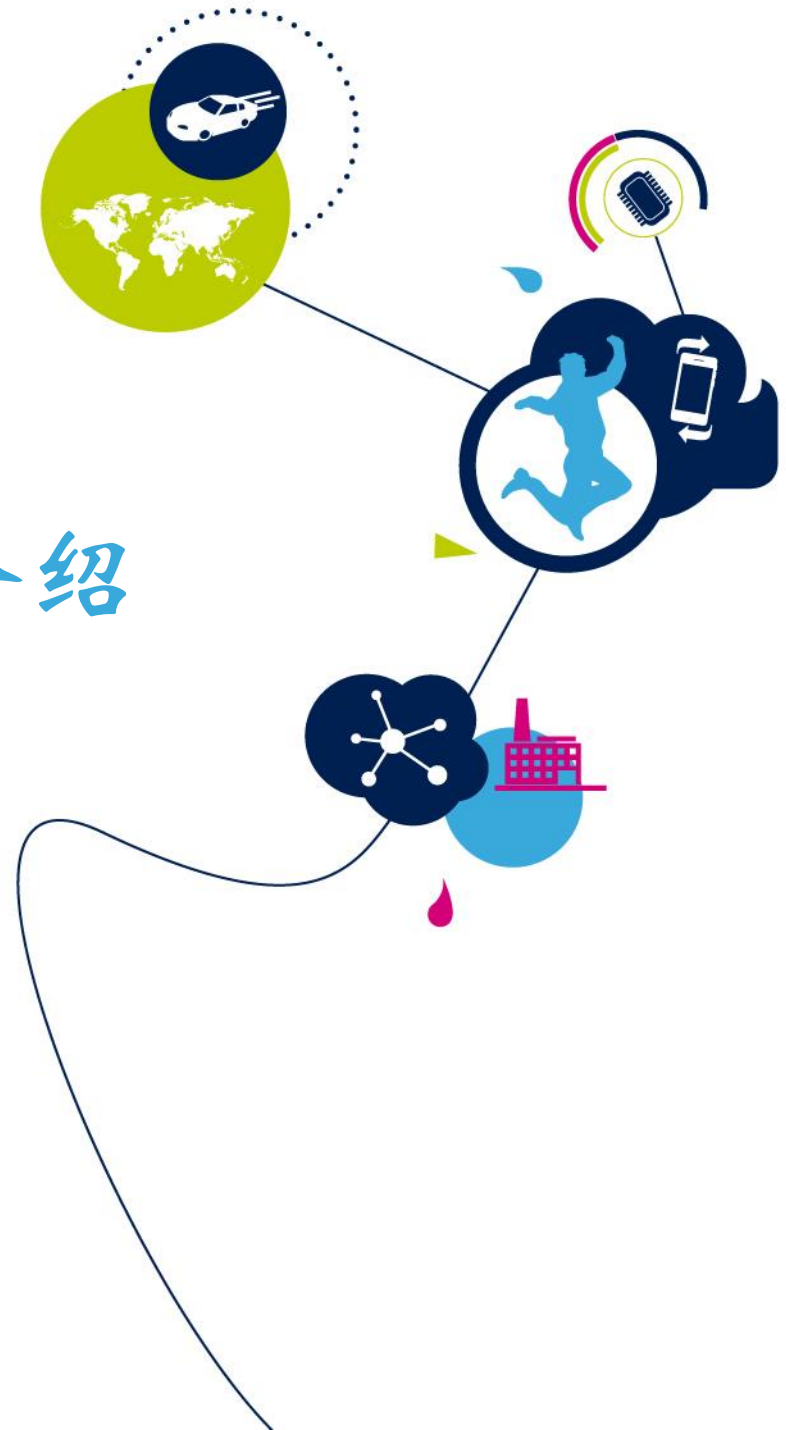
SensorTile.box 第一部分:
初级入门模式 (Basic mode)介绍



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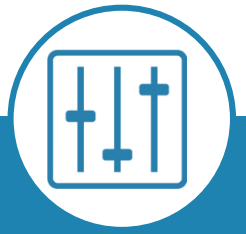
初级入门模式

SensorTile.box 具备三种工作模式

初级入门模式

应用预定义应用探索传感器功能

无需任何编程



专家模式

配置和定义新应用

编程模式

应用开发环境开发特定功能

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初级入门模式

无需任何编程

- SensorTile.box开箱即可连接智能手机
- 用户可以通过Android/IOS应用程序获得预定义应用

气压计和温湿度计

指南针&角度

数据录制(存储到SD卡)

计步器

融合算法(四元数)

震动监控

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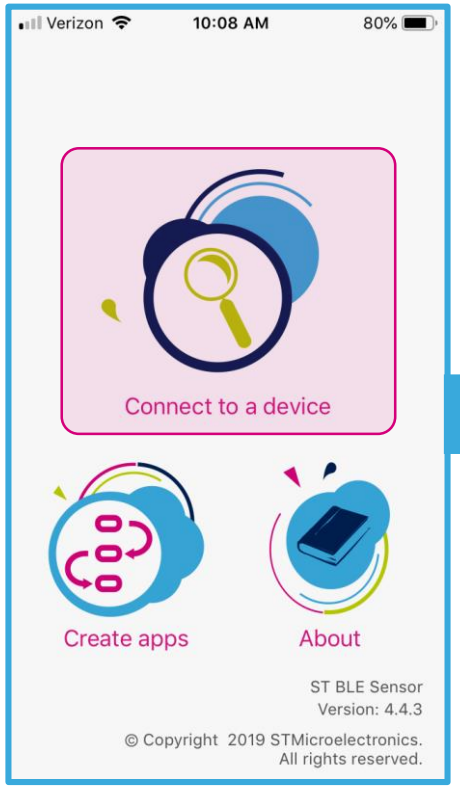
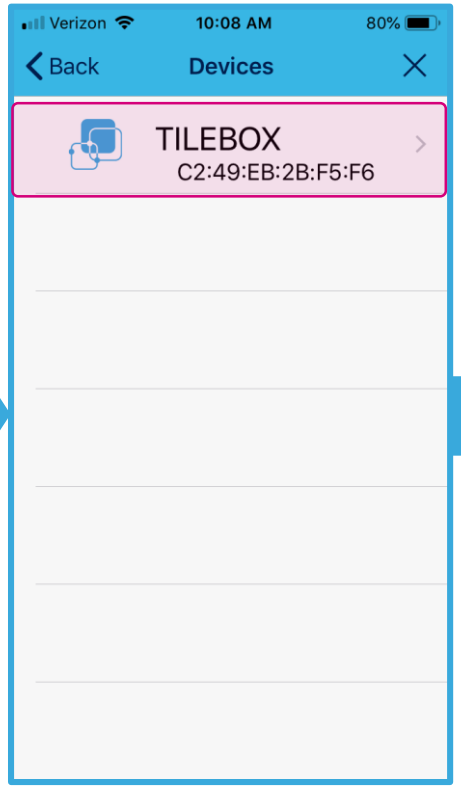
运行在ST BLE Sensor应用程序上

1. 按键来连接设备

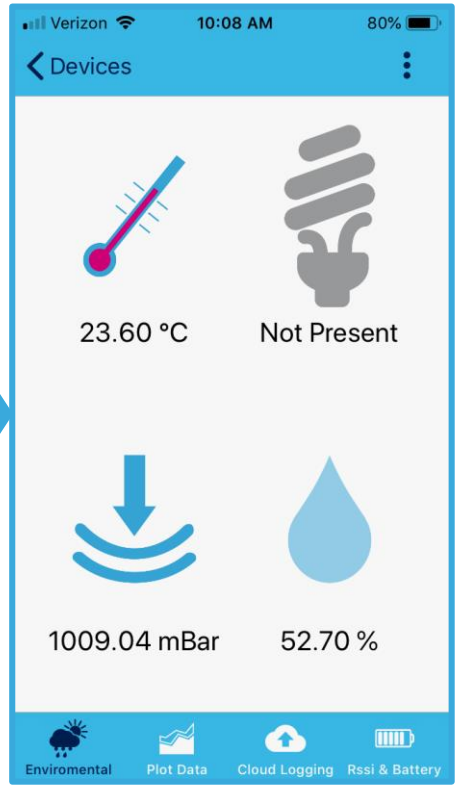


2. 选择你的 SensorTile.Box



如果需要PIN码配对，默认为**123456**

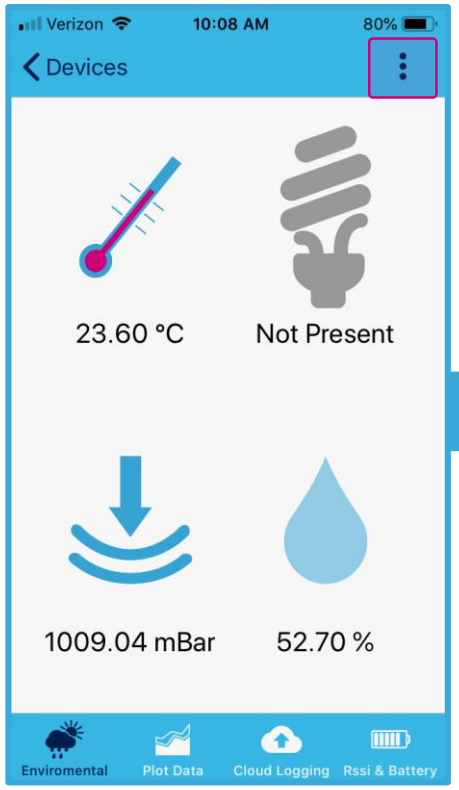
3. 数据实时显示



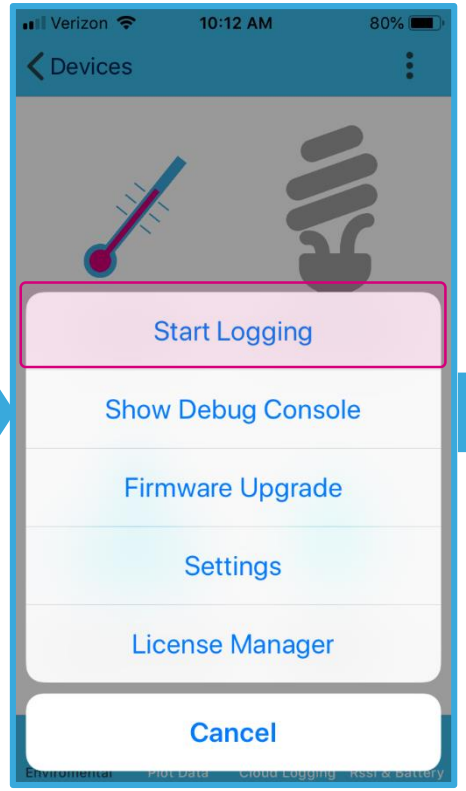
当通过BLE连接发送更新时，SensorTile.Box上蓝色的LED灯将会闪烁。

实时数据录制

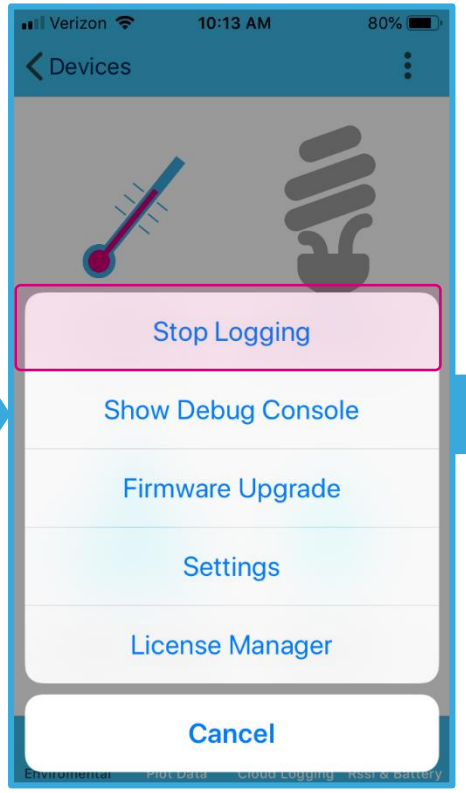
1. 点击右上角 ⋮



2. 选择 **Start Logging**

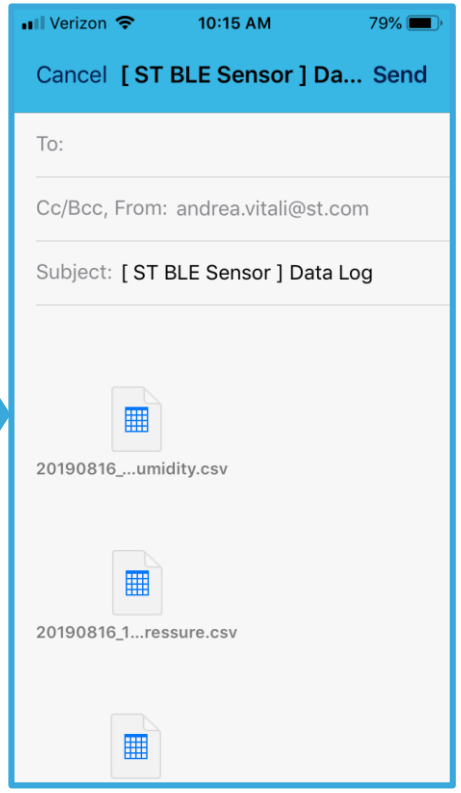


3. 点击 ⋮ 并选择**Stop Logging**



4. 以CSV格式附件形式邮件发送数据

数据分隔符为逗号



所有的环境类传感器：湿度，气压，温度

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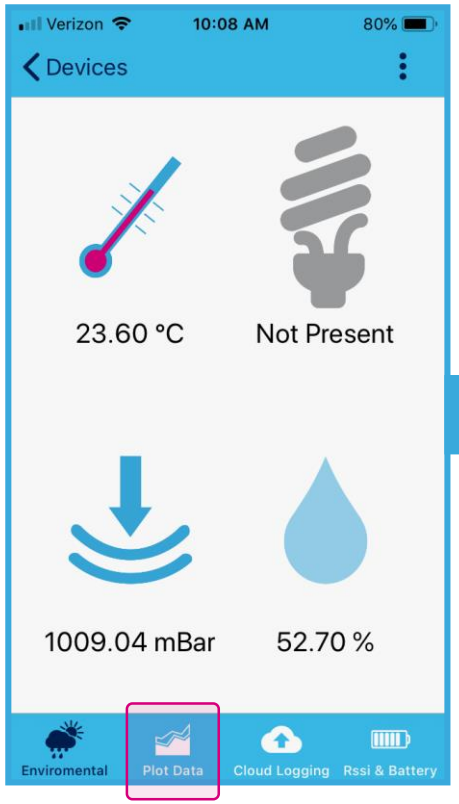
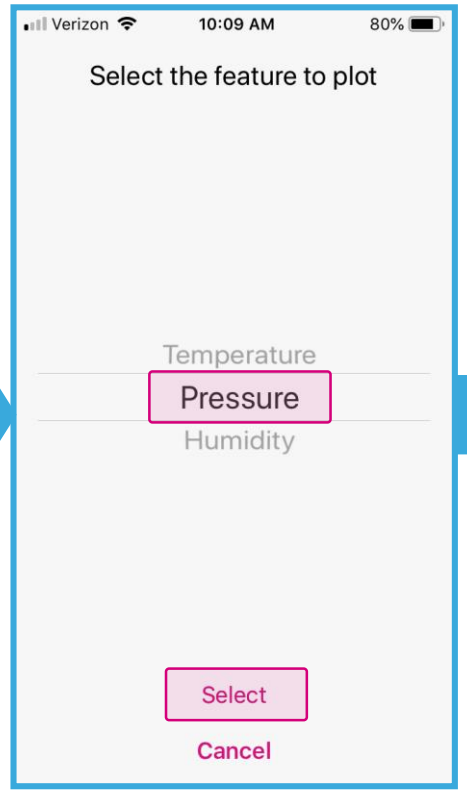
实时数据绘图显示

1. 点击 **Plot Data**

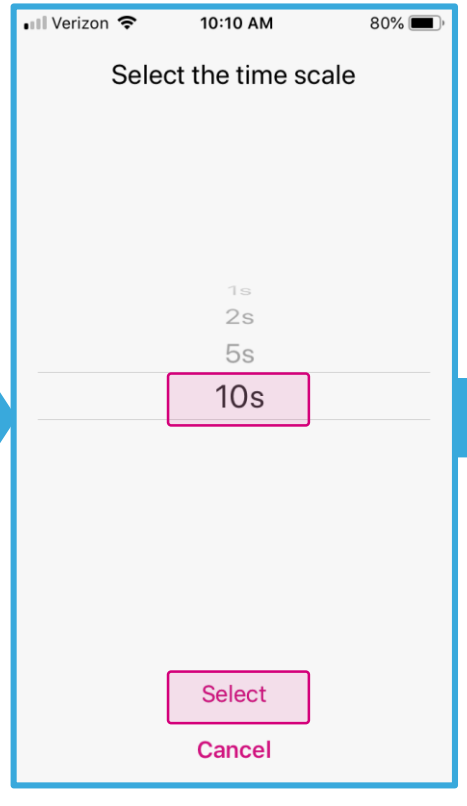
你也可以向左滑动



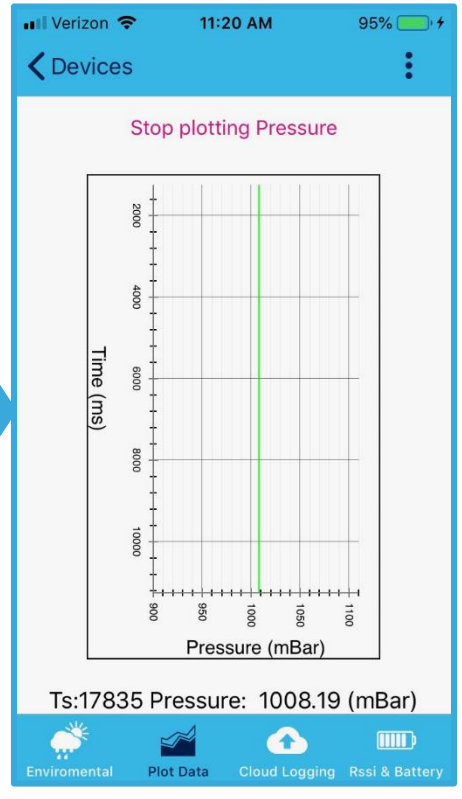
2. 选择:
Pressure



3. 选择时间标度:**10s**



4.实时数据绘图显示



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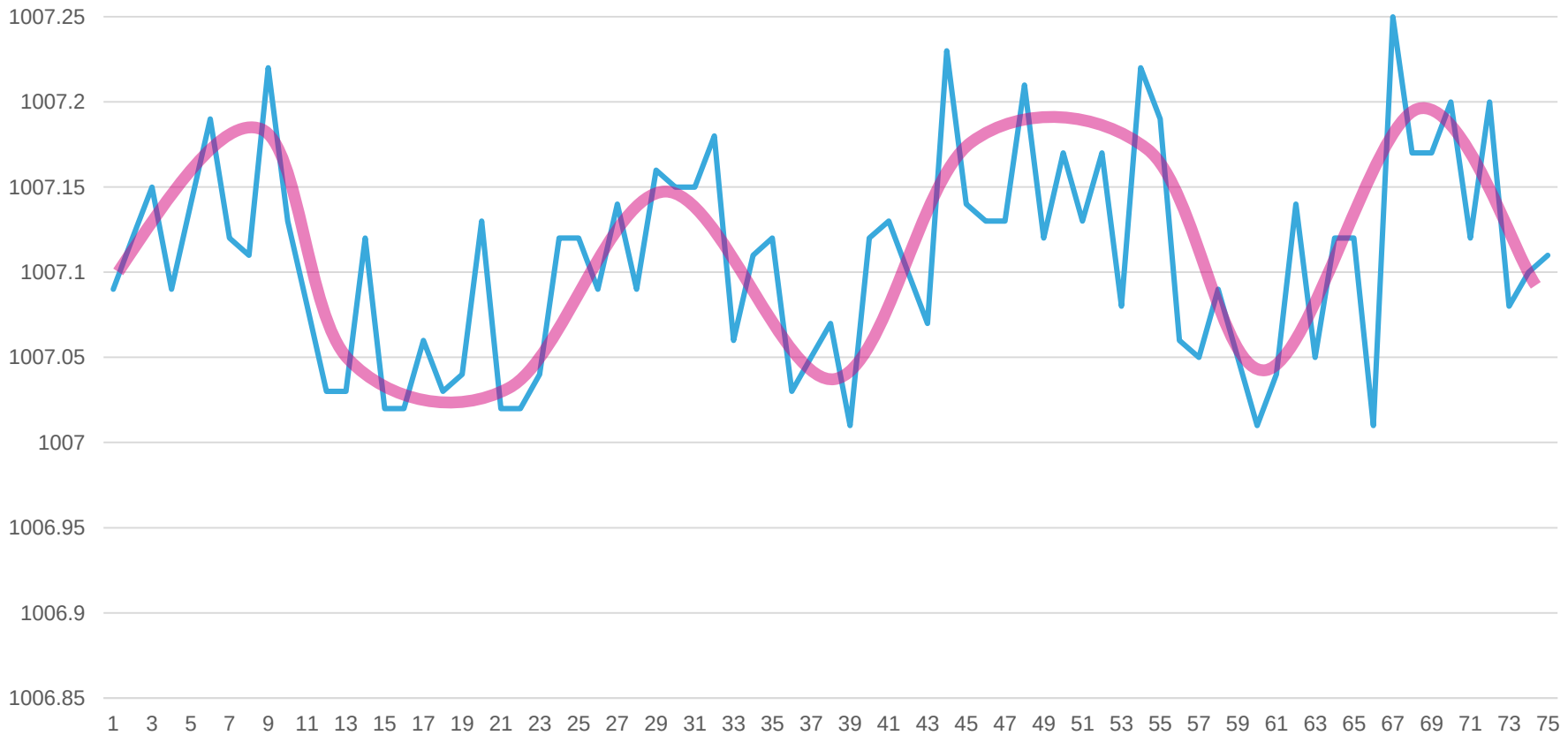
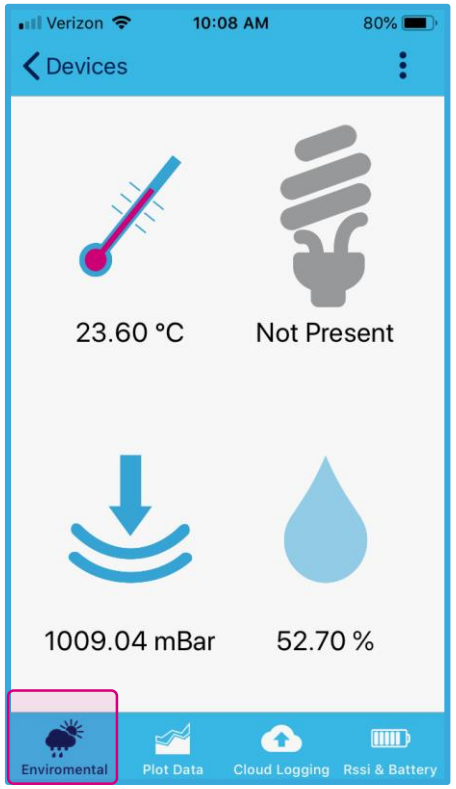
基于环境气压的高度（气压计应用）

手持设备以几英寸幅度上下摆动，期间每个位置保持不动几秒钟。数据的Excel绘图：

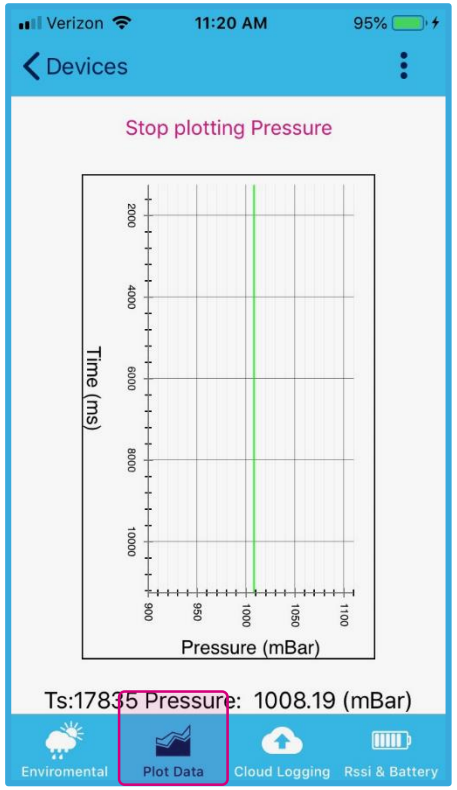


应用程序选项卡介绍

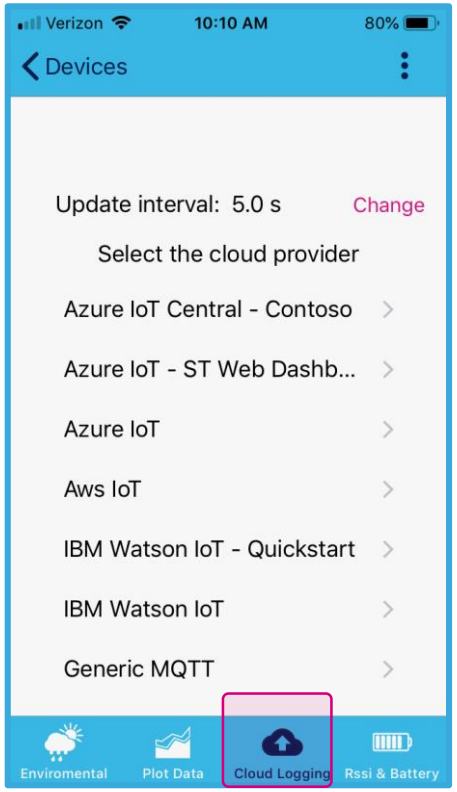
1. 环境类传感器实时数据



2. 实时数据绘图显示

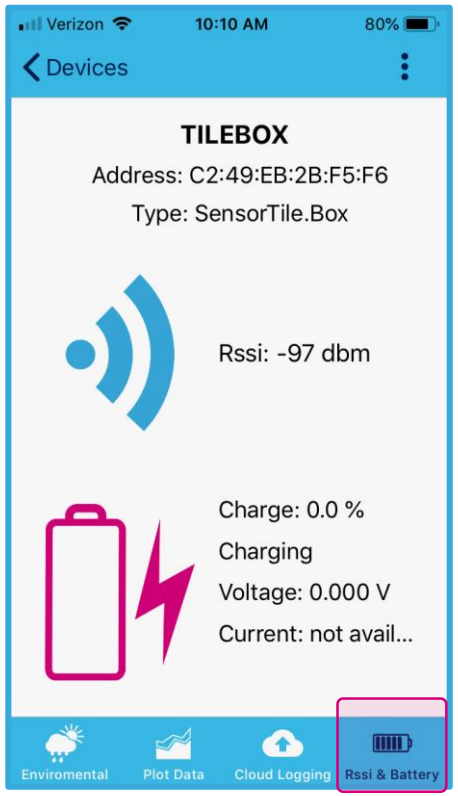


3. 实时数据云存储



4. 实时信号强度和电量

接收信号强度



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初级入门模式

无需任何编程

- SensorTile.box开箱即可连接智能手机
- 用户可以通过Android/IOS应用程序获得预定义应用

气压计和温湿度计

指南针&角度

数据录制(存储到SD卡)

计步器

融合算法(四元数)

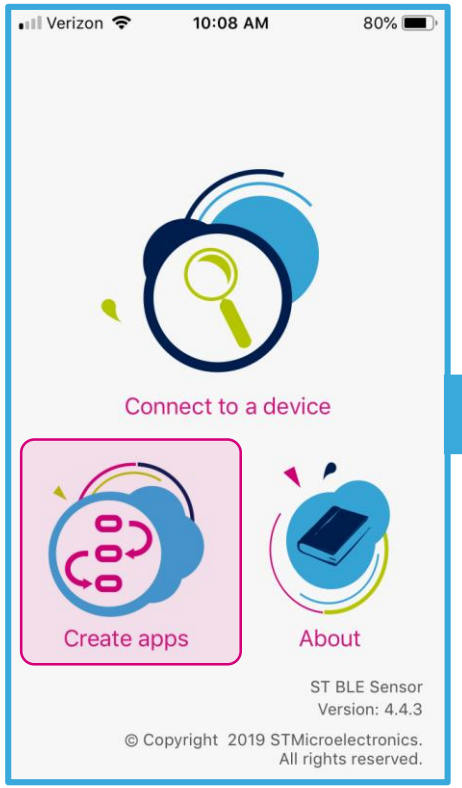
震动监控

life.augmented

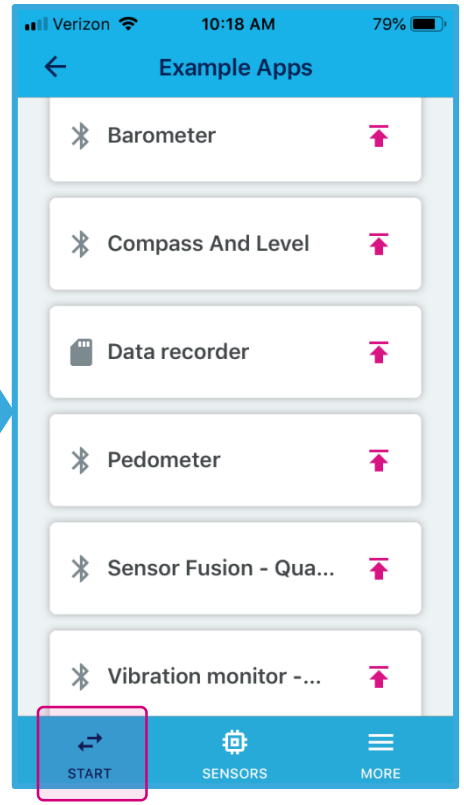
运行在ST BLE Sensor应用程序上

其他应用

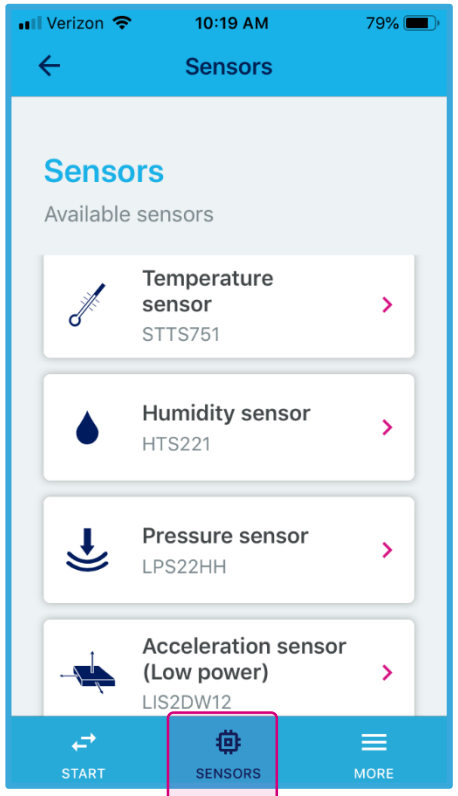
1. 点击按钮Create apps



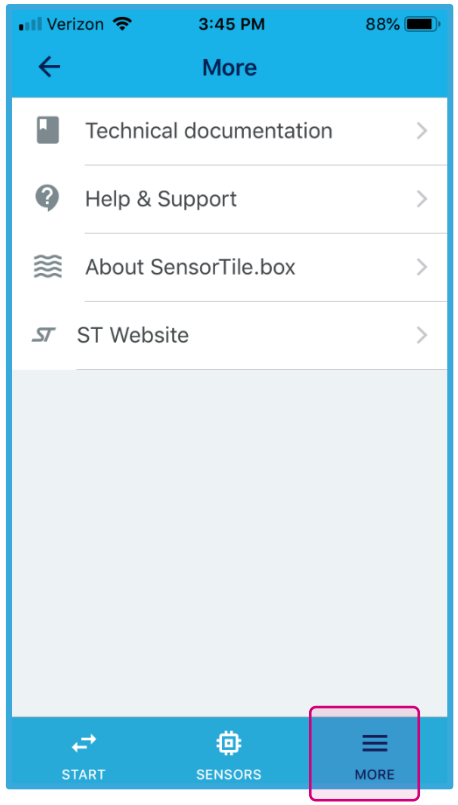
2. 预定义应用 Start



3. 信息 Sensors



4. 其它信息 More



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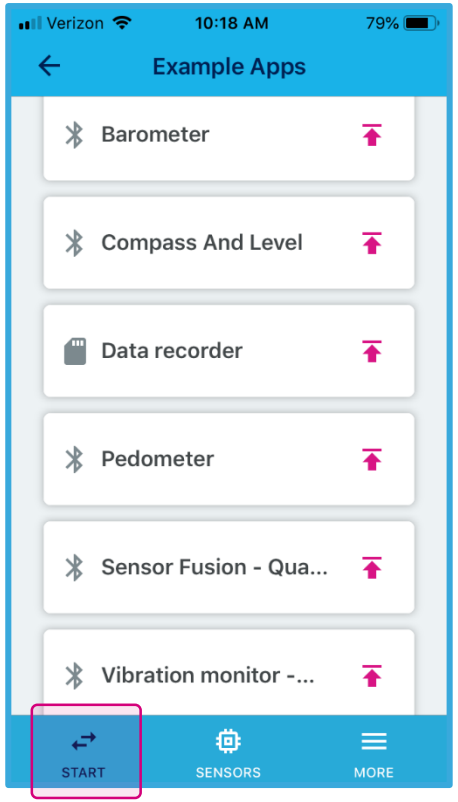
可用的预定义应用

1. 预定义应用

Start



App scenarios with the icon produce immediate outputs on your smartphone in real time.

App scenarios with the icon store sample data on the internal micro SD card.

App scenarios with the icon are reserved for Expert mode.

目前列表:

- **Barometer** ← 我们已经测试过这个
- **Compass And Level**
- **Data recorder**
- **Pedometer**
- **Sensor Fusion – Quaternion**
- **Vibration monitor – Compare**
- **Vibration monitor – Training**

我们将会继续测试其他预定义程序

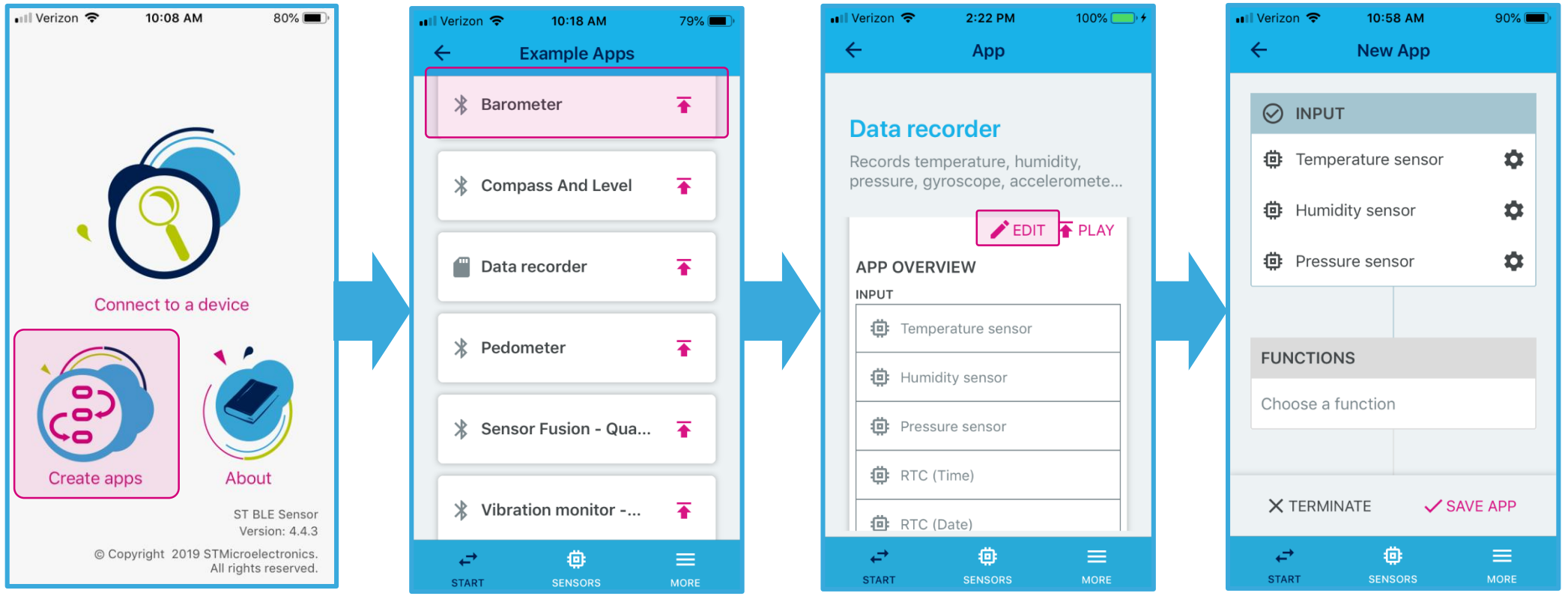
已经测试的例程：气压计

1. 按键 **Create apps**

2. 选择 **Barometer**

3. 点击 **Edit**

4. 可以看到其是如何生成



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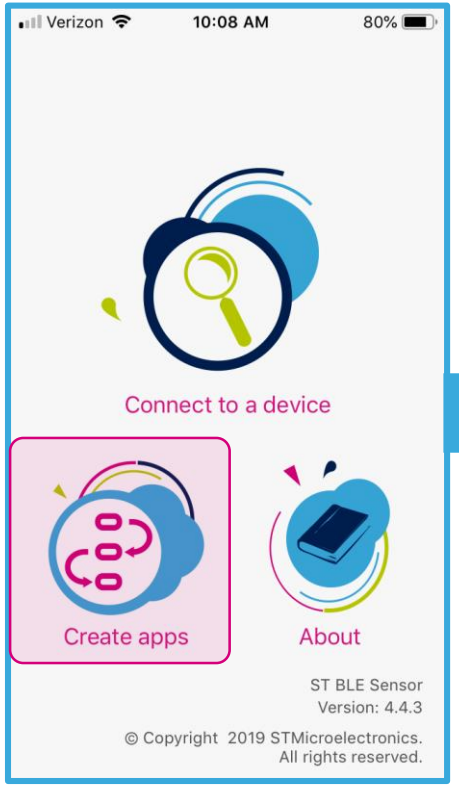
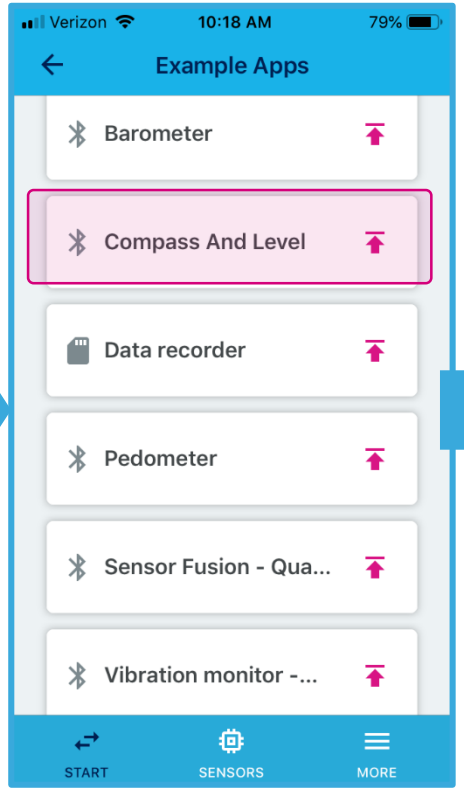
初级入门模式– 其它预定义应用

指南针和角度

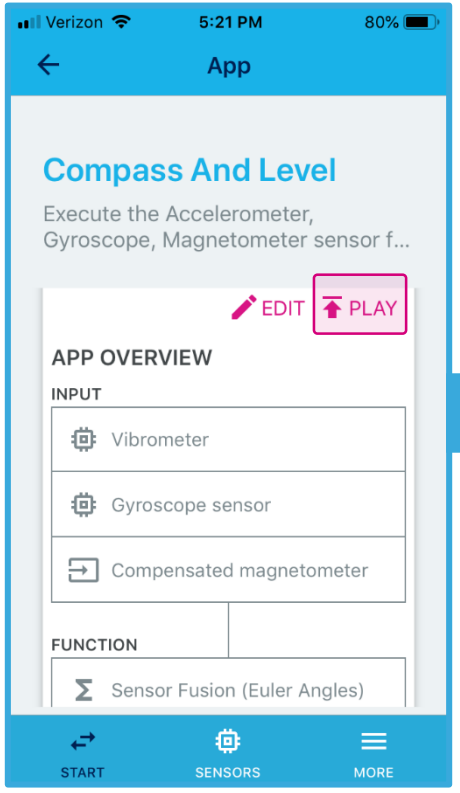
1. 点击按钮 **Create apps**



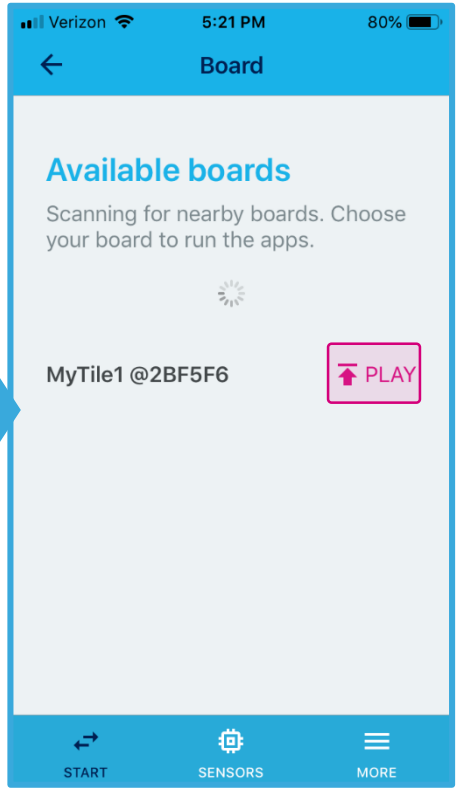
2. 选择 **Compass and Level**



3. 点击 上载



4. 点击 上载



如果扫描设备超时，返回并重新选择来重新扫描设备

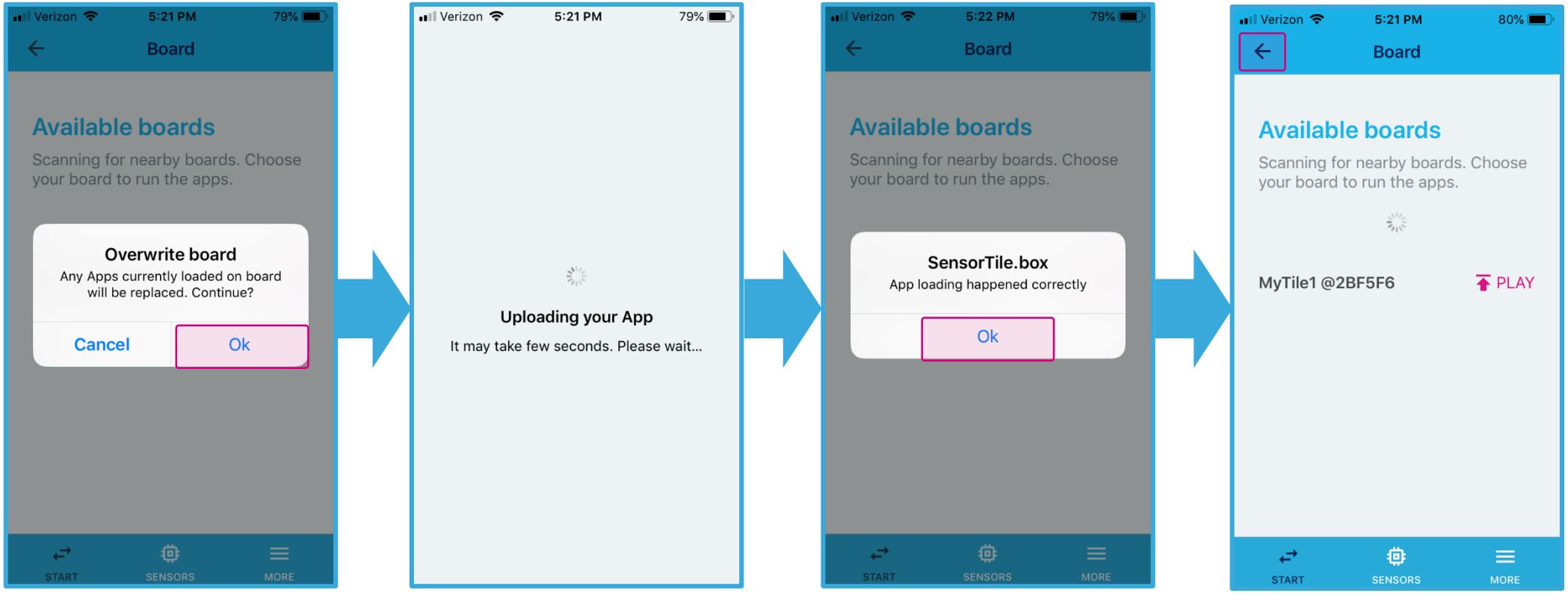
指南针和角度

1. 确认 Ok

2. 等待直到上载完成

3. 确认Ok

4. 返回到主屏

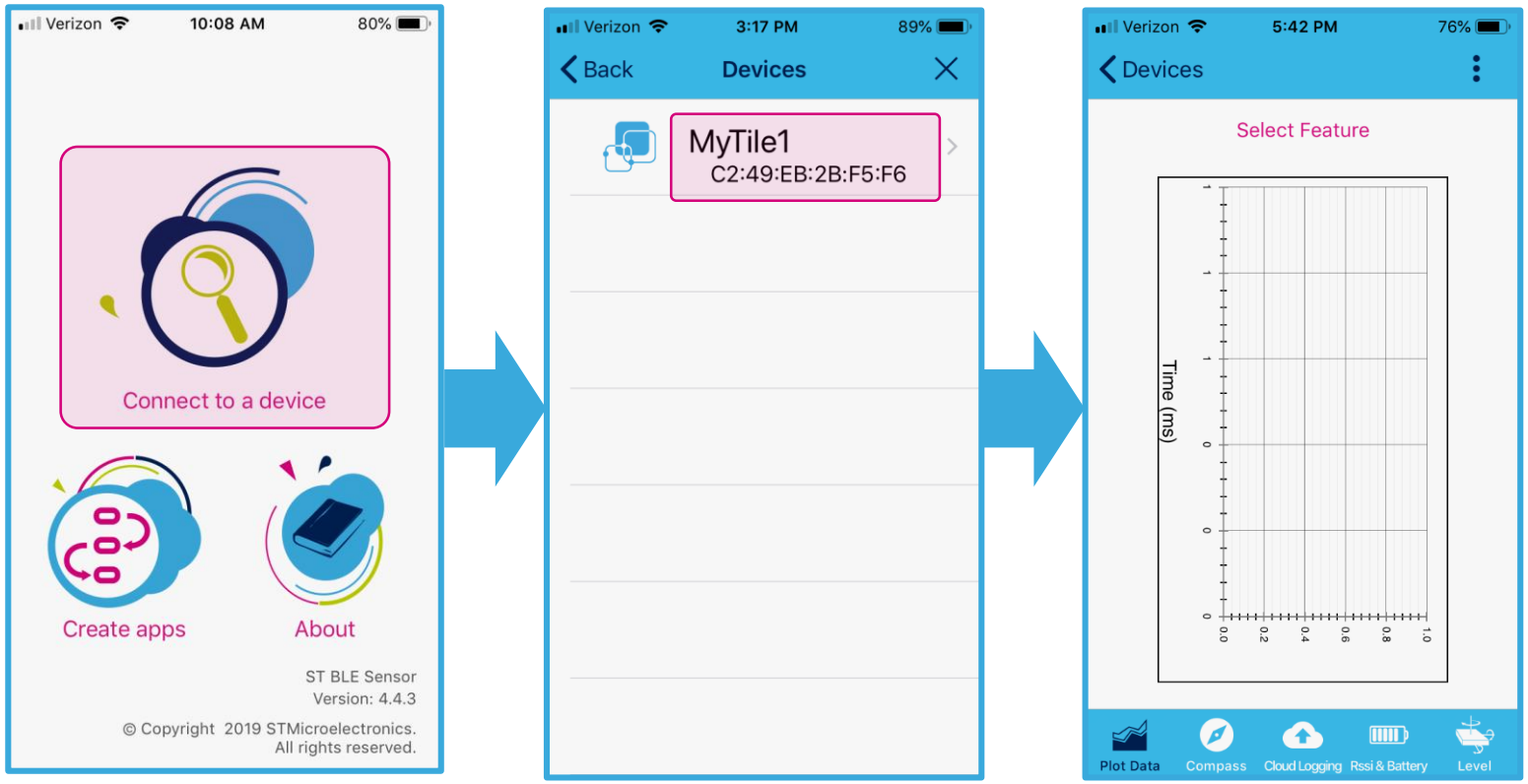


指南针和角度

1. 点击按钮 **Connect to a device**

2. 选择**SensorTile.Box**

3. 点击 **Select Feature**



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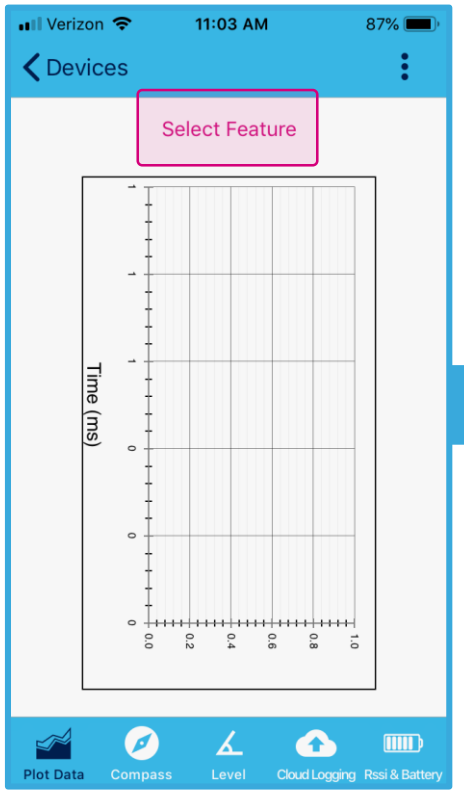
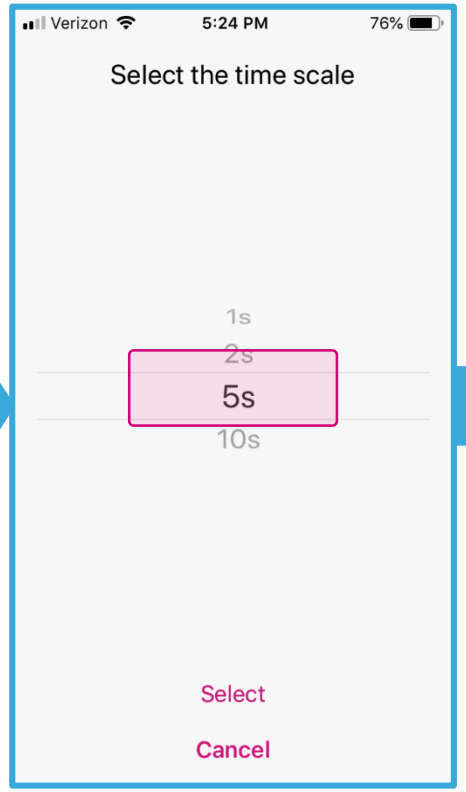
指南针和角度

1. 点击
Select Feature

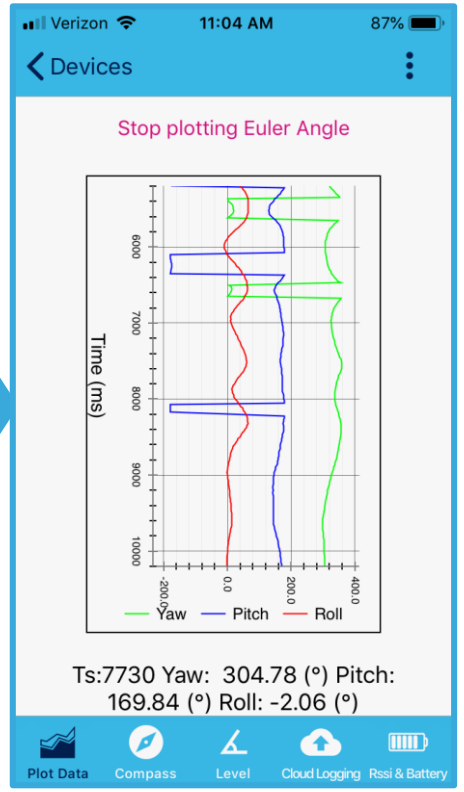


2. 点击
Euler Angle

3. 选择时间标度**5s**



4. 移动设备来测试
roll/pitch/yaw



不连续的间断点时正常的. 例如: +185 deg is equal to -175 deg

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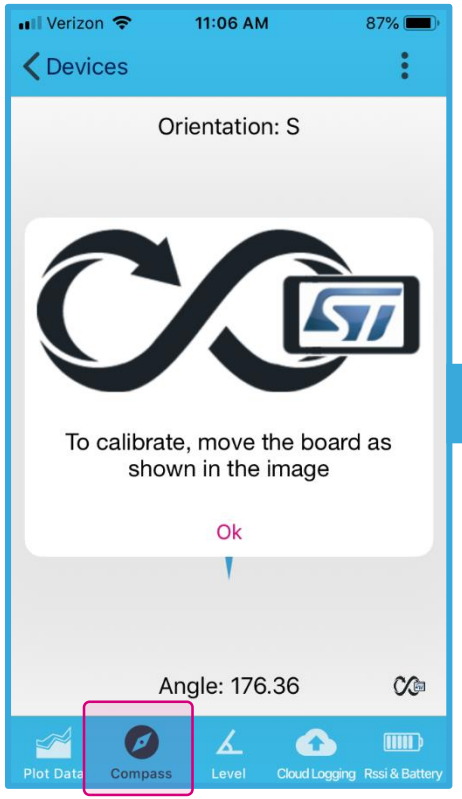
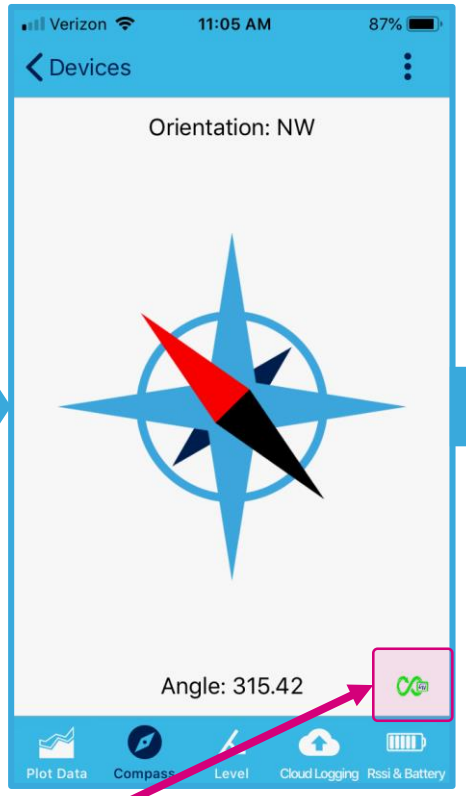
指南针和角度

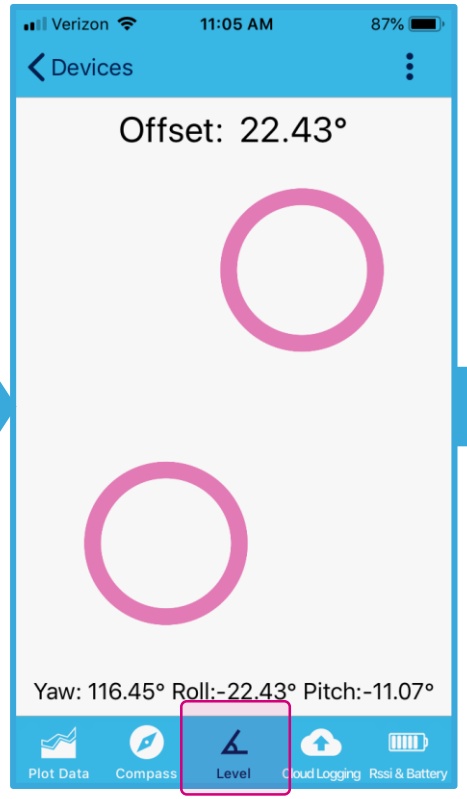
1. 点击 **Compass**



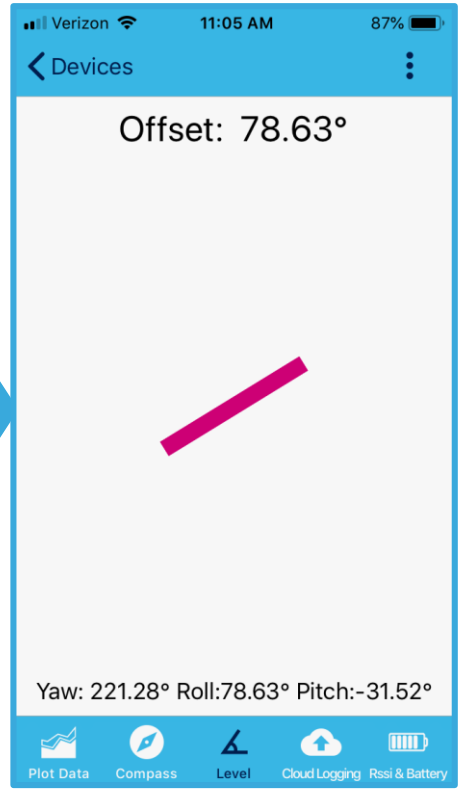
2. 移动设备来测试 yaw



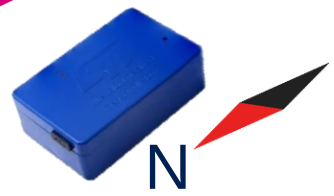
3. 点击 **Level**



4. 设备超过90度倾斜



三维空间转动设备进行校准，成功后符号会变成绿色



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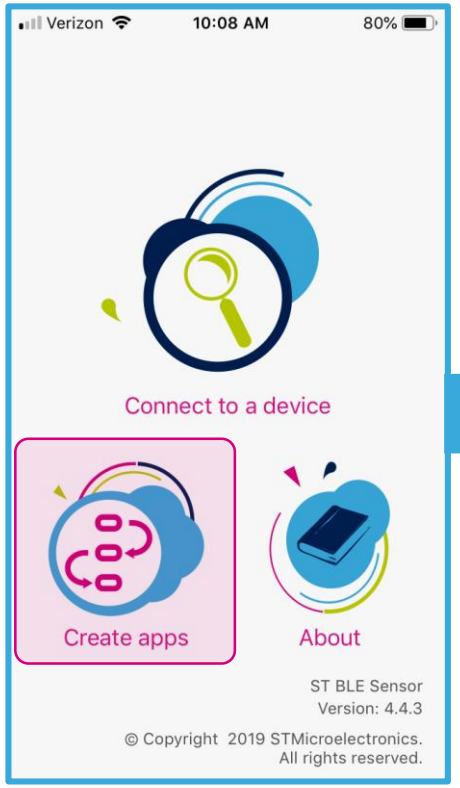
数据记录器

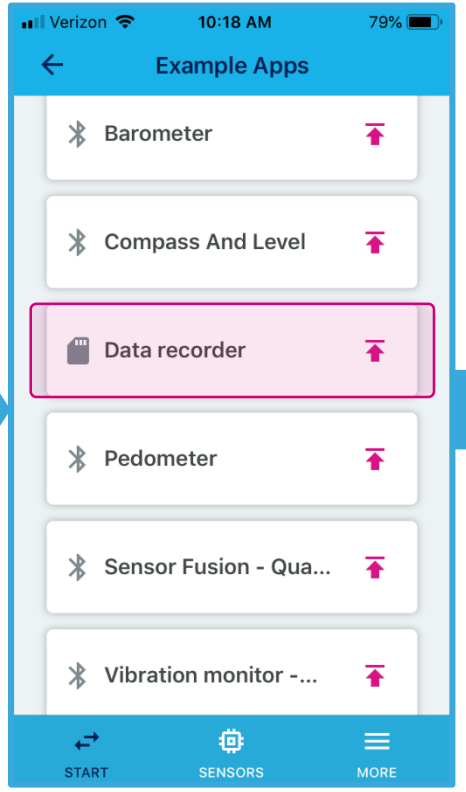
1. 按键Create apps

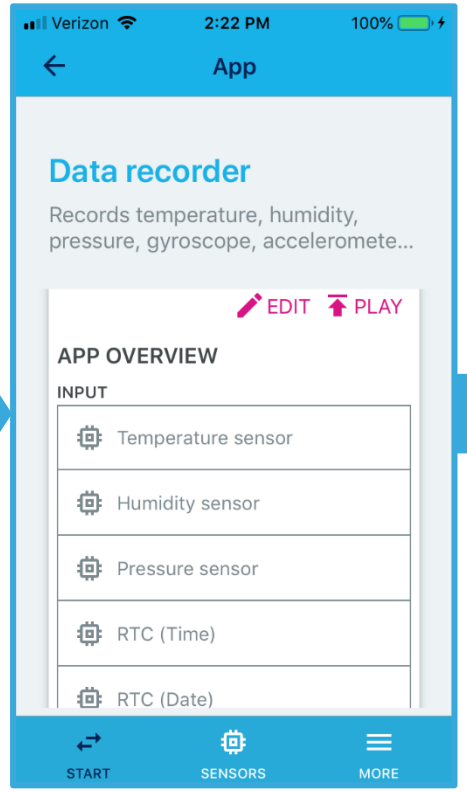
2. 选择
Data Recorder

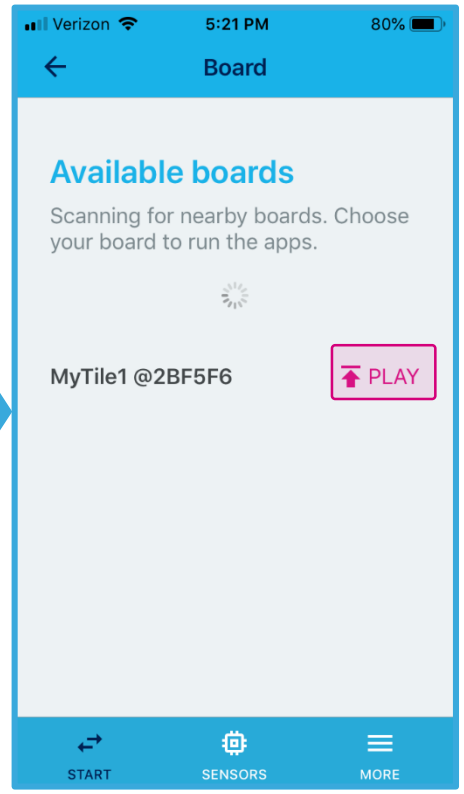
3. 点击 上载

4. 点击 上载









如果扫描设备超时，返回并重新选择来重新扫描设备

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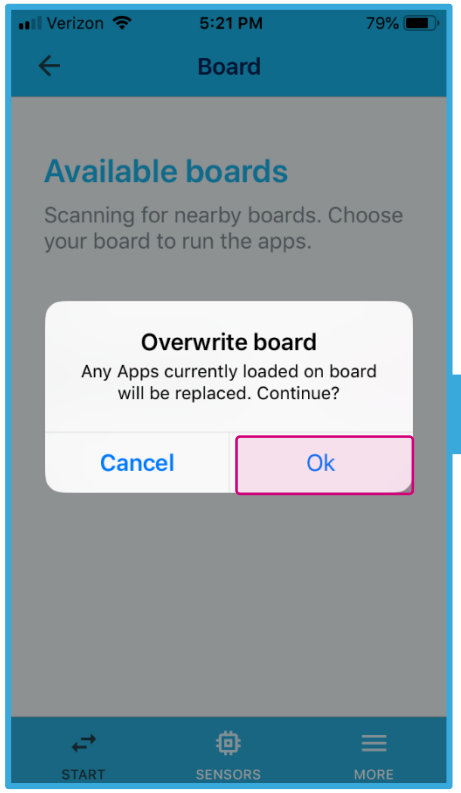
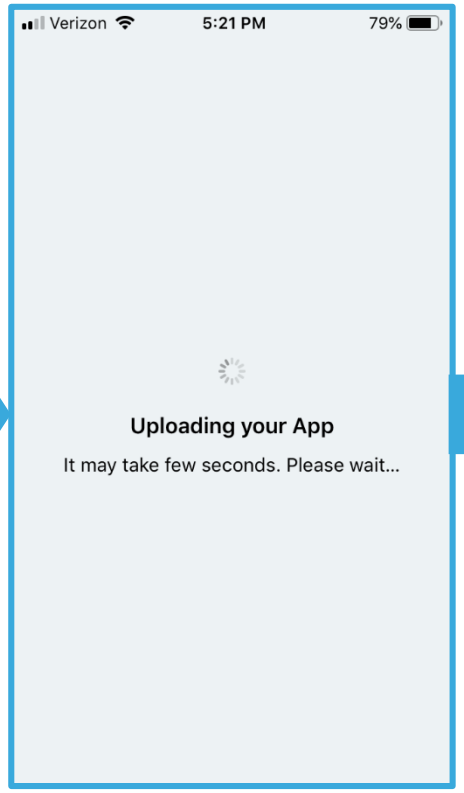
数据记录器

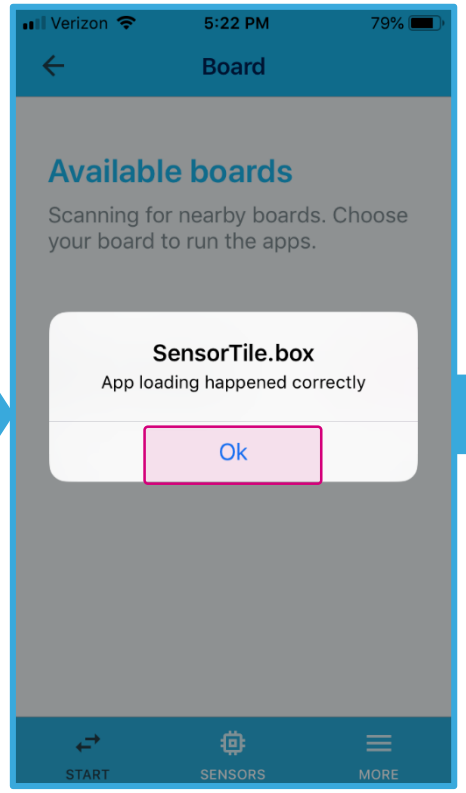
1. 确定Ok



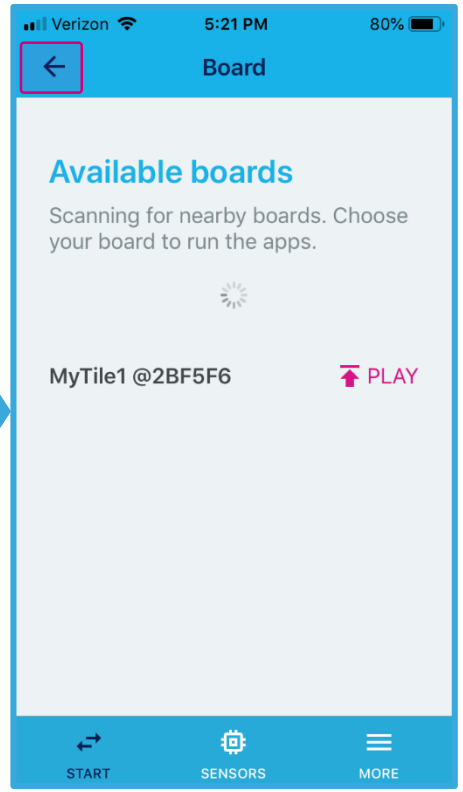
2. 等待直到上载完成



3. 确认 Ok



4. 回到主屏



life.augmented

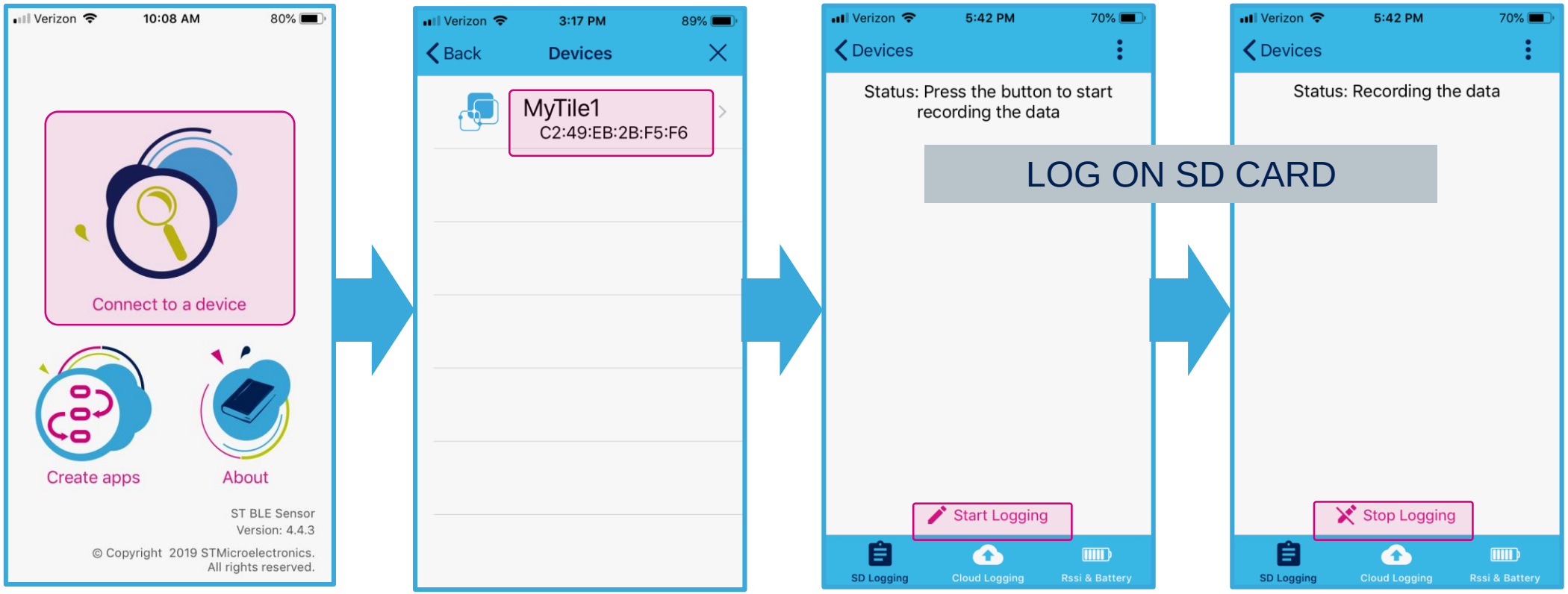
数据记录器

1. 点击按钮 **Connect to a device**

2. 选择你的 **SensorTile.Box**

3. 点击 **Start Logging**

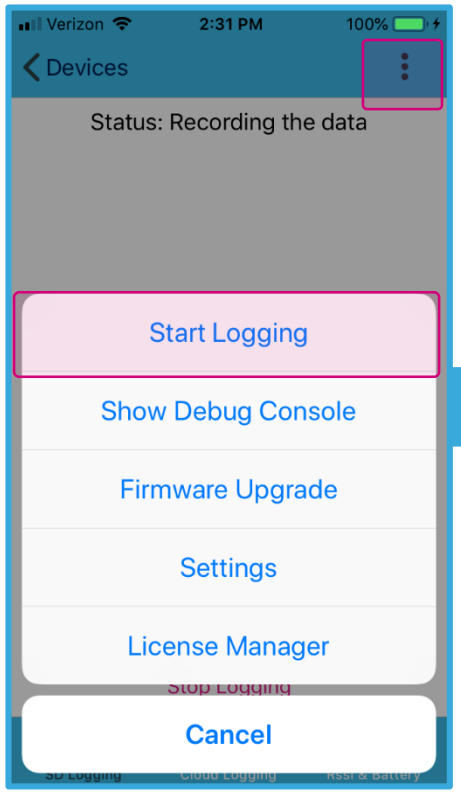
4. 点击 **Stop Logging**



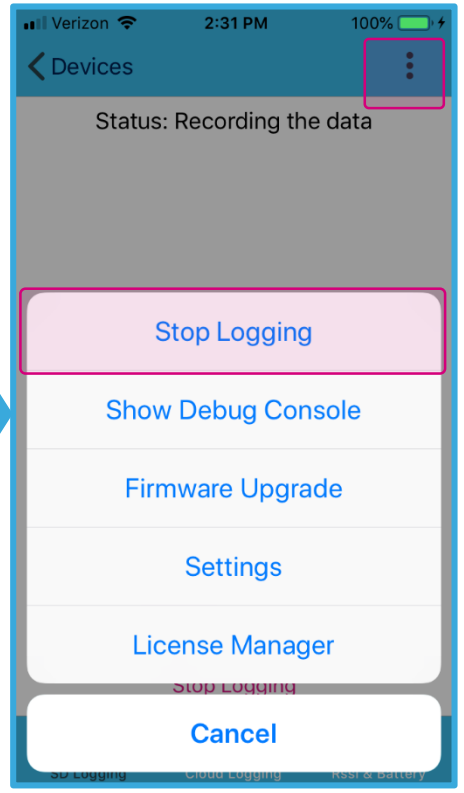
life.augmented

数据记录器

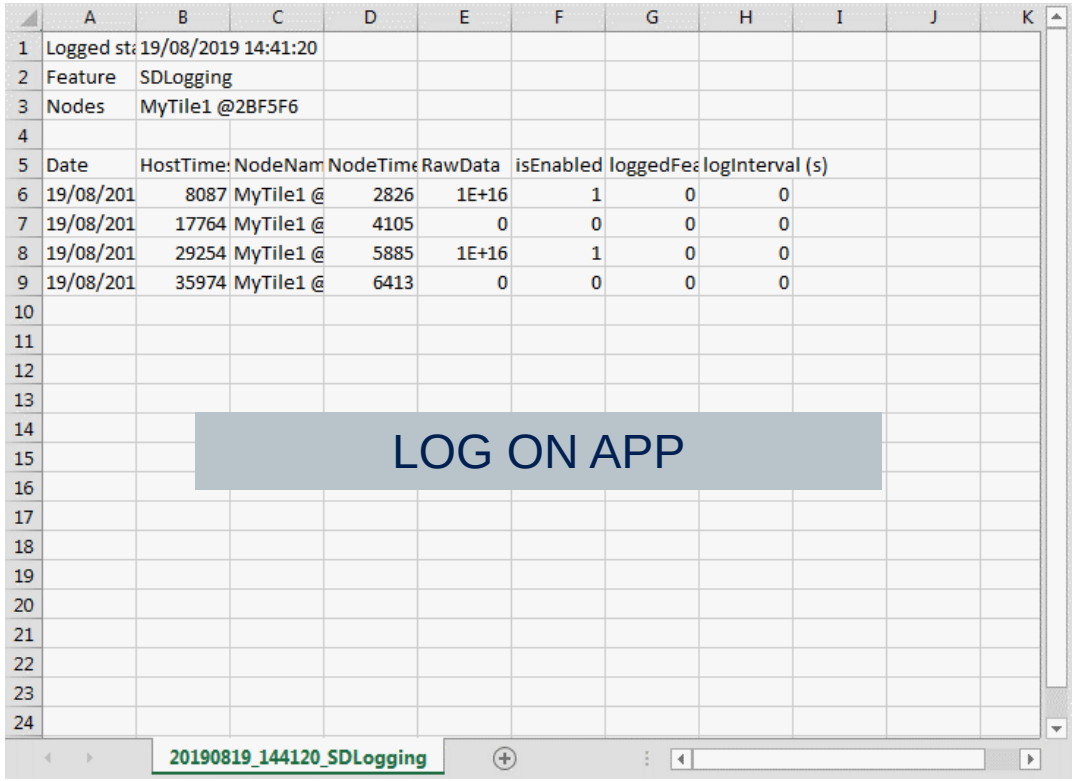
1. 点击 ⋮ 并选择
Start Logging



2. 点击 ⋮ 并选择
Stop Logging



3. 邮件发送CSV格式数据，用Excel或任何文本编辑器打开



	A	B	C	D	E	F	G	H	I	J	K
1	Logged st	19/08/2019 14:41:20									
2	Feature	SDLogging									
3	Nodes	MyTile1 @2BF5F6									
4											
5	Date	HostTime:	NodeNam	NodeTime	RawData	isEnabled	loggedFea	logInterval (s)			
6	19/08/201	8087	MyTile1 @	2826	1E+16	1	0	0			
7	19/08/201	17764	MyTile1 @	4105	0	0	0	0			
8	19/08/201	29254	MyTile1 @	5885	1E+16	1	0	0			
9	19/08/201	35974	MyTile1 @	6413	0	0	0	0			
10											
11											
12											
13											
14											
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17											
18											
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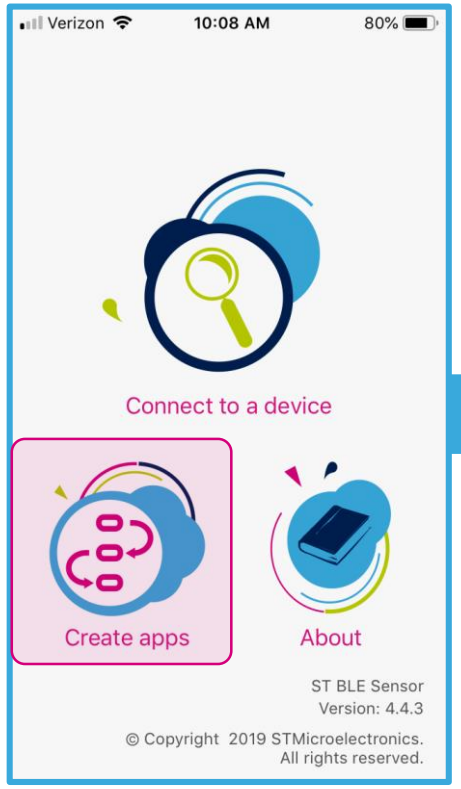
20											
21											
22											
23											
24											

LOG ON APP

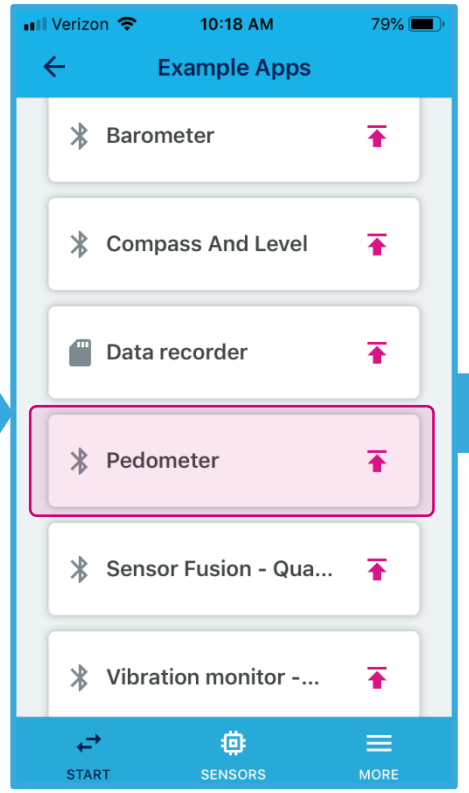
20190819_144120_SDLogging

计步器

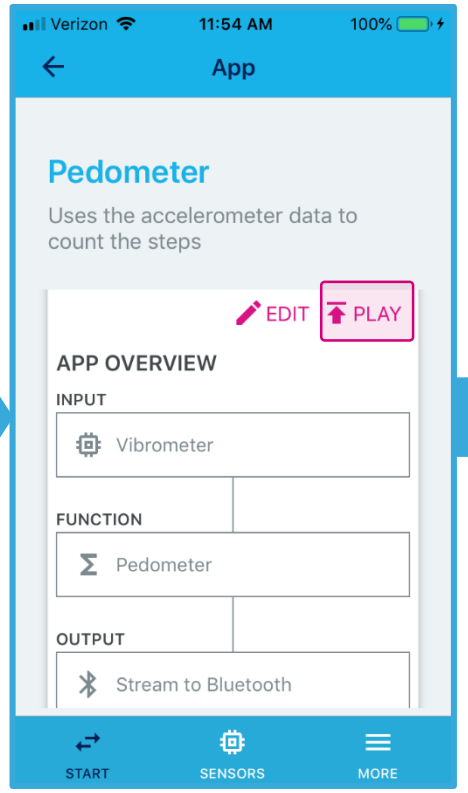
1. 点击按钮 **Create apps**



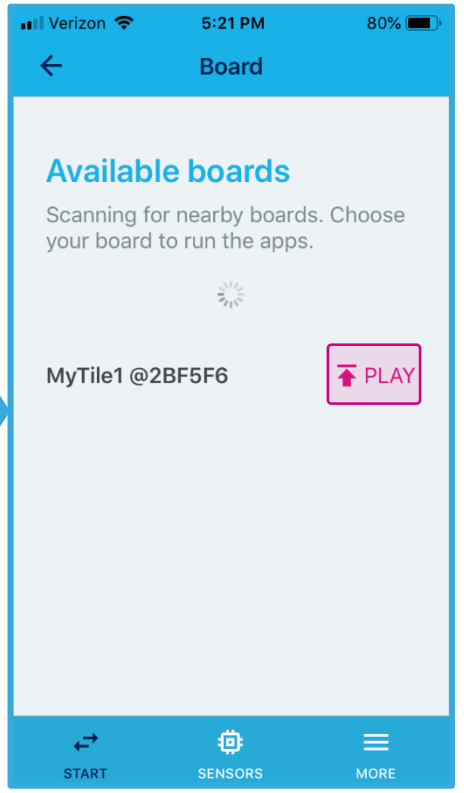
2. 选择 **Pedometer**



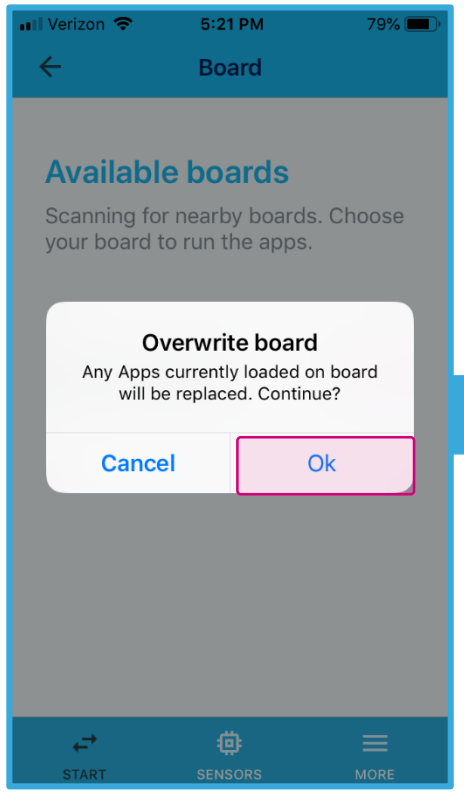
3. 点击上载



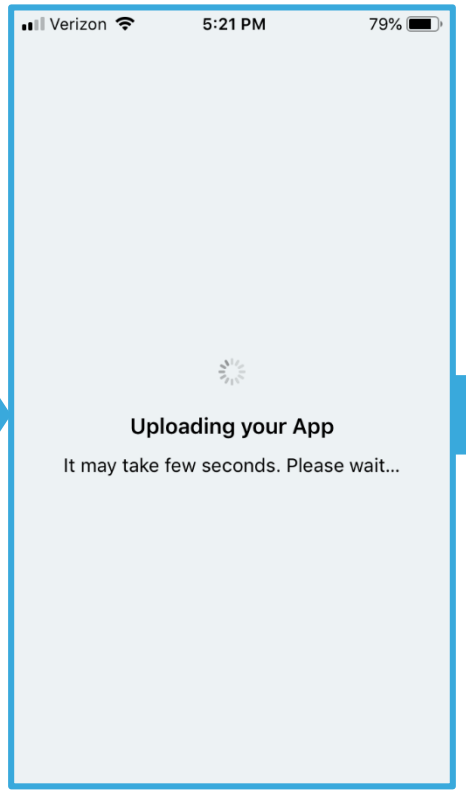
4. 点击上载



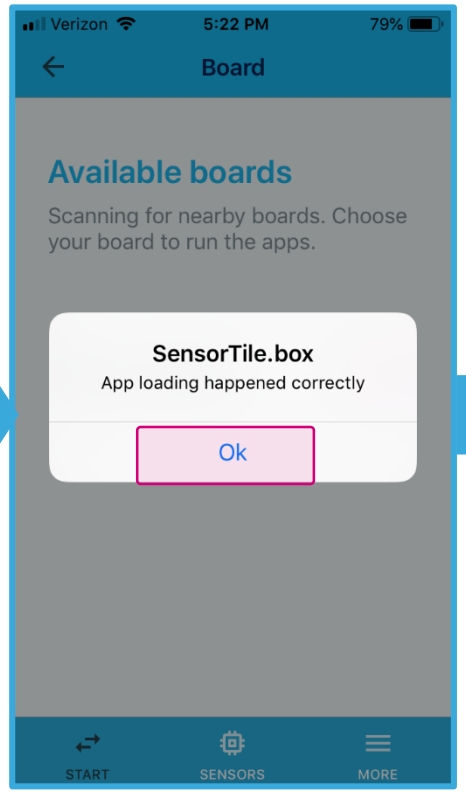
1. 确认Ok



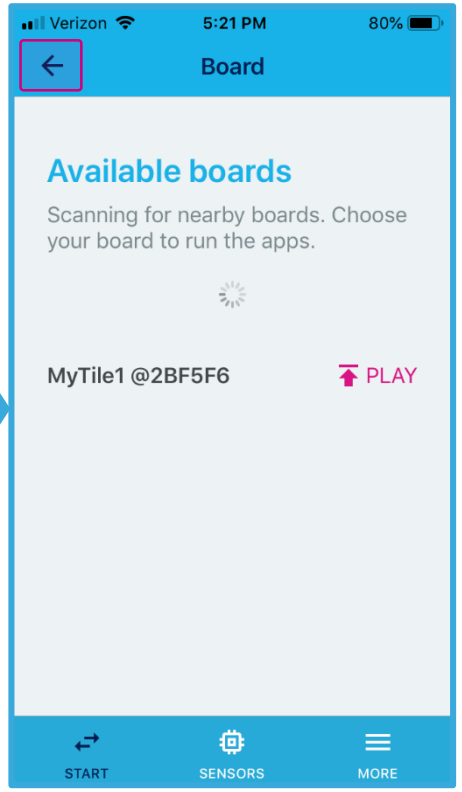
2. 等待直到上载完成



3. 确认Ok



4. 回到主屏



如果扫描设备超时，返回并重新选择来重新扫描设备

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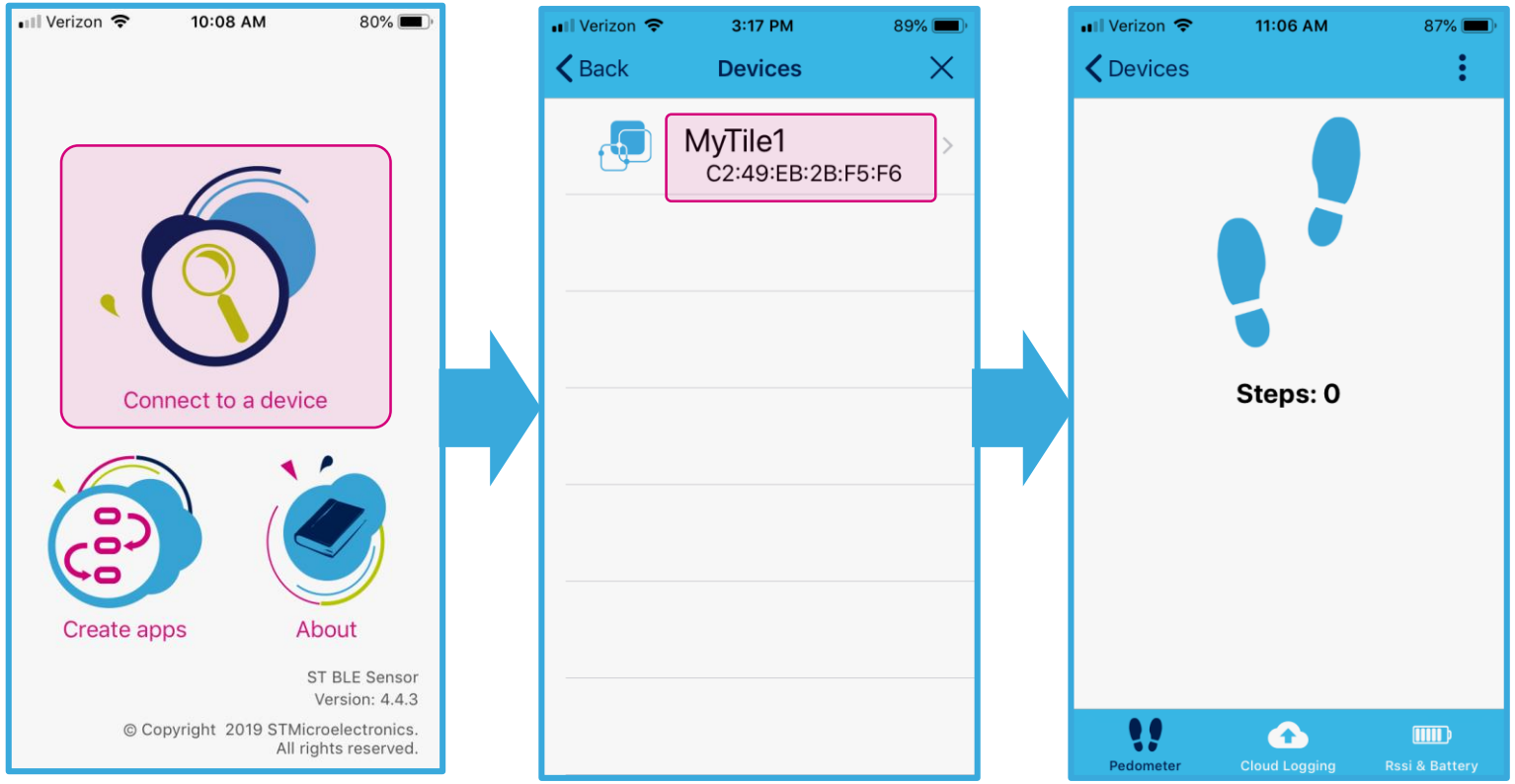
1. 点击按钮 **Connect to a device**

2. 选择你的 **SensorTile.Box**

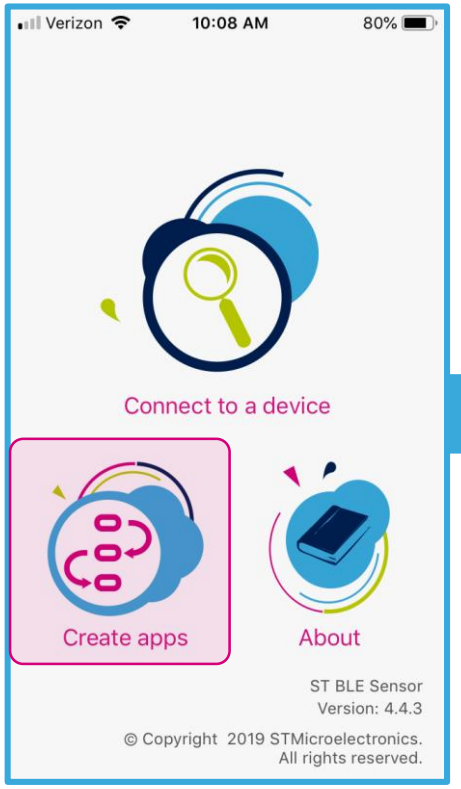
3. 有规律的摇动



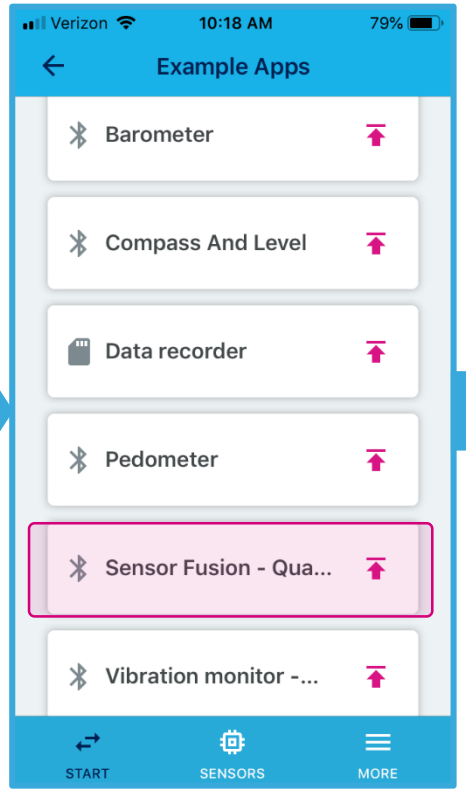
防抖特性：第一个8不会显示

融合算法 - 四元数

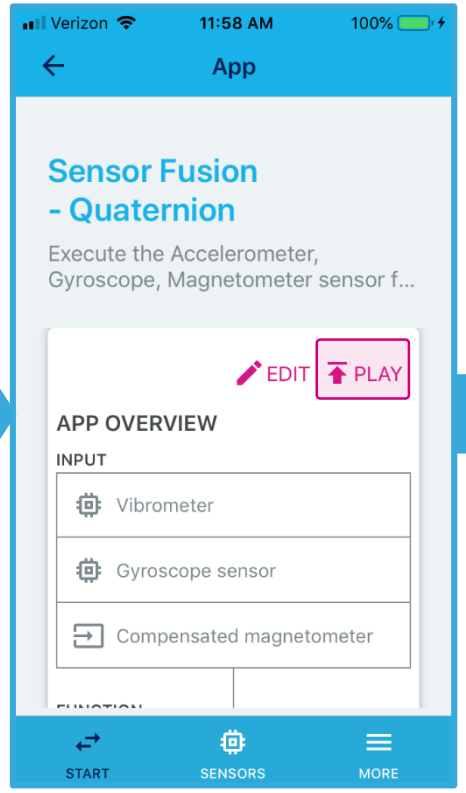
1. 点击按钮Create apps



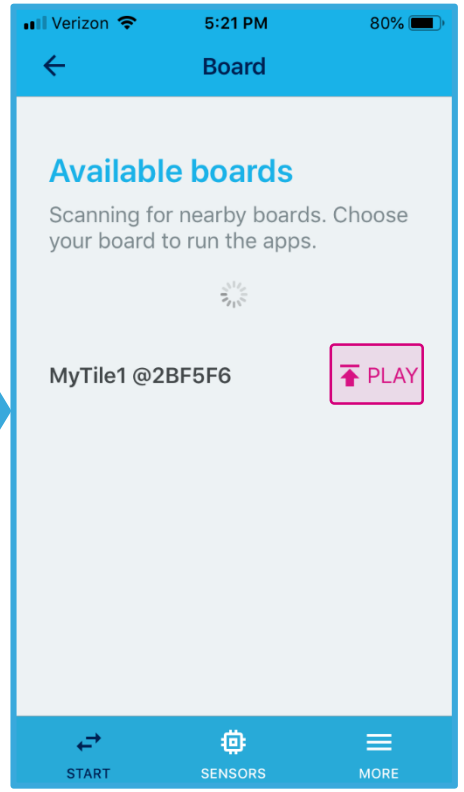
2. 选择 Sensor Fusion (Quat)



3. 点击 上载



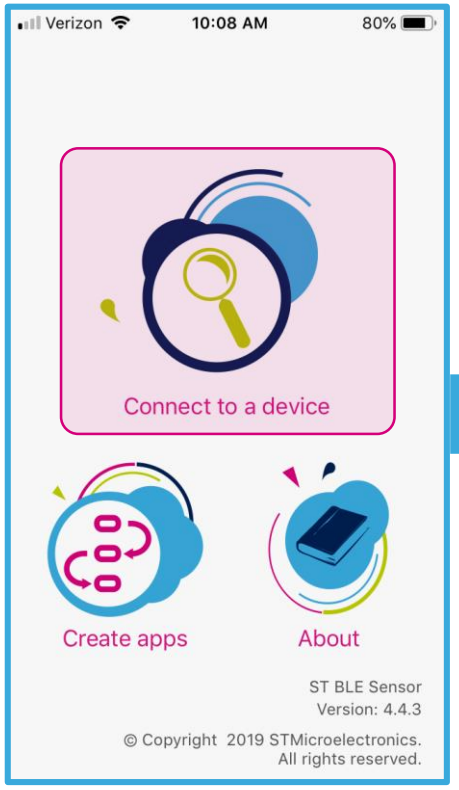
4. 点击 上载



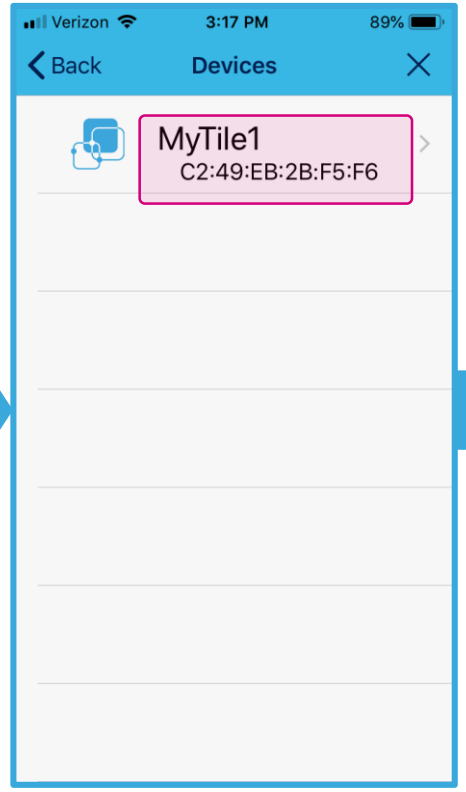
如果扫描设备超时，返回并重新选择来重新扫描设备

融合算法 – 四元数

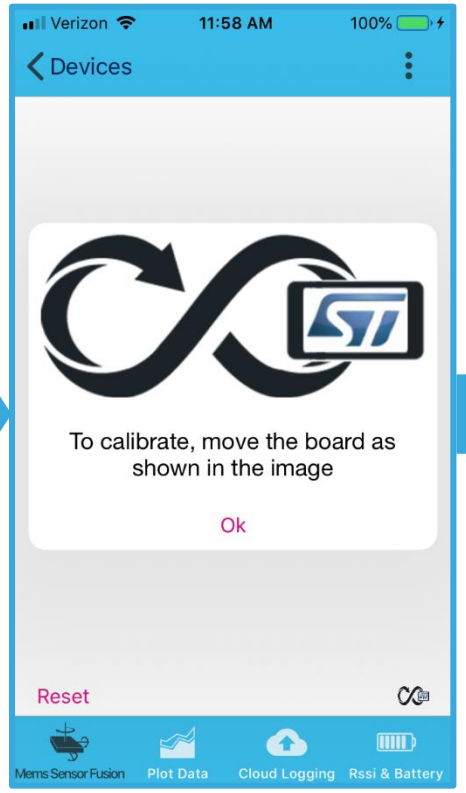
1. 点击 **Connect to a device**



2. 选择你的 **SensorTile.Box**



3. 点击 **Ok** 并移动设备



4. 移动设备

三维空间转动设备进行校准，成功后符号会变成绿色

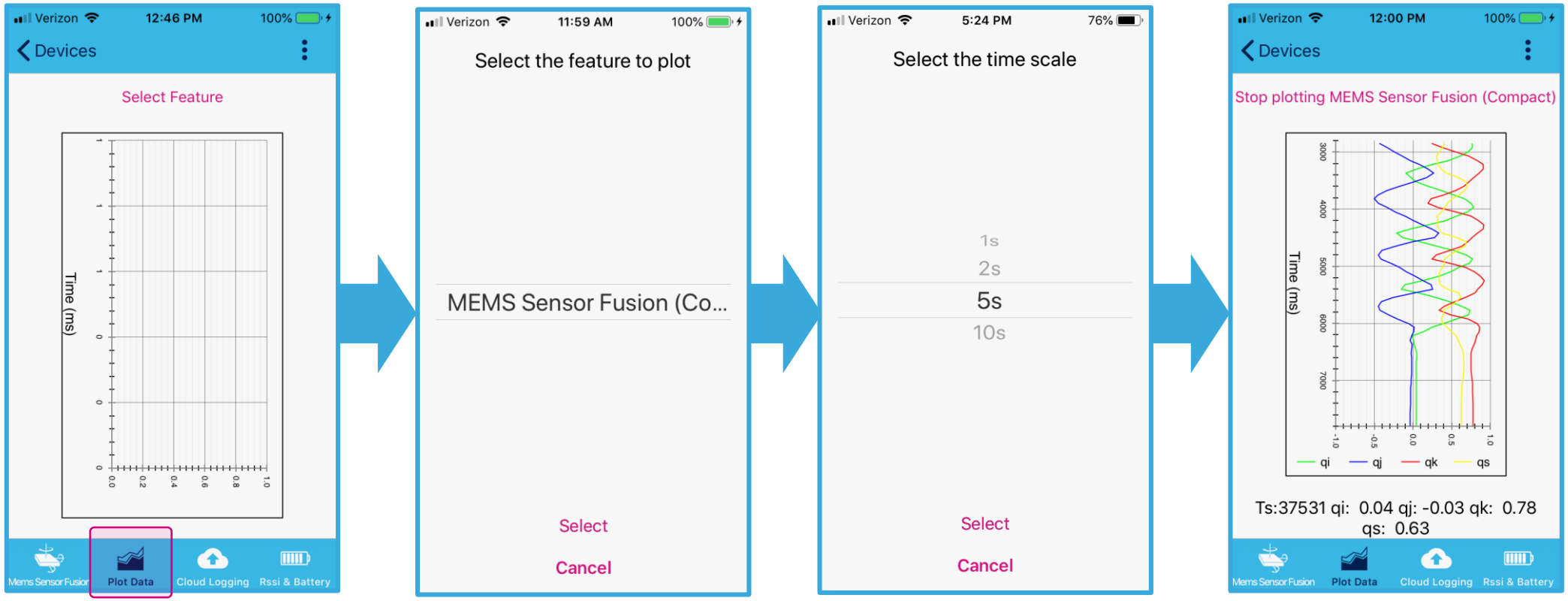
融合算法－四元数

1. 点击 **Plot Data**

2. 选择 **MEMS Sensor Fusion**

3. 选择时间标度 **5s**

4. 移动设备



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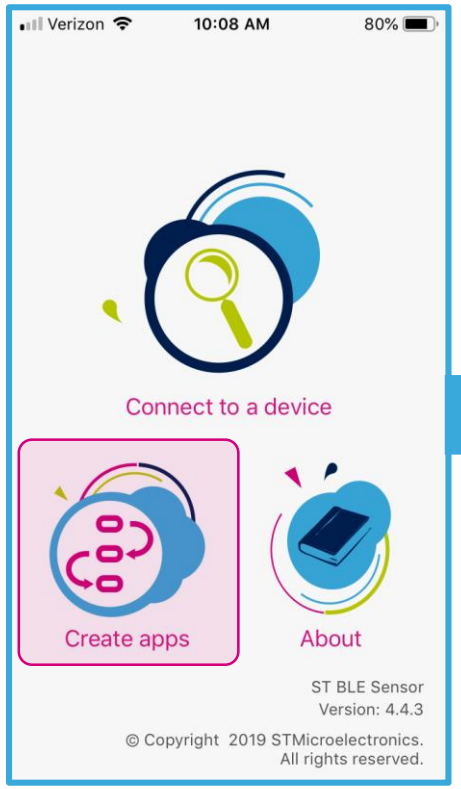
震动监控: 依赖于高频响加速度计数据的FFT变换

使得预见性维护成为可能

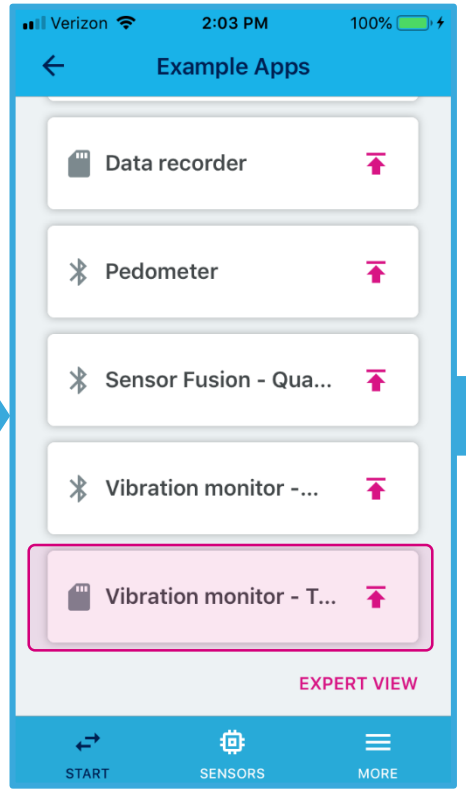
- 第一步：训练
  - 录制典型/正常的数据到SD卡
- 第二部：比较
  - 比较，当数据为非典型/不正常时点亮LED灯 (这可以作为预警)

震动监控 — 训练

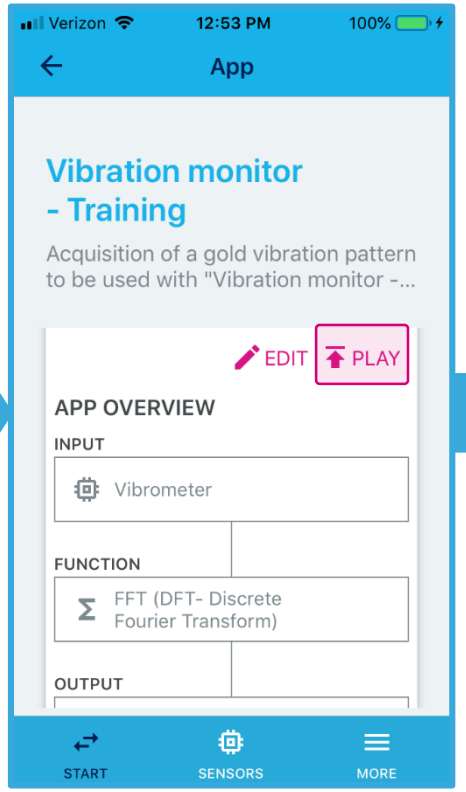
1. 点击按钮 **Create apps**



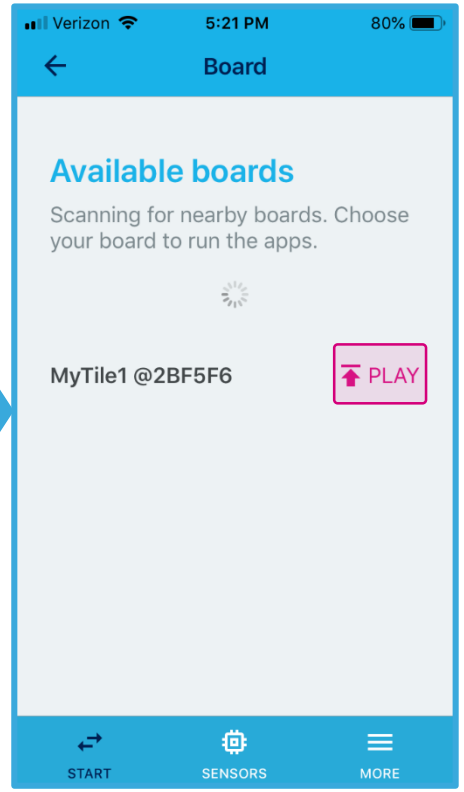
2. **Vibration Monitor (Training)**



3. 点击 上载



4. 点击 上载



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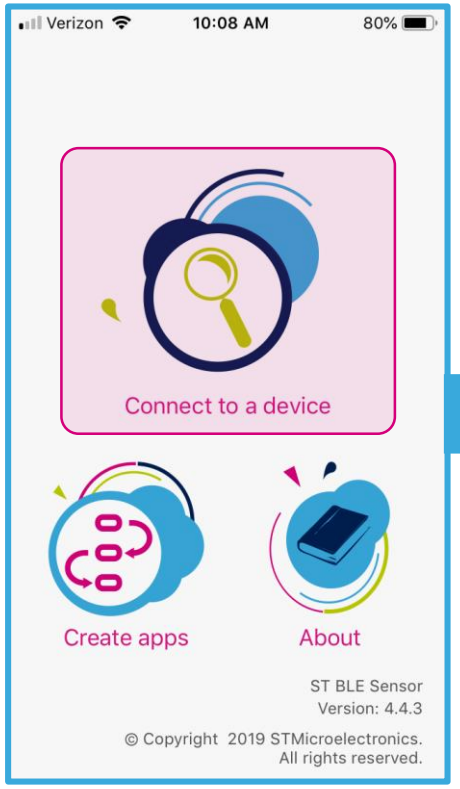
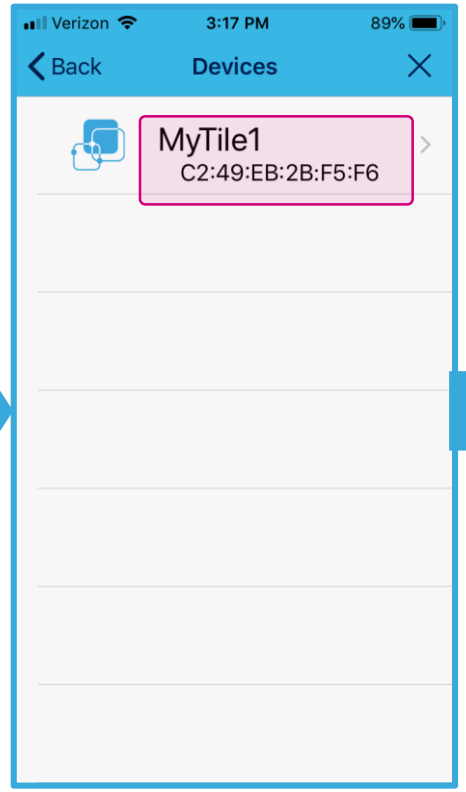
震动监控 — 训练

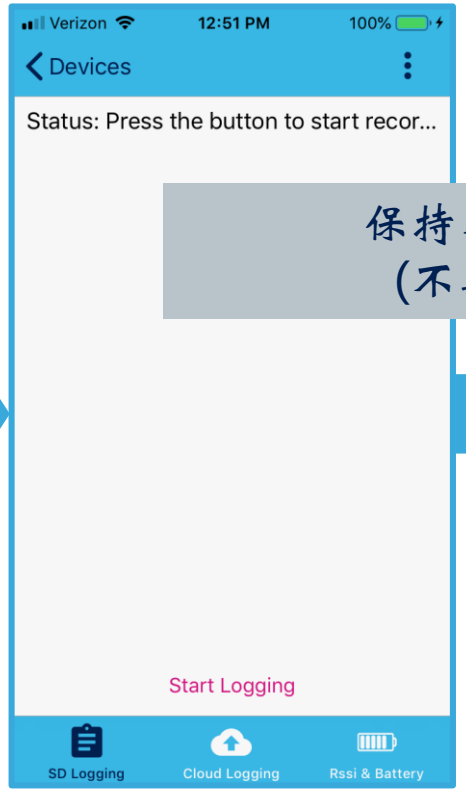
1. 点击按钮 **Connect to a device**



2. 选择你的 **SensorTile.Box**

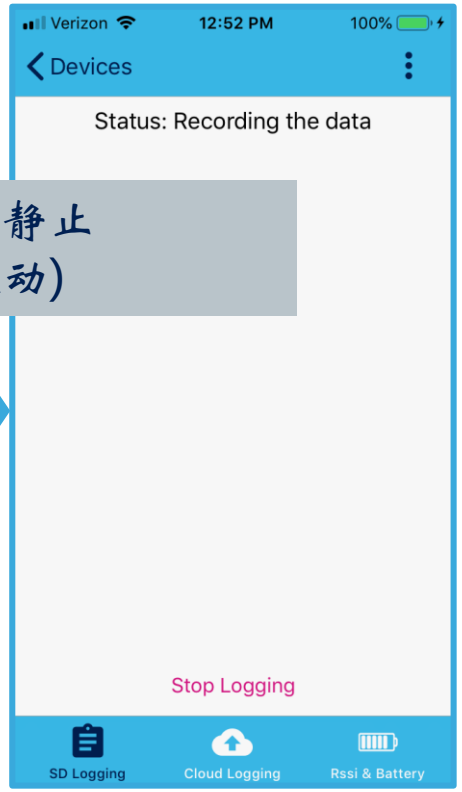


3. 点击 **Start Logging**



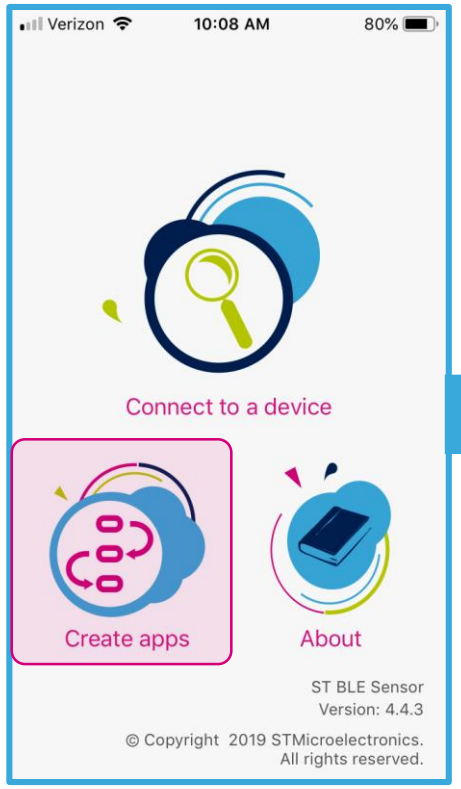
保持器件静止
(不要振动)

4. 点击 **Stop Logging**

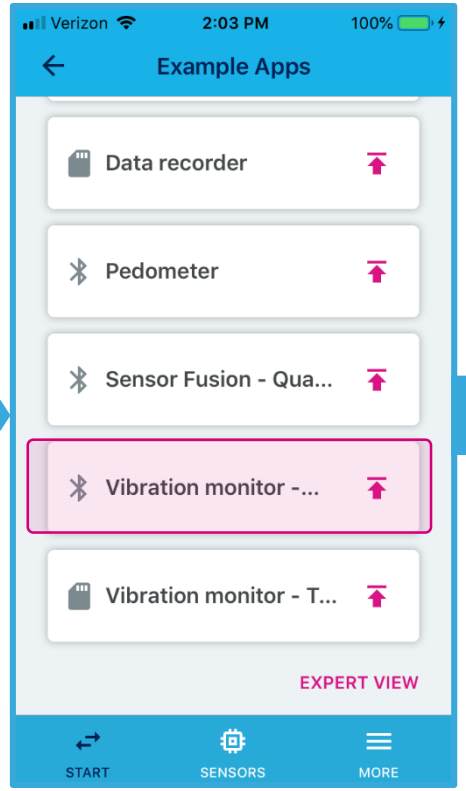


震动监控 – 比较

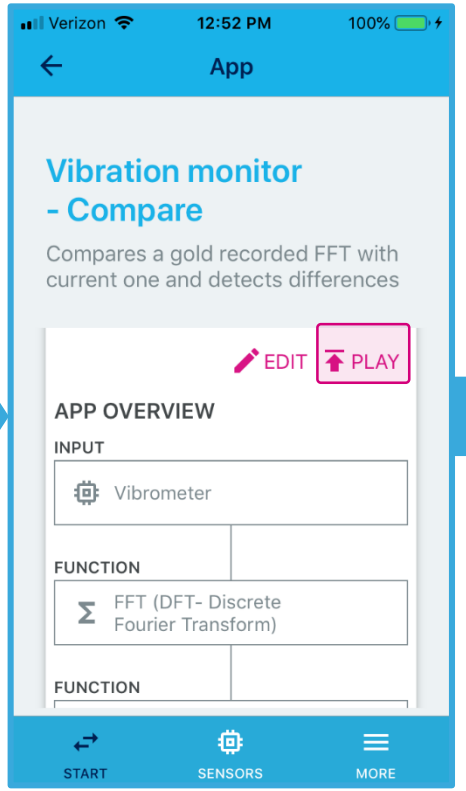
1. 点击按钮 **Create apps**



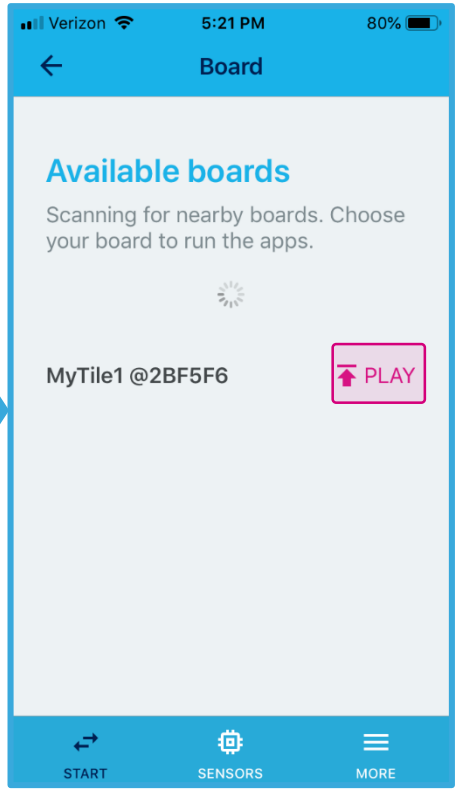
2. **Vibration Monitor (Compare)**



3. 点击 上载

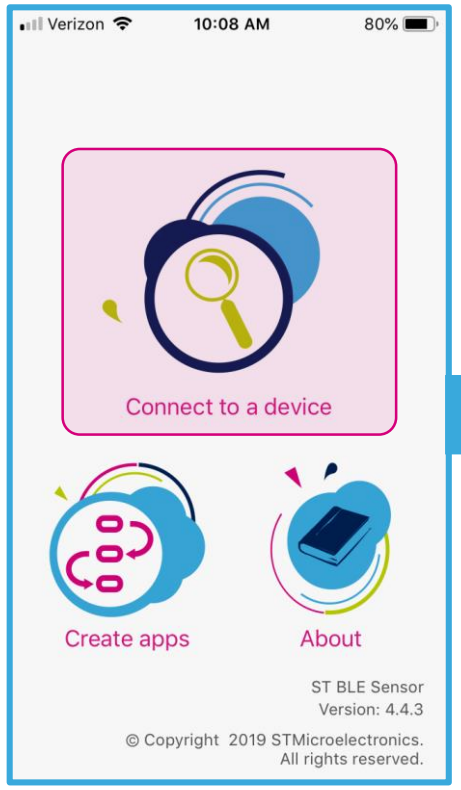


4. 点击 上载

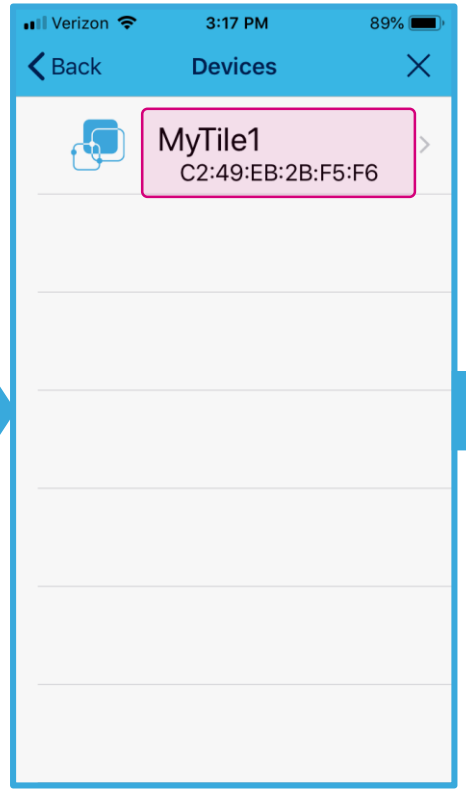


震动监控 – 比较

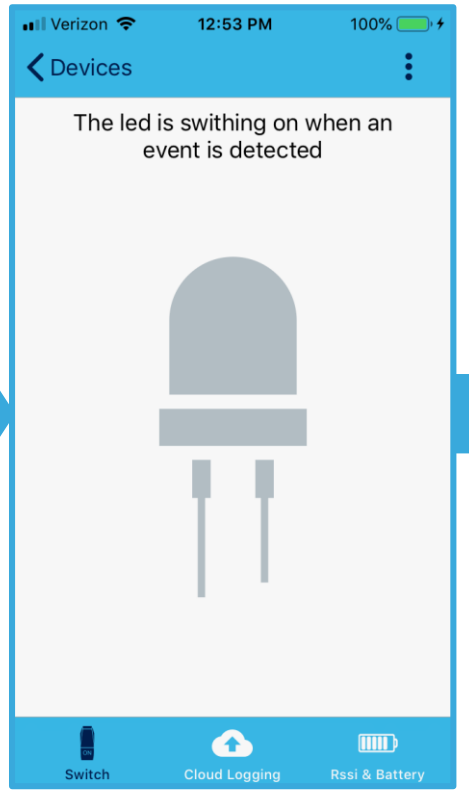
1. 点击按钮Connect to a device



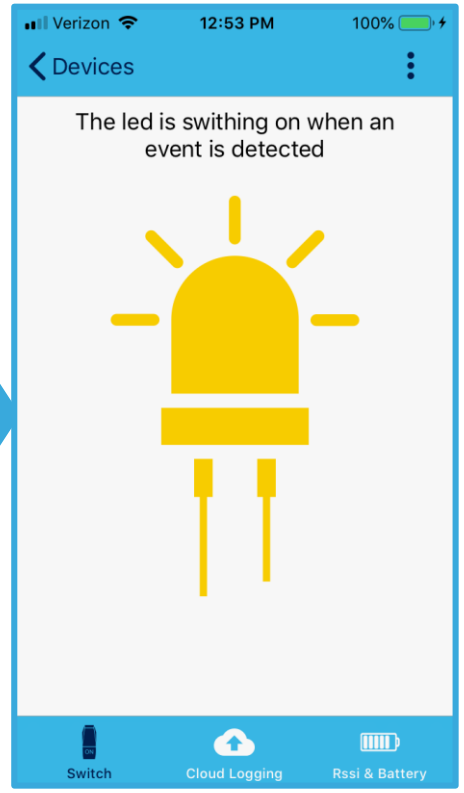
2. 选择你的SensorTile.Box



3. 典型/正常时LED灯熄灭



4. 非典型/不正常时LED点亮



侦测到不同!

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谢谢!

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