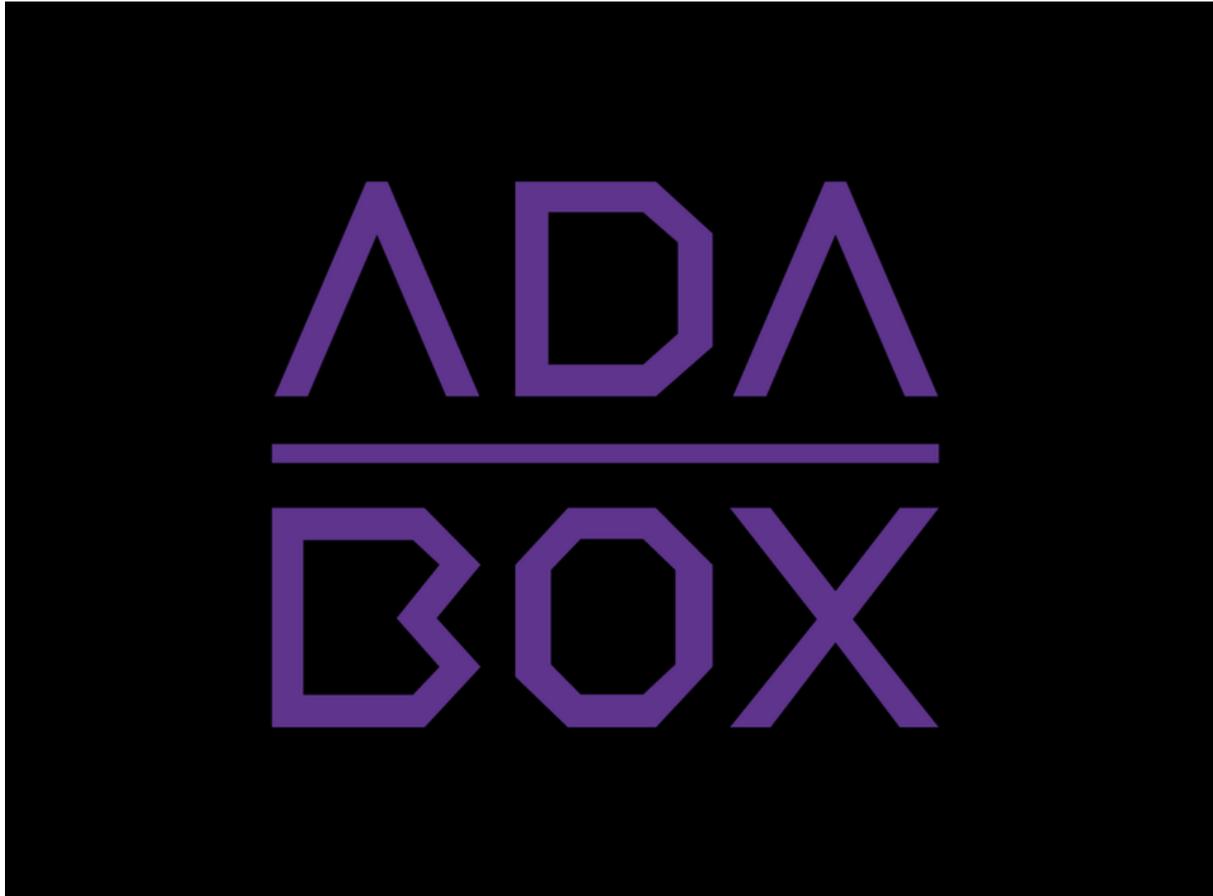




AdaBox 015

Created by John Park



<https://learn.adafruit.com/adabox015>

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Introduction

Hi there!

[If you're looking to subscribe to AdaBox, click here! \(https://adafru.it/tNC\)](https://adafru.it/tNC)

If you're here, it's because you were given the gift of electronics with an AdaBox! Perhaps you are a beginner who is getting started with your AdaBox. Or maybe you just want to relive what it's like being a beginner at electronics again. But most of all, you want to learn how to build and make creative, awesome stuff with electronics, graphics, and coding! ([If, rather than learn all that, you'd like to look at pictures of cats instead, please check https://www.adafruit.com/galleries/cats-of-engineering \(https://adafru.it/oAd\)](https://www.adafruit.com/galleries/cats-of-engineering))

And, you're in luck: there's never been a better time. Seriously. We're not just saying that. It's wild how great a time this is for you to learn electronics, coding, sensors, and wireless Bluetooth LE magic with images, lights, and sound!

Gone are the days where you need thousands of dollars of equipment and a physics/math background. Nowadays, if you want to learn to work with electronics and code microcontrollers, you can jump right in for \$100 or less and any sort of computer. And we're talking about learning a lot of electronics, graphics, coding, and Bluetooth LE wireless action - from the basics of setting up a microcontroller, to customizing your graphics on a beautiful TFT display, and doing it wirelessly! Soon you'll be taking control of your BLE devices like never before, and using them with your CLUE!

Who is this for?

Anyone who is interested in learning how to program and build interactive projects, and with access to a modern web browser. That's pretty much the minimum. Remember, this guide is specifically for people who have purchased or received an AdaBox subscription!

You don't need to know a lot of physics or math, and just like an Art Degree isn't required for making art and being creative, **you don't need to have a computer science or mechanical engineering degree**. It helps if you're comfortable using computers but that's a skill most people pick up through life.

If you know how to program already - great! If not, don't worry, we'll teach you enough to be dangerous.

Who isn't this for?

While you can follow along without an AdaBox, it will not make as much sense unless you have all of the components and more which either came as a gift or purchased yourself - remember, the goal is helping beginners!

This guide is also not for cuttlefish. Cephalopods are awesome, [but they prefer analog tools \(https://adafru.it/Mga\)](https://adafru.it/Mga).

If you're an expert, please visit our thousands of other tutorials and jump right in at [learn.adafruit.com \(https://adafruit.com\)](https://adafruit.com)

Who are you?

Great question. This is me:

I'm Ladyada, and I love to teach people how to build stuff and how they can be creative with technology.

So, are you ready?

Let's do this thing!

Unboxing Adabox 015



Hey - do you feel like you don't have a clue? Do you wanna get a clue? In this ADABOX we will give you a clue... the Adafruit CLUE!

The **CLUE** is a sensor-packed development board with a small colorful screen and a lot of sensors. To make it compatible with existing projects, we made it the same shape and size as the BBC micro:bit and with the same edge-connector on the bottom with five big pads so it will fit into your existing robot kit or 'bit add-on.

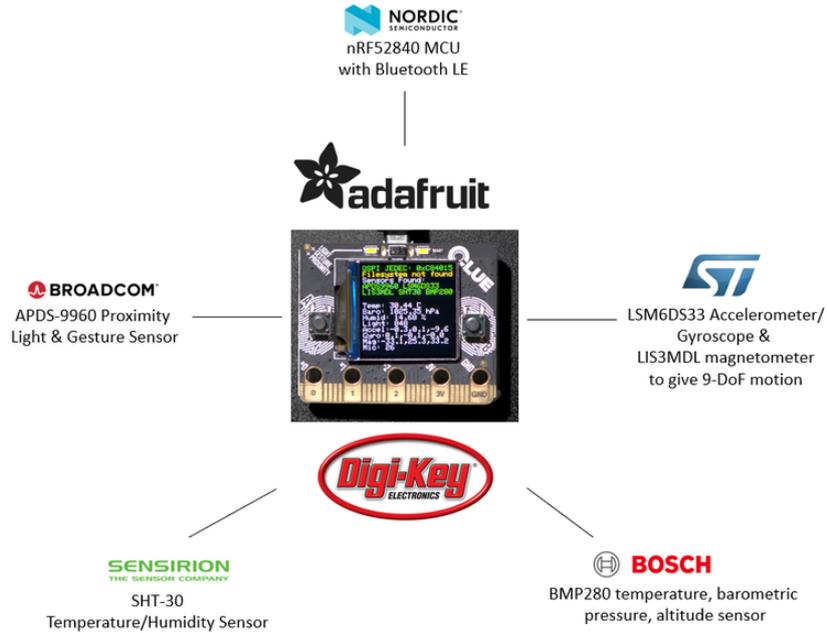
Each CLUE comes with a Nordic nRF52840 Bluetooth microcontroller, two buttons, 1.3" 240x240 color TFT, temperature, humidity, and barometric pressure, triple-axis accelerometer, gyroscope and magnetometer, proximity/light/color/gesture sensor, microphone, and a buzzer. Everything you need to learn how to interact and analyze the world around you.

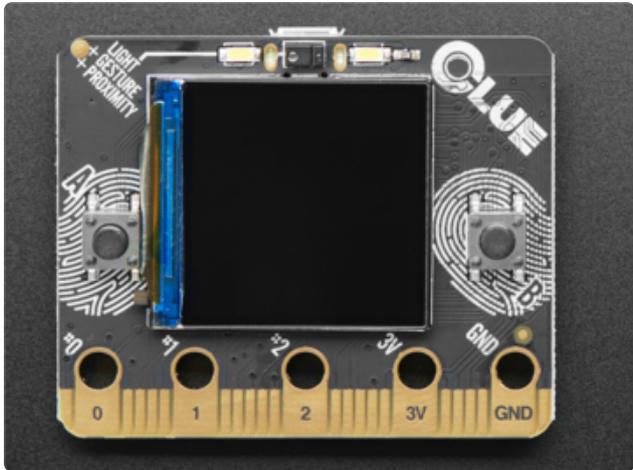
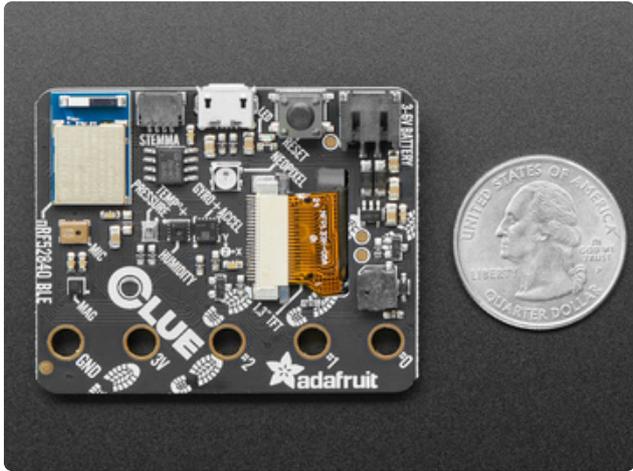
Have you been eagerly awaiting your ADABOX for a while? It has arrived! Thank you to everyone around the world who has been patient as this box made its way to you. There's no better time to get an ADABOX, with lots of fun electronic projects you can build at home by yourself or with family. Thank you from the entire Adafruit team here in NYC!

A huge thank you to Digi-Key for going above-and-beyond to help support Adafruit over the last few months. Digi-Key's support made this box possible, and we are so excited to see what you will build!

You ADABOX has been patiently waiting to be shipped for longer than usual, the PVC tubing may have left a noticeable odor. To clear out the odor, leave your ADABOX parts out in a ventilated room for an hour or two.

AdaBox 015 Contents





Adafruit CLUE

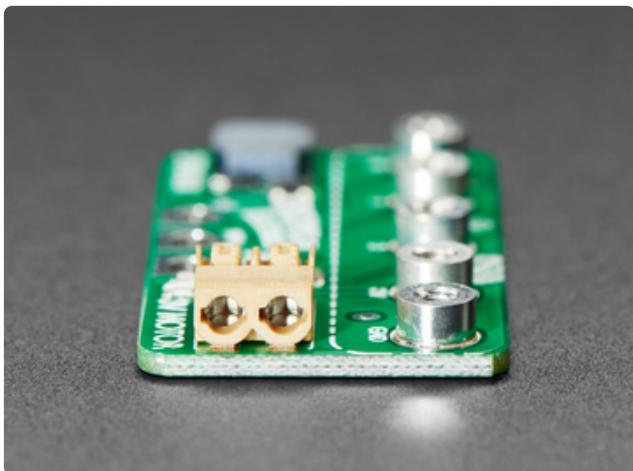
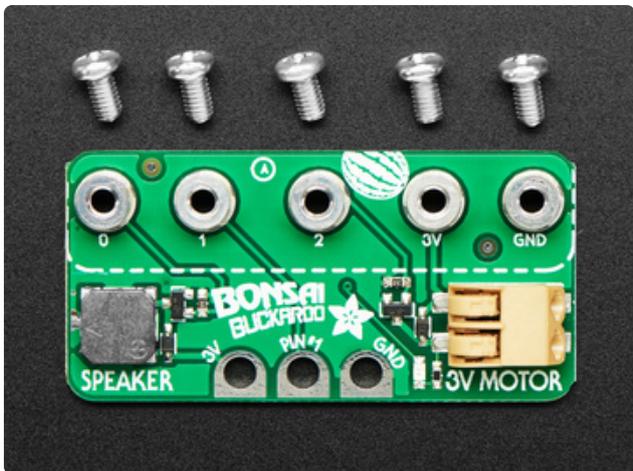
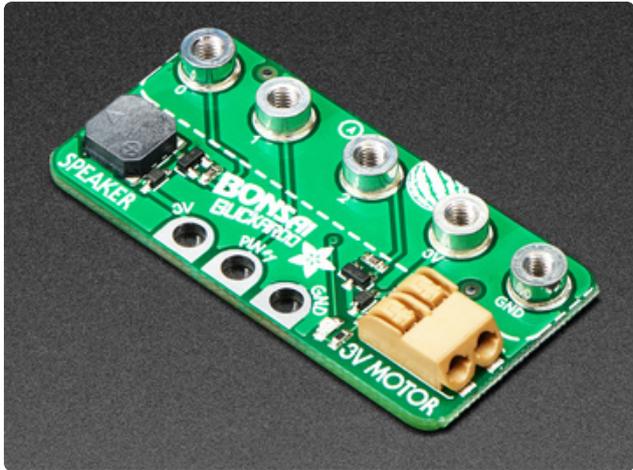
The star of the show! With a color display, tons of sensors, micro:bit compatibility, and Arduino or CircuitPython support for a ton of awesome projects.



3 x AAA battery pack and 3 x AAA alkaline batteries

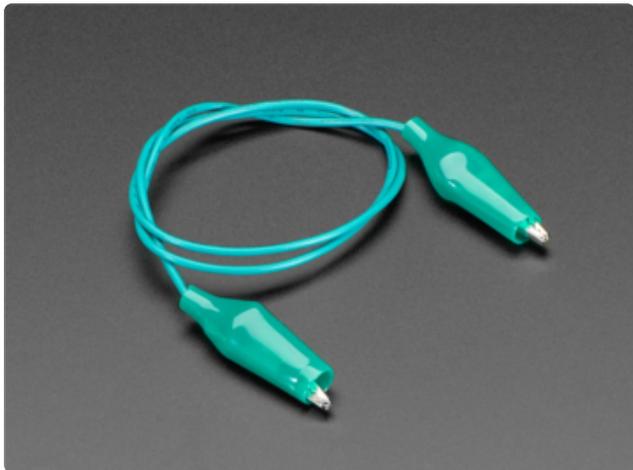
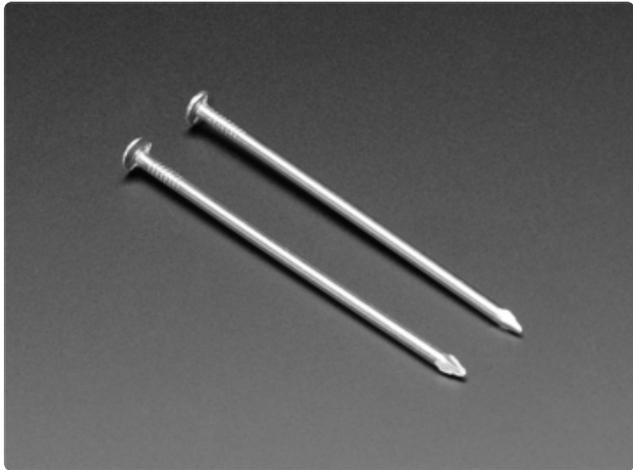
To power your CLUE anywhere you wish.



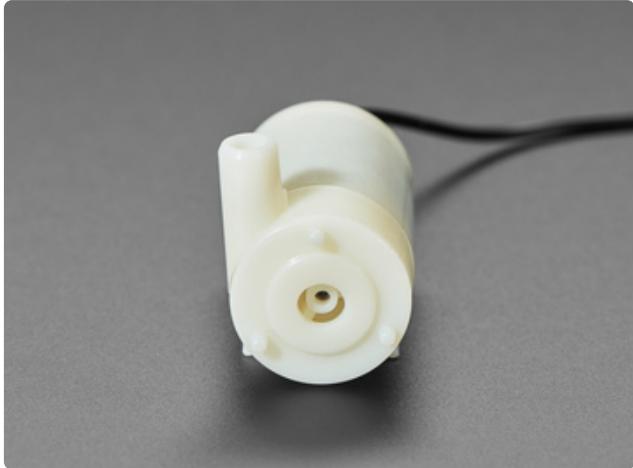
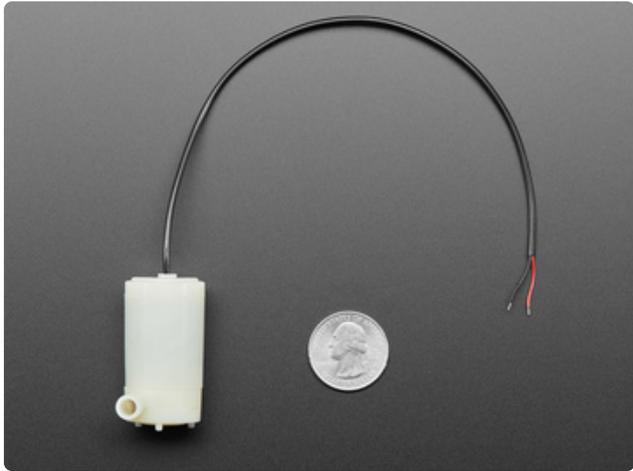


Adafruit Bonsai Buckaroo

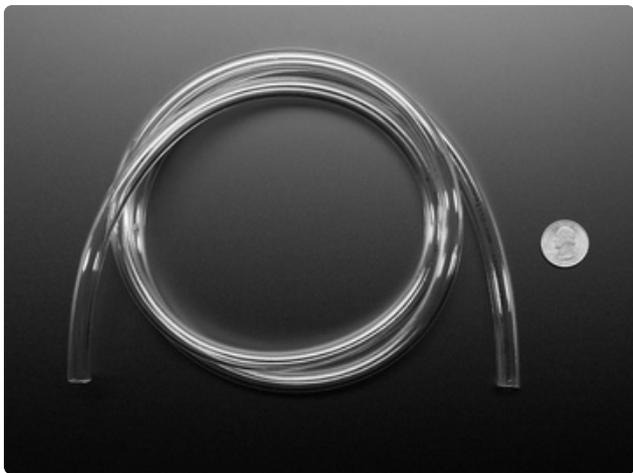
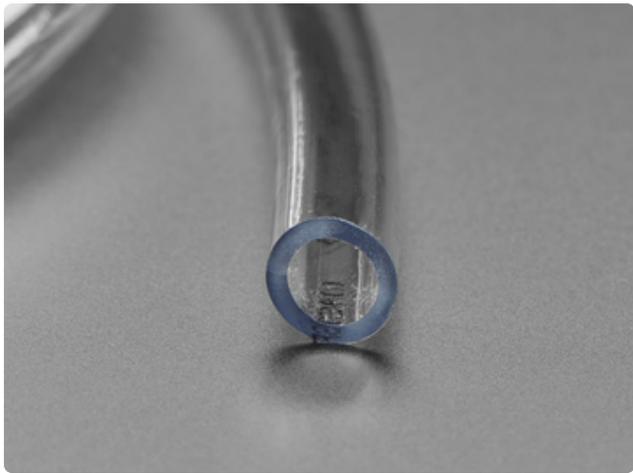
A plant care helper for CLUE. Bolt it on with 5 screws to get a buzzer/beeper, 3V DC motor driver, and alligator clips for connecting a DIY soil sensor



Two alligator clip cable leads
+ two stainless steel nails
To create a DIY soil moisture sensor



Water pump (3V DC motor) +
clear PVC tubing
To automatically water your plants from a
reservoir





Starter Planter Pot

This small plastic planter pot will get you started with your very first planting - just add soil + a few seeds to get sprouting

Your planter may be a little squished from shipping. Please smooth it out once you receive it - it will work just fine even if a little wrinkled!



Fingerless glove

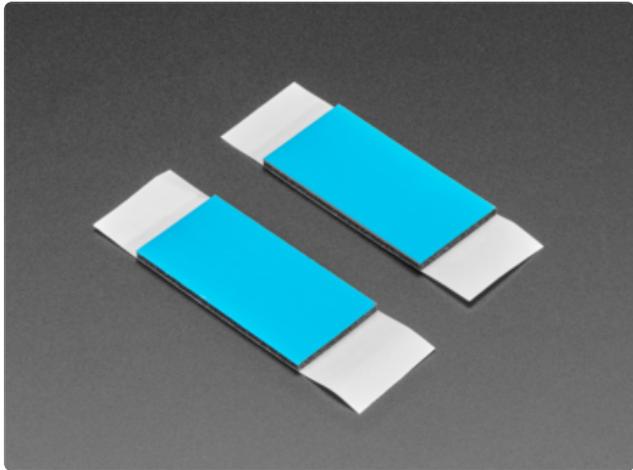
You can attach the CLUE to the glove to create hand-motion projects

(You may get one or two gloves, but you only need one for the projects)



Face Mask

We have been giving these KN95 masks out to New Yorkers, nurses, doctors, and anyone else who needs a face covering.



Double Stick Foam Tape

Adhere stuff to stuff. Useful when crafting many of our CLUE projects!

Adafruit CLUE

[Adafruit CLUE \(https://adafru.it/Ka5\)](https://adafru.it/Ka5)

Bonsai Buckaroo

[Bonsai Buckaroo \(https://adafru.it/LXD\)](https://adafru.it/LXD)

Custom CLUE Badge

[Custom CLUE Badge \(https://adafru.it/LXE\)](https://adafru.it/LXE)

Flower Care Robot

[Flower Care Robot \(https://adafru.it/LYc\)](https://adafru.it/LYc)

CLUE Egg Drop Experiment

[CLUE Egg Drop Experiment \(https://adafru.it/LYd\)](https://adafru.it/LYd)

Sensor Plotter

[Sensor Plotter \(https://adafru.it/La9\)](https://adafru.it/La9)

No-Touch Hand Wash Timer

[No-Touch Hand Wash Timer \(https://adafru.it/LYb\)](https://adafru.it/LYb)

I Ching Caster

[I Ching Caster \(https://adafru.it/LYe\)](https://adafru.it/LYe)

Metronome CLUE

[Metronome CLUE \(https://adafru.it/LYf\)](https://adafru.it/LYf)

CLUE BLE MIDI Glove

[CLUE BLE MIDI Glove \(https://adafru.it/MdO\)](https://adafru.it/MdO)

Step Counter

[Step Counter \(https://adafru.it/LZc\)](https://adafru.it/LZc)

BLE Advertising Beacons

[BLE Advertising Beacons \(https://adafru.it/LYC\)](https://adafru.it/LYC)

Dice Roller

[Dice Roller \(https://adafru.it/LZd\)](https://adafru.it/LZd)

CLUE Metal Detector

[CLUE Metal Detector \(https://adafru.it/LZb\)](https://adafru.it/LZb)

BLE BBQ Temperature Montitor

[BLE BBQ Temperature Montitor \(https://adafru.it/LYA\)](https://adafru.it/LYA)

Slideshow Purse

[Slideshow Purse \(https://adafru.it/LYB\)](https://adafru.it/LYB)

BLE Sensor Nodes

[BLE Sensor Nodes \(https://adafru.it/LYD\)](https://adafru.it/LYD)

Yoga Pose Chime

[Yoga Pose Chime \(https://adafru.it/LYF\)](https://adafru.it/LYF)

LightPaint Stick

[LightPaint Stick \(https://adafru.it/LYE\)](https://adafru.it/LYE)

Vertical Garden Weather Visualizer

[Vertical Garden Weather Visualizer \(https://adafru.it/L3A\)](https://adafru.it/L3A)

Teletype Transmitter

[Teletype Transmitter \(https://adafru.it/LZa\)](https://adafru.it/LZa)

CLUE Bicycle Speed/Cadence Sensor

[CLUE Bicycle Speed/Cadence Sensor \(https://adafru.it/LXF\)](https://adafru.it/LXF)

Pyloton Cycling Computer

[Pyloton Cycling Computer \(https://adafru.it/LYa\)](https://adafru.it/LYa)

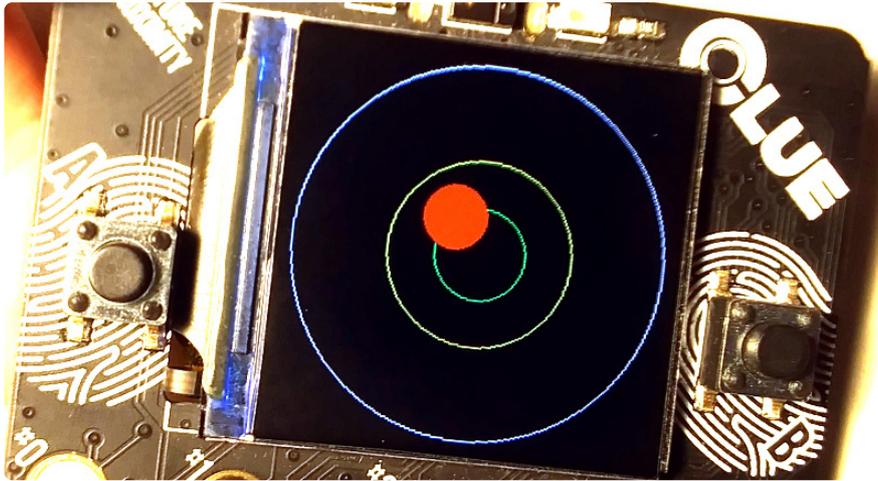
CLUE Case

[CLUE Case \(https://adafru.it/JhE\)](https://adafru.it/JhE)

CLUE Slim Case

[CLUE Slim Case \(https://adafru.it/LZe\)](https://adafru.it/LZe)

Demo Code



So you've had fun playing around with all these great CLUE based projects. But then you remember that cool demo that was on the CLUE when you got your AdaBox. Want that back? Sure thing. Here's the code.

Download this UF2 file:

ADABOX15_DEMO.UF2

<https://adafru.it/MAC>

Double press reset to put your CLUE in bootloader mode and drag that UF2 file to the BOOT folder and you should be back to spirit level goodness.

And you can do this again anytime you want. So don't feel scared to reprogram the board and lose this cool demo.

Source Code

If you want to see the source code behind the demo, here are the links. These are written in Arduino.

The main demo code is here:

AdaBox 15 CLUE Plotter

<https://adafru.it/MAD>

The spirit level code is here:

Spirit Level

<https://adafru.it/MAE>

The plotter code is here:

Arcada Plotter

<https://adafru.it/MAF>

Happy plotting!

