

# Problem Solving with the Internet of Things and Python

## Unit 4 - BLE Connectivity

## Lab 7

### Explore more BLE

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Let's investigate two more big areas to consider with Iot development:

BLE Power Consumption  
and  
BLE Security

## BLE Power Consumption



## Power Consumption

Although most of our lab work will be completed with the IoT device “plugged in” to a power source, eventually our IoT device may end up being battery powered in the field.

Since the BLE radio communications will be the largest source of power draw, we should always try to keep the possible ways to reduce power consumption in mind.

## BLE Security



## BLE Security - Part 2



## What about the Feather Sense?

The chip on the Feather Sense is a Nordic nRF52840 which is BLE 5.3 compliant.

Read more about it [HERE](#).

While we will not explore BLE security in detail in the labs, it is good to know that our choice of processor has the ability to implement all the latest greatest BLE security options.

## Lab 6 → Lab 7

In Lab 6 you were introduced to BLE communication and you used some predefined “Packet” types. You used both a ButtonPacket object and a ColorPacket object. These were both provided by Adafruit and made it pretty easy to communicate with the Adafruit Bluefruit LE Connect App using the UART service.

In Lab 7 you will again use the UART service, but you will not use predefined objects for communication. Instead you will create your own custom commands.

## Lab 7 - parts 2,3,4 and 5

In parts 2,3,4 and 5 you will explore connecting the Feather Sense to a computer.

## More resources

<https://learn.adafruit.com/allthethiot-transport/bt/bt-ble>

<https://www.popsci.com/reviews/how-does-bluetooth-work/>

[Complete BLE video series](#)

[Optimizing BLE power consumption](#)

[BLE Security Guide](#)