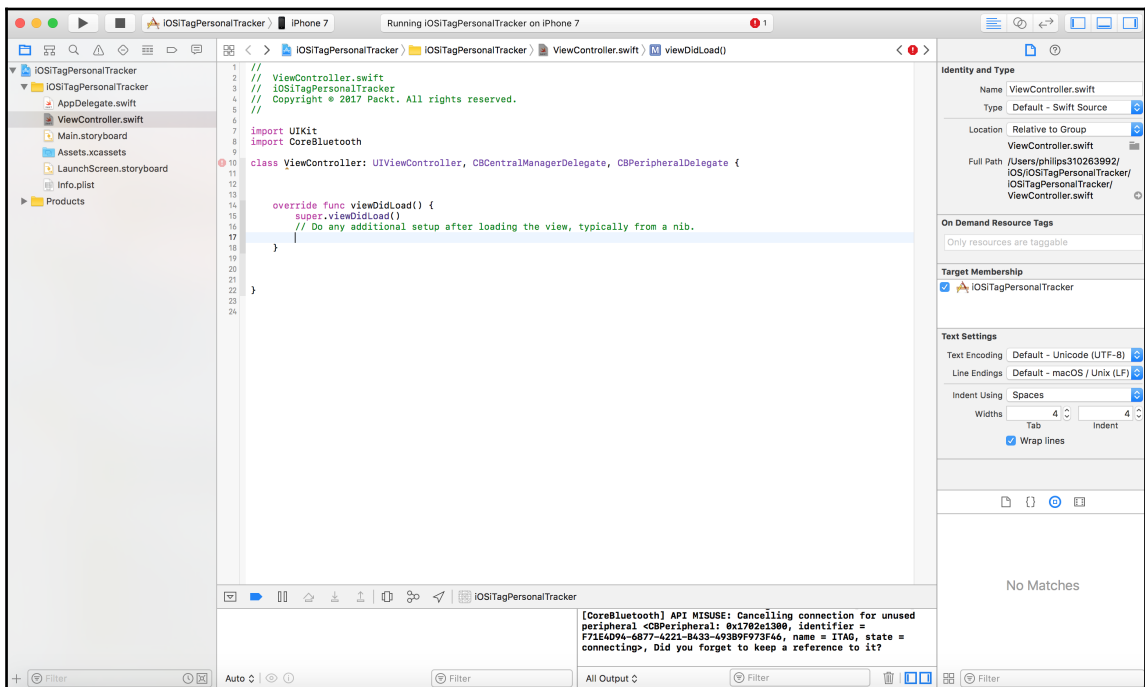
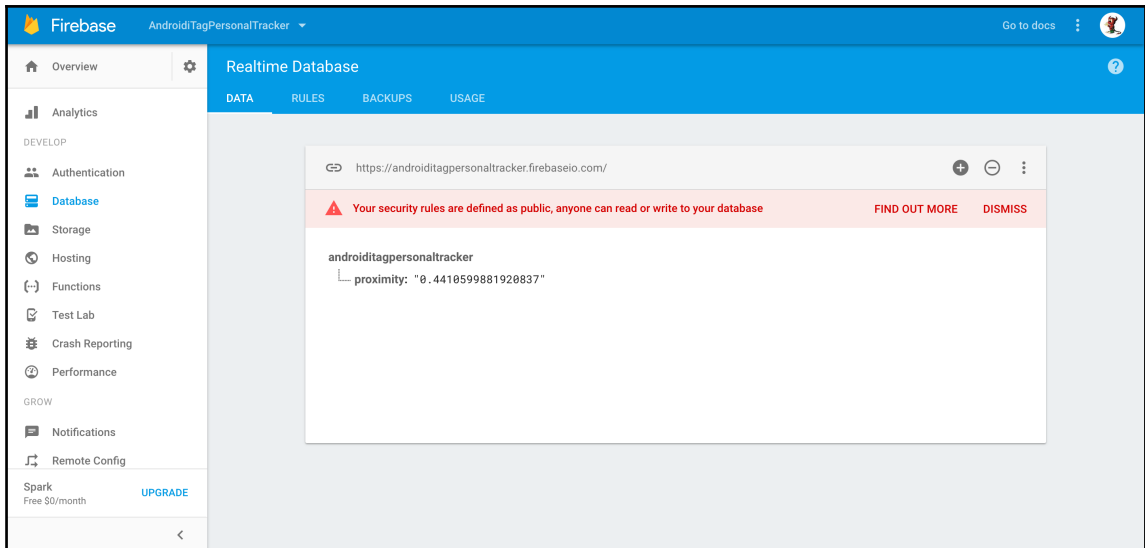




1 Connect your app to Firebase

OK Connected





No SIM

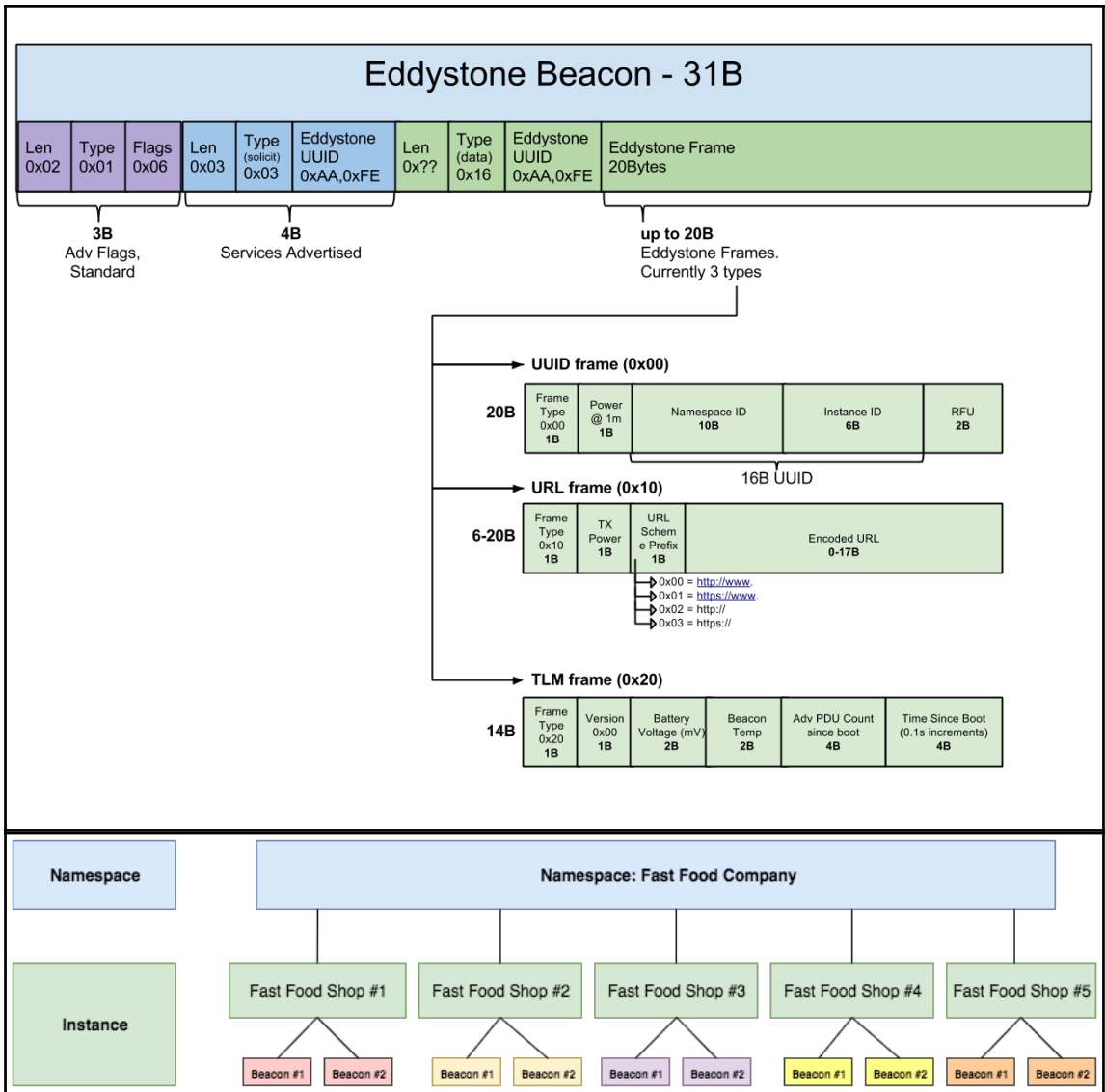
7:08 PM

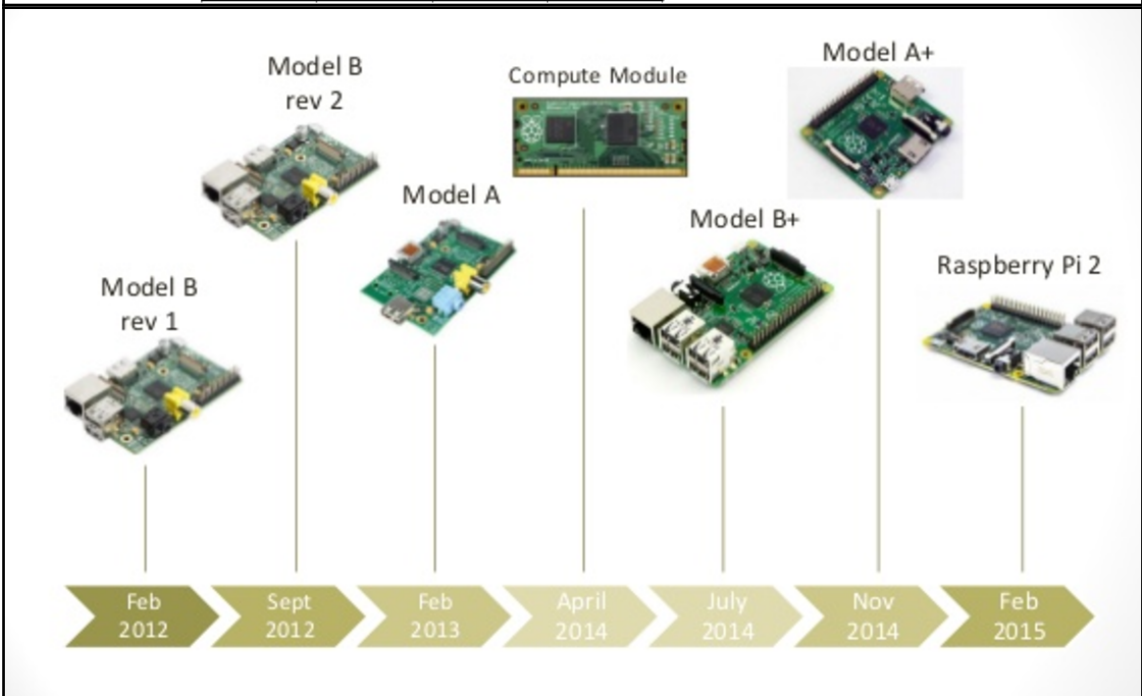
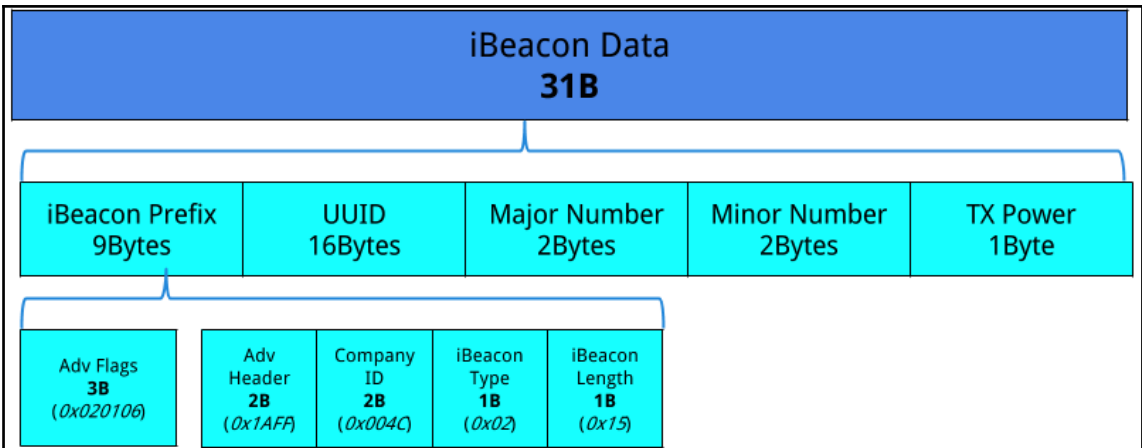


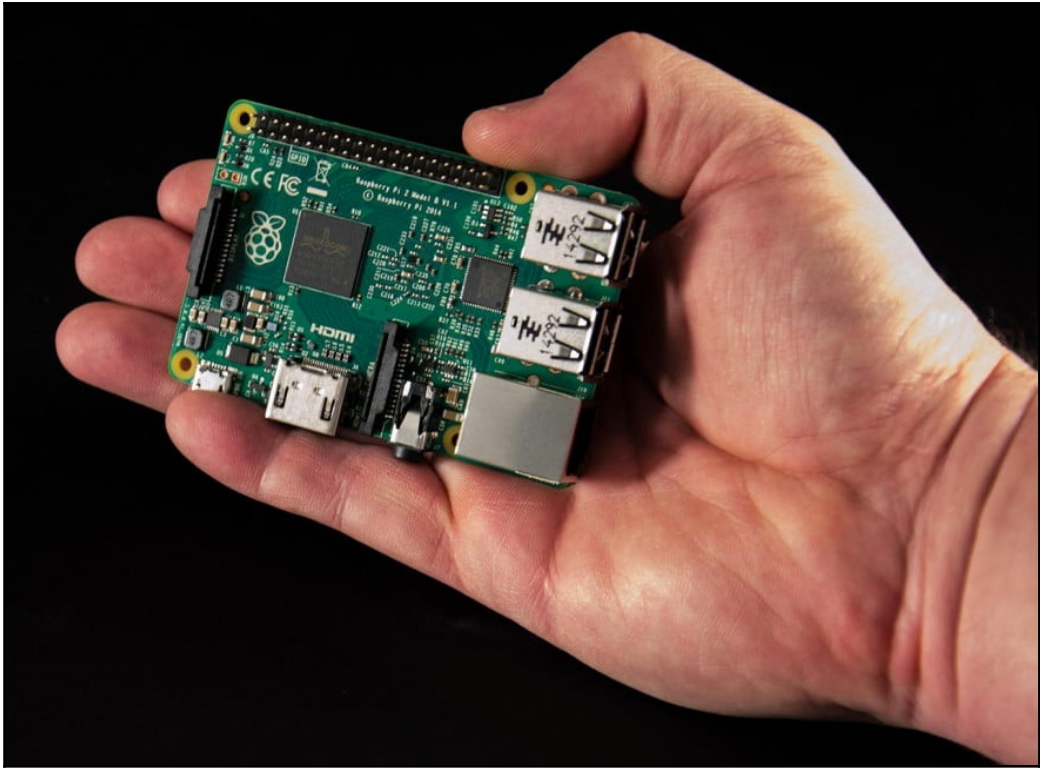
Distance from iTag: 0.1 mts.

Chapter 05: Beacons with Raspberry Pi







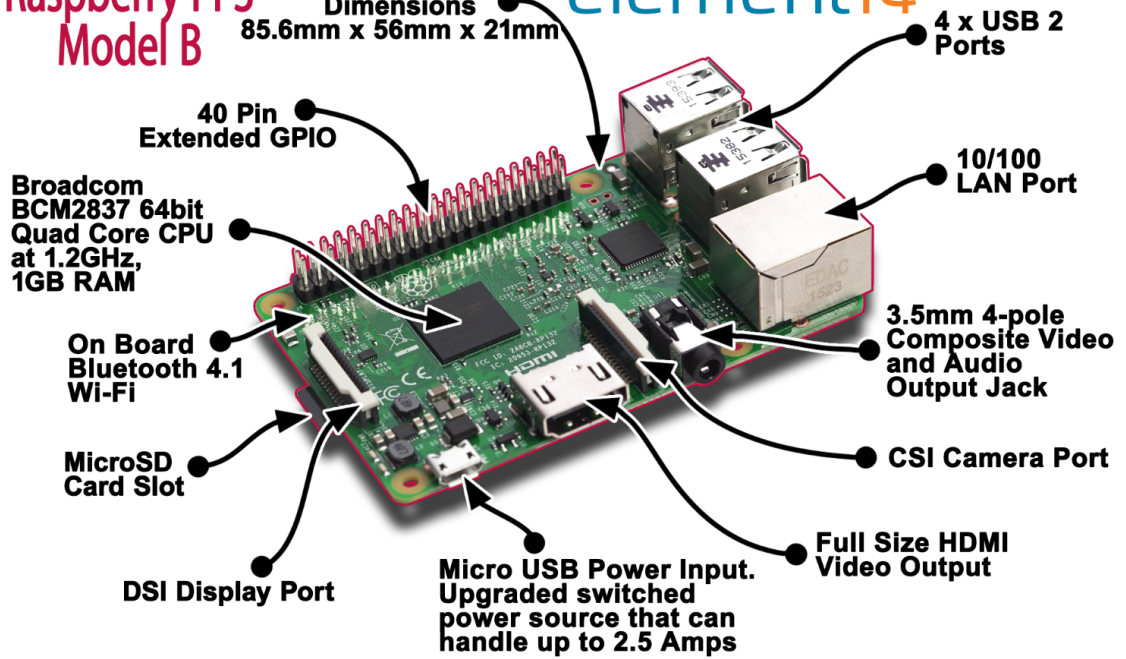


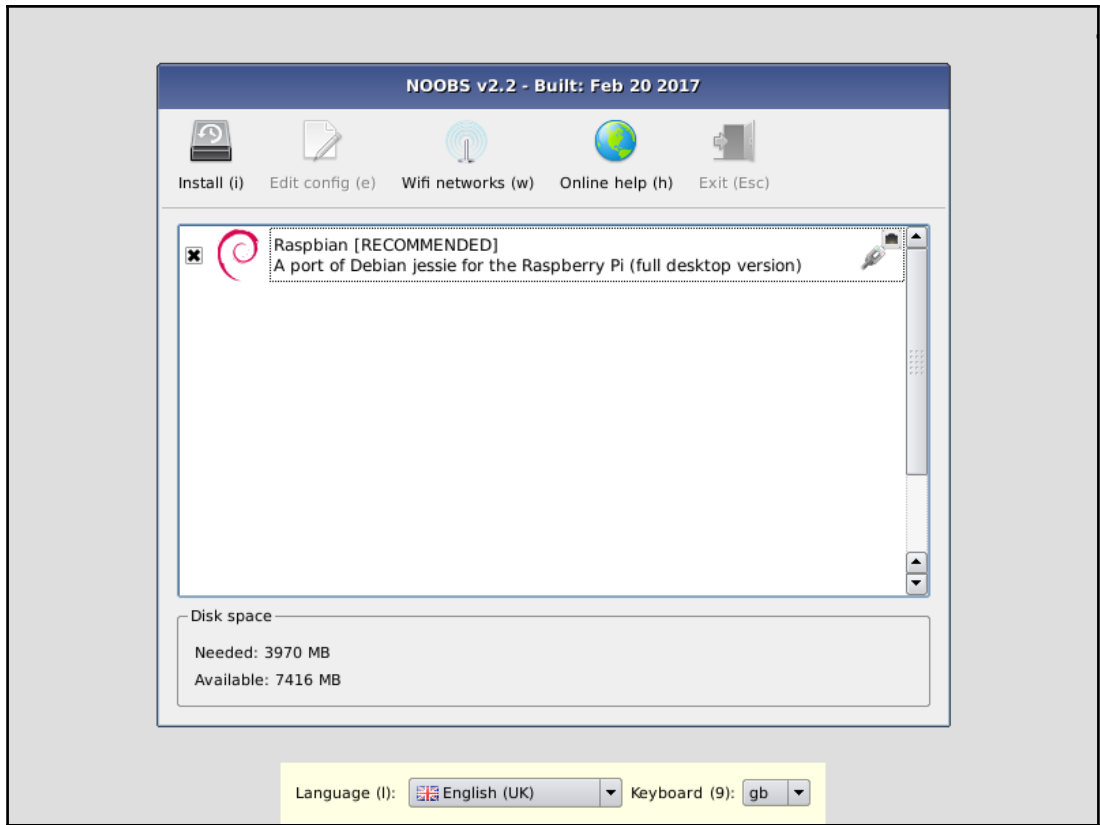


Raspberry Pi 3 Model B

Dimensions
85.6mm x 56mm x 21mm

element14

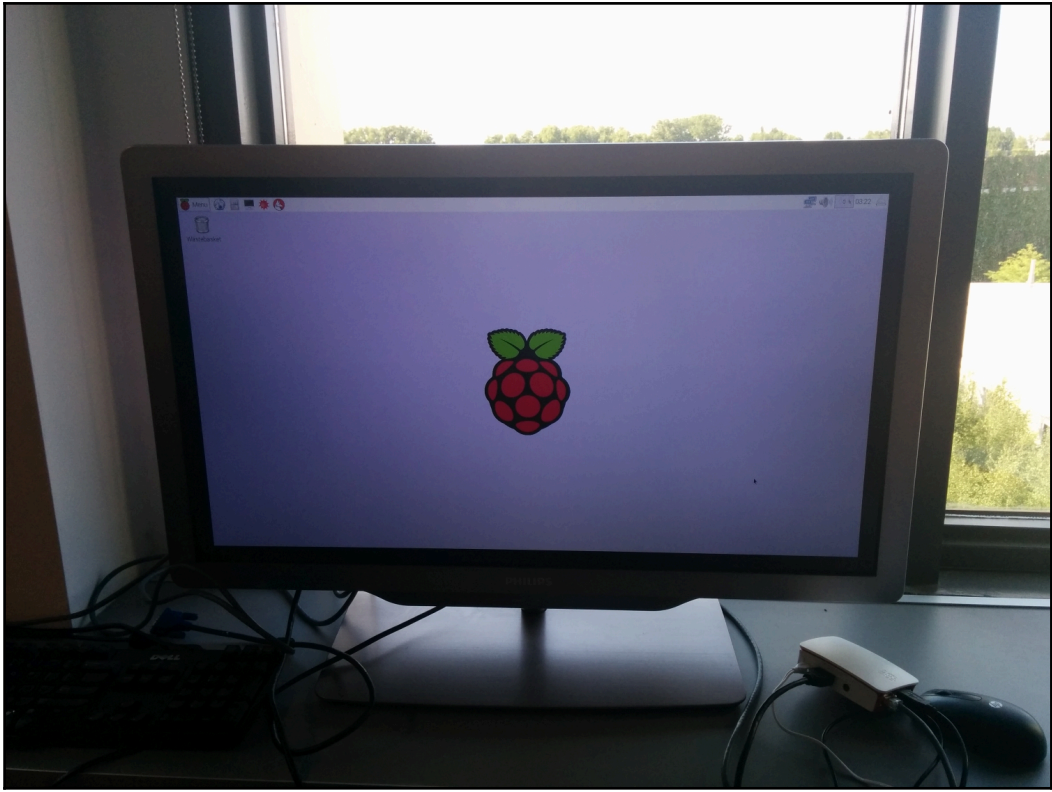


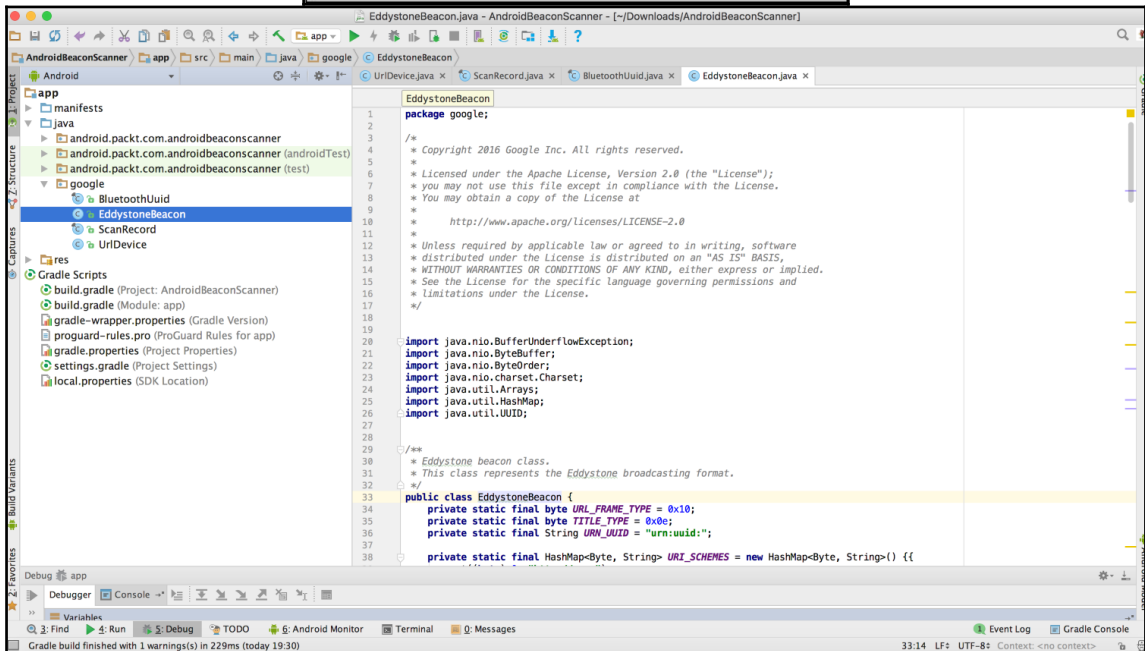


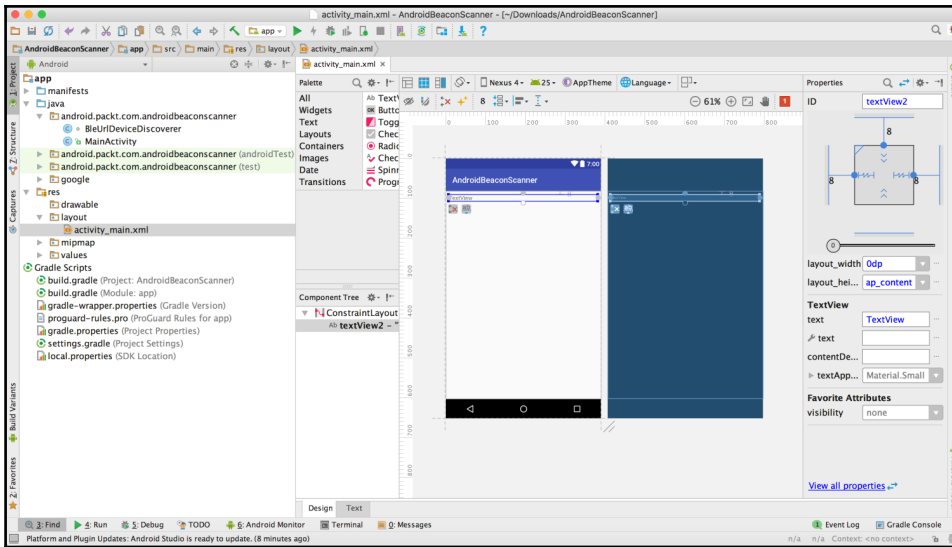


```
[ ok ] Waiting for /dev to be fully populated...done.
Starting fake hwclock: loading system time.
Thu Feb 26 18:50:09 UTC 2015
[ ok ] Setting preliminary keymap...done.
[ ok ] Activating swap...done.
[ 6.121580] EXT4-fs (mmcblk0p2): re-mounted. Opts: (null)
[....] Checking root file system...fsck from util-linux 2.20.1
e2fsck 1.42.5 (29-Jul-2012)
/dev/mmcblk0p2: clean, 85289/196224 files, 648143/784640 blocks
done.
[ 6.365172] EXT4-fs (mmcblk0p2): re-mounted. Opts: (null)
[ ok ] Cleaning up temporary files... /tmp.
[info] Loading kernel module snd-bcm2835.
[ ok ] Activating lvm and md swap...done.
[....] Checking file systems...fsck from util-linux 2.20.1
dosfsck 3.0.13, 30 Jun 2012, FAT32, LFN
/dev/mmcblk0p1: 38 files, 1844/7161 clusters
done.
[ ok ] Mounting local filesystems...done.
[ ok ] Activating swapfile swap...done.
[ ok ] Cleaning up temporary files....
[ ok ] Setting kernel variables ...done.
[....] Starting resize2fs_once:resize2fs 1.42.5 (29-Jul-2012)
Filesystem at /dev/root is mounted on /; on-line resizing required
old_desc_blocks = 1, new_desc_blocks = 1
The filesystem on /dev/root is now 3874176 blocks long.

update-rc.d: using dependency based boot sequencing
. ok
[ ok ] Configuring network interfaces...done.
[ ok ] Cleaning up temporary files....
[ ok ] Setting up ALSA...done.
[info] Setting console screen modes.
[info] Skipping font and keymap setup (handled by console-setup).
[ ok ] Setting up console font and keymap...done.
[....] Checking if shift key is held down:Error opening '/dev/input/event*': No such file or directory
[ ok ] Switching to ondemand scaling governor.
[ ok ] Setting up X socket directories... /tmp/.X11-unix /tmp/.ICE-unix.
INIT: Entering runlevel: 2
[info] Using makefile-style concurrent boot in runlevel 2.
```

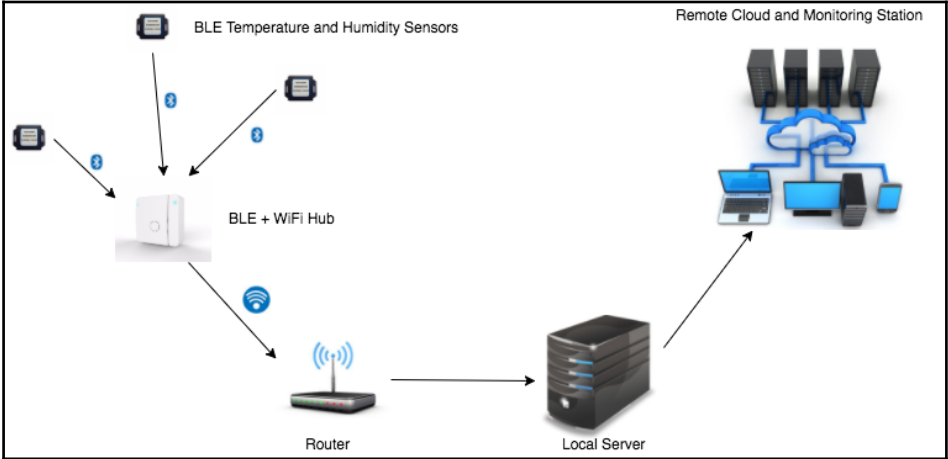


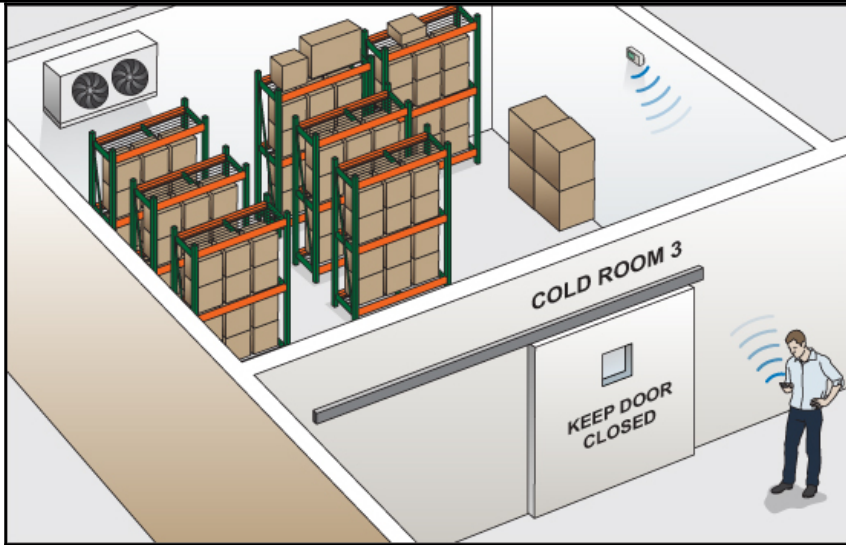
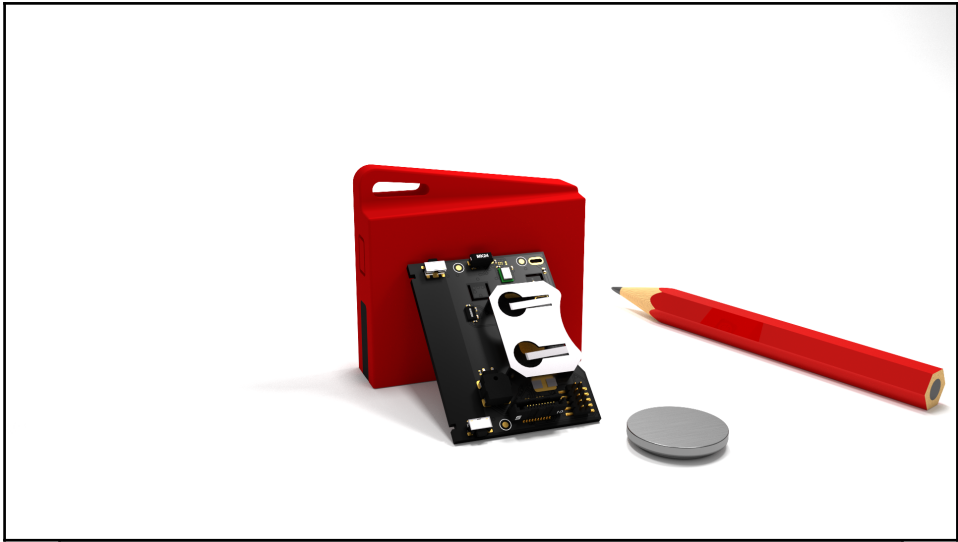


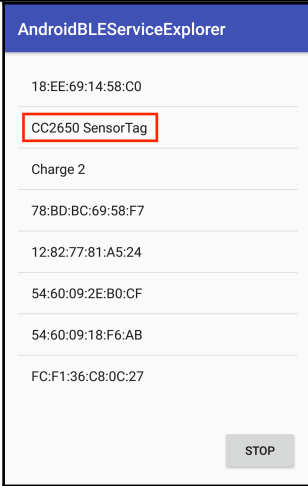
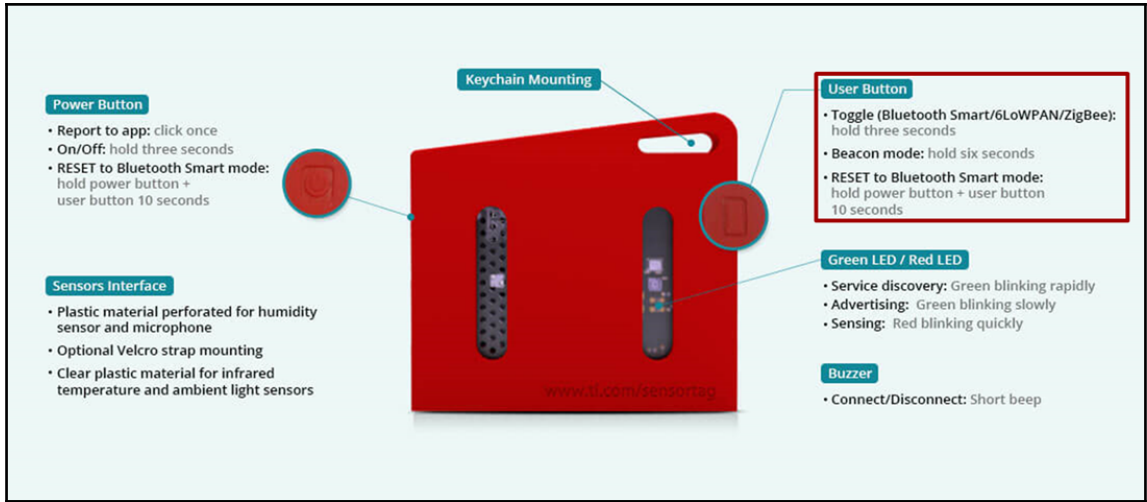




Chapter 06: Weather Monitoring Using BLE in Warehouses







AndroidBLEServiceExplorer

00001800-0000-1000-8000-00805f9b34fb
Characteristic:00002a00-0000-1000-8000-00805f9b34fb
Characteristic:00002a01-0000-1000-8000-00805f9b34fb
Characteristic:00002a04-0000-1000-8000-00805f9b34fb

00001801-0000-1000-8000-00805f9b34fb
b


0000180a-0000-1000-8000-00805f9b34fb
b
Characteristic:00002a23-0000-1000-8000-00805f9b34fb
Characteristic:00002a24-0000-1000-8000-00805f9b34fb
Characteristic:00002a25-0000-1000-8000-00805f9b34fb
Characteristic:00002a26-0000-1000-8000-00805f9b34fb

SCAN

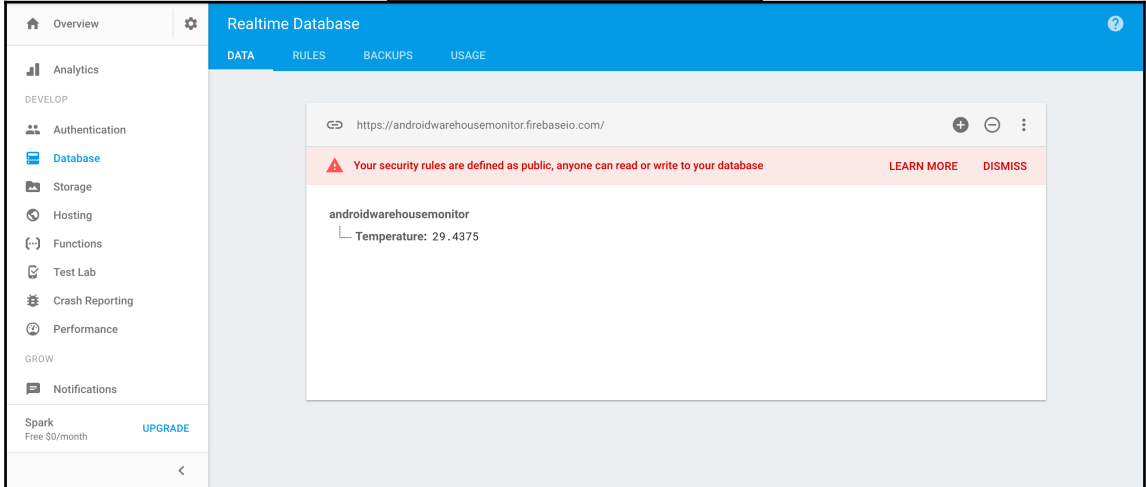
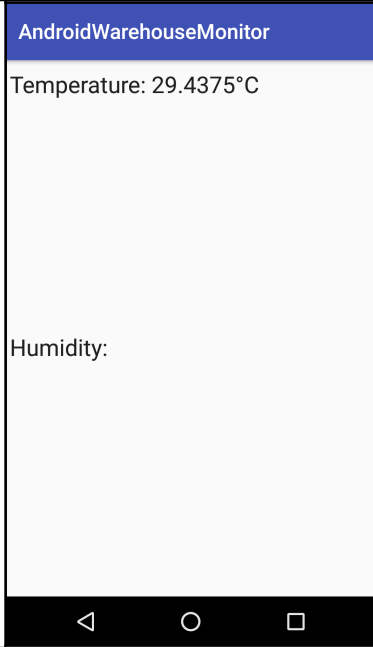
AndroidWarehouseMonitor

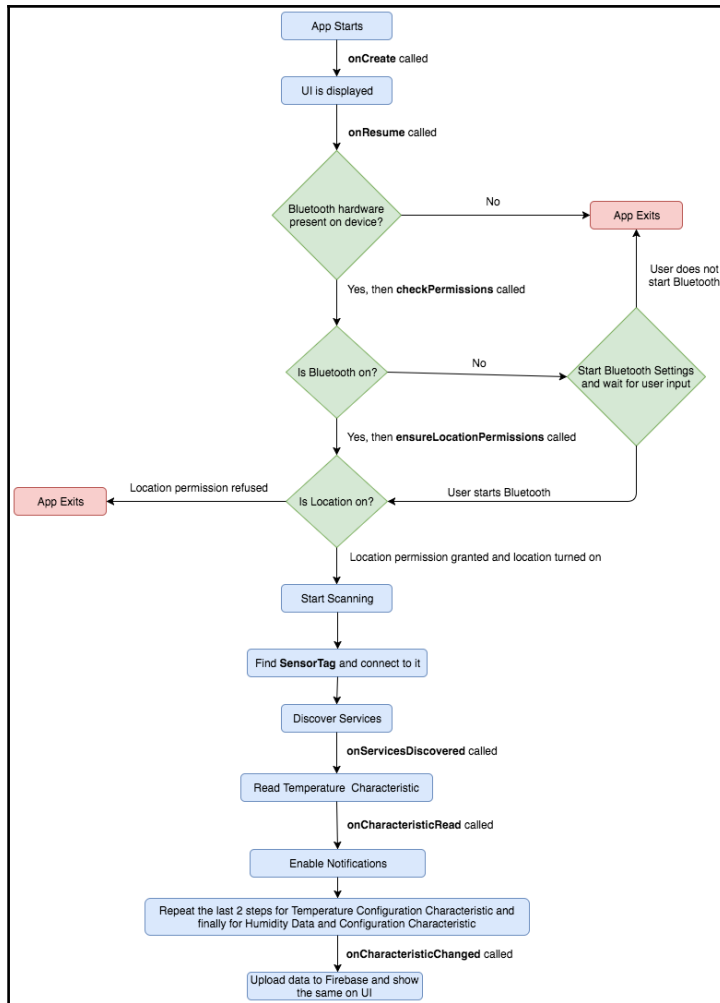
Temperature:

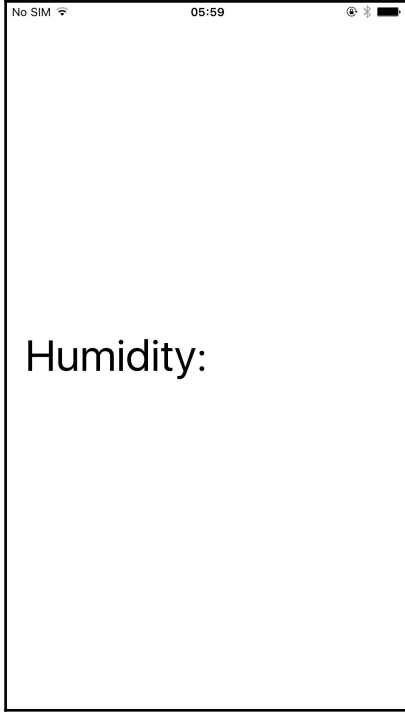
Humidity:

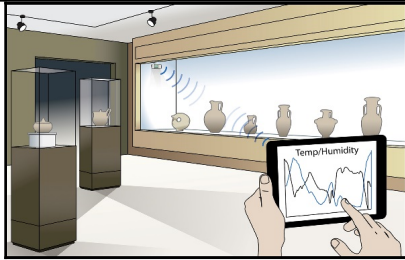
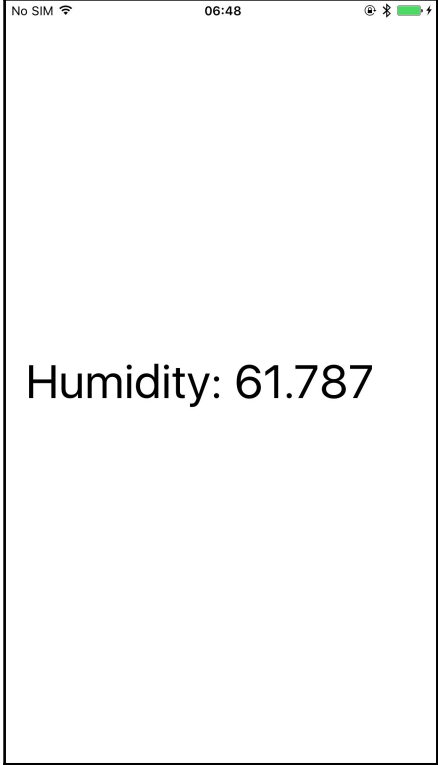


0x29	41	0xAA02	IR Temperature Config	00	FW	Write "01" to start Sensor and Measurements, "00" to put to sleep
------	----	--------	-----------------------	----	----	---

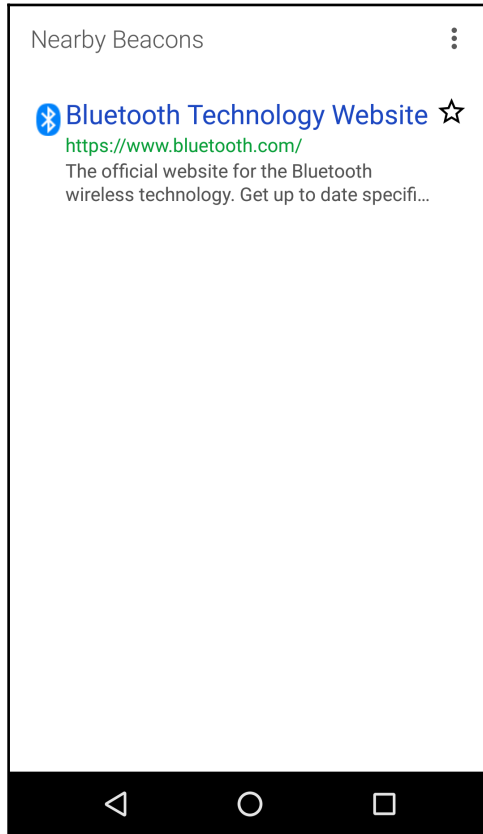




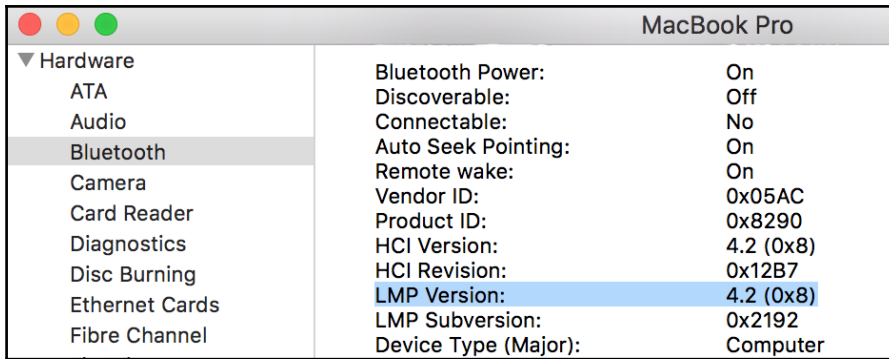




Chapter 07: Going Further



```
.NodeBeaconBroadcast $ node -e "require('eddystone-beacon').advertiseUrl('https://developer.android.com');"
/Users/ /Documents/NodeBeaconBroadcast/node_modules/eddystone-url-encoding/lib/encode.js:16
  throw new Error([
    ^
Error: Encoded URL (https://developer.android.com) is too long (max 18 bytes): 19 bytes
```



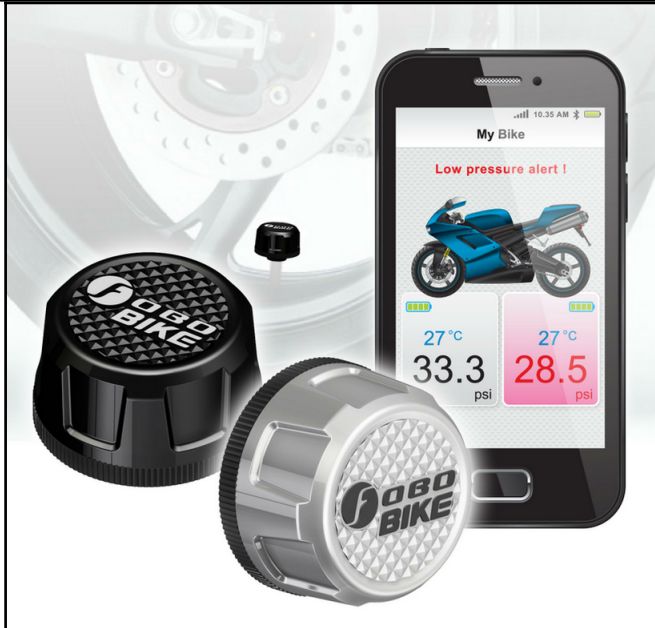
	BLE 4.2	BLE 5	BLE 5 Long Range (S=2)	BLE 5 Long Range (S=8)
Connection speed	1 Mbps	2 Mbps	1 Mbps	1 Mbps
Network data rate	1 Mbps	2 Mbps	500 Kbps	125 Kbps
Data throughput	800 Kbps	1400 Kbps	380 Kbps	109 Kbps
Error Correction	None	None	FEC	FEC
Bluetooth 5 Requirement	Mandatory	Optional	Optional	Optional

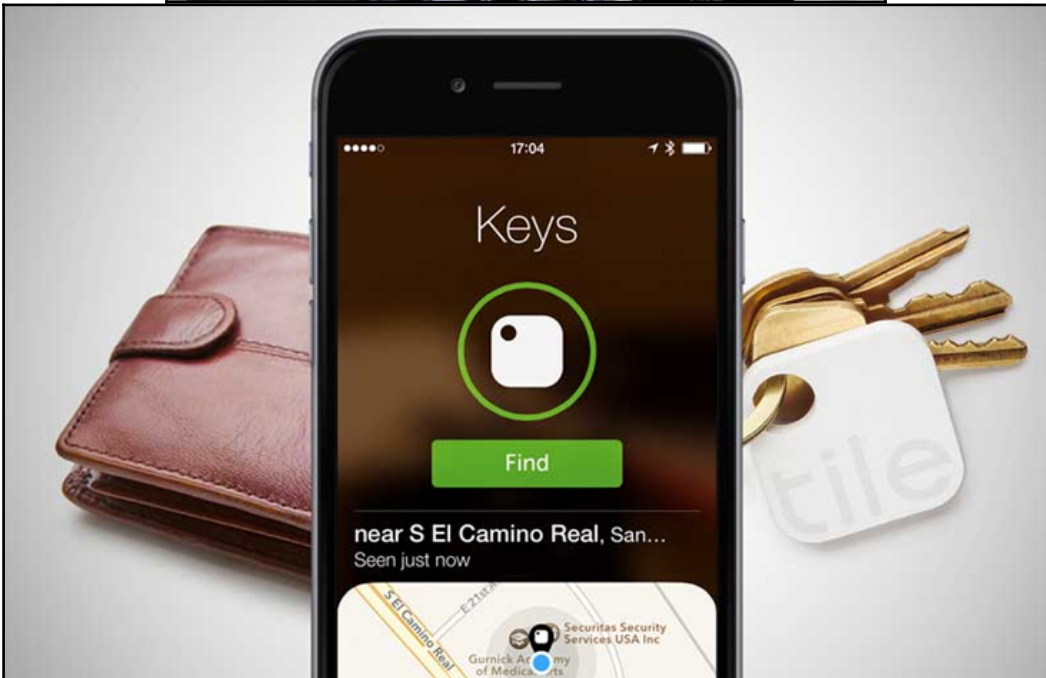














A woman is shown in a dark, dimly lit environment, wearing a head-mounted display (HMD). She is looking down and slightly to the right. The lighting is dramatic, highlighting her face and the HMD. In the upper left corner of the image, the text "DREEM" is displayed in a white, sans-serif font, preceded by a small icon consisting of three horizontal lines of varying lengths.

≡ DREEM

Today



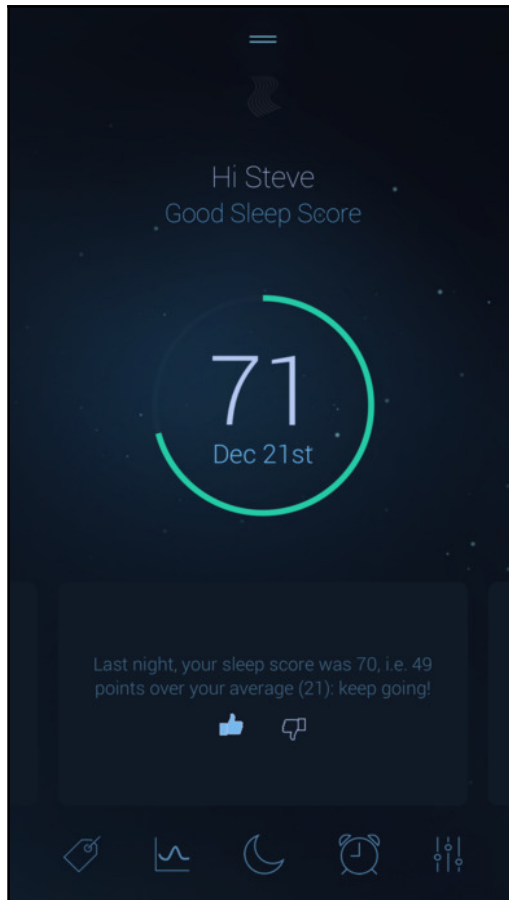
Sleep Stages

■ Awake	■ REM	■ Light	■ Deep
4%	22%	56%	18%
28m	1h 35m	3h 53m	1h 26m

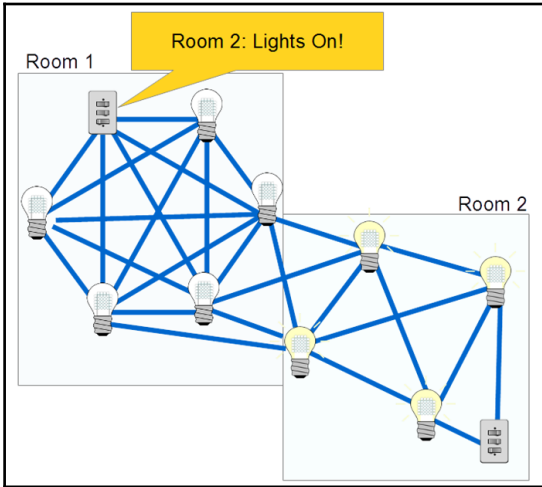
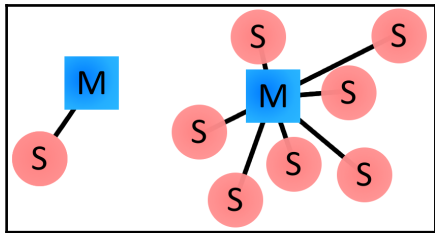
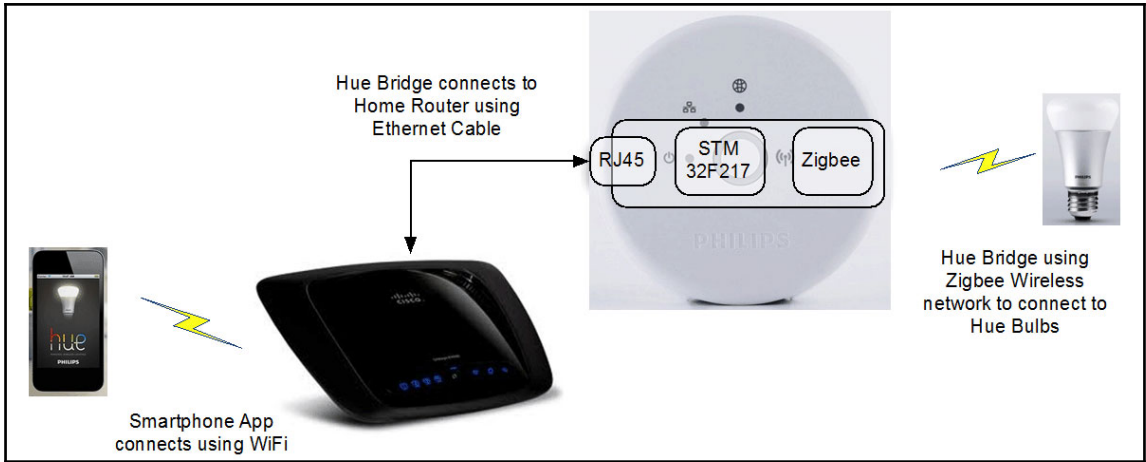


At night, your body cycles through different Sleep Stages. It usually moves from light sleep to deep sleep, back to light, then into REM, though sleep cycles vary naturally.









amazon echo

Always ready, connected, and fast. **Just ask.**



