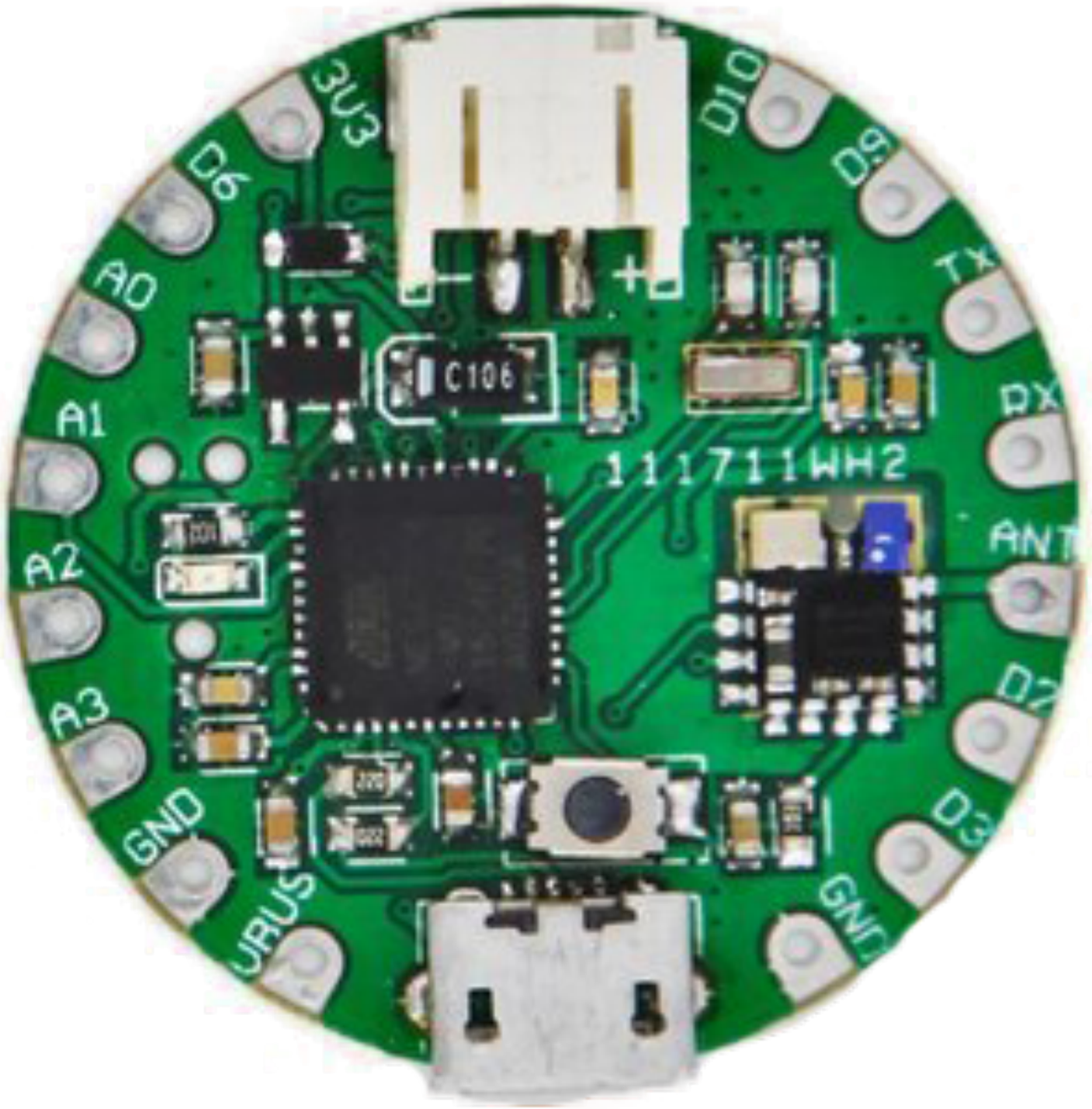
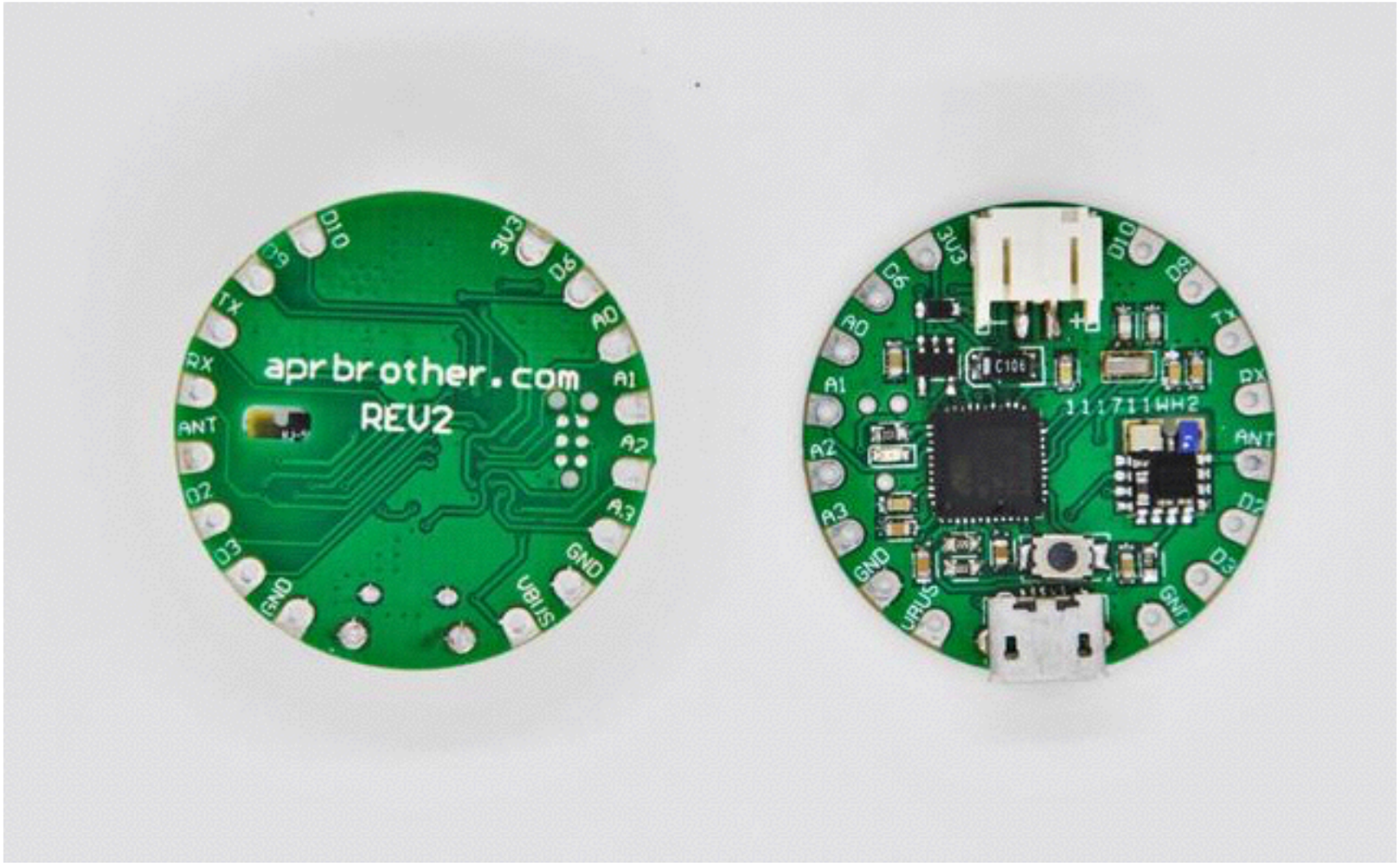
Performance Technology 1

Bluetooth peripherals


3V3
D10
D9
D6
TX
A0
C106
RX
A1
111711WH2
ANT
A2
D2
A3
D3
GND
URUS
GND

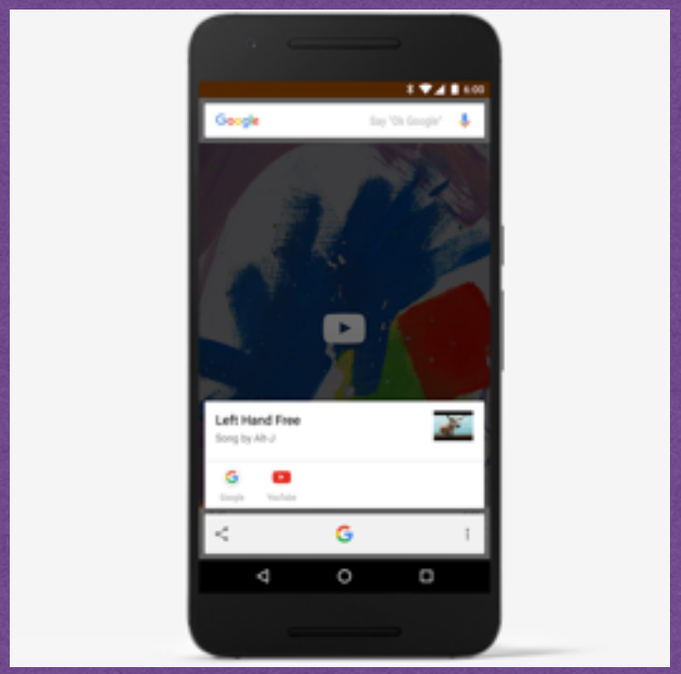
BLEPAD

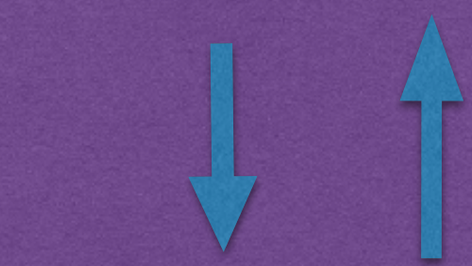
Blepad

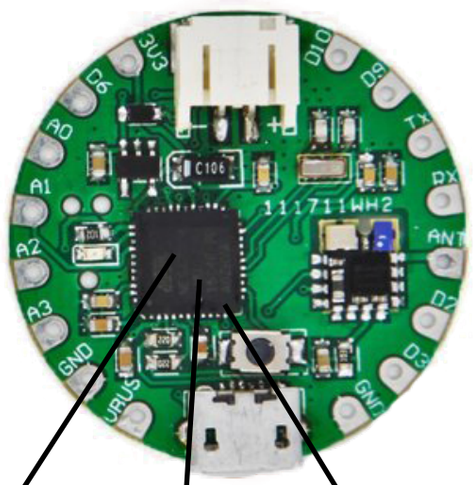


The BLEPad is an Arduino compatible microcontroller development board based on the ATmega32U4 IC with Bluetooth 4.0. a.k.a. Bluetooth Low Energy (BLE), built in.

OUTPUT

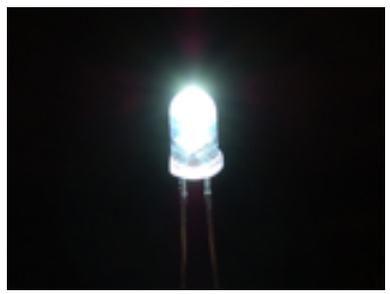






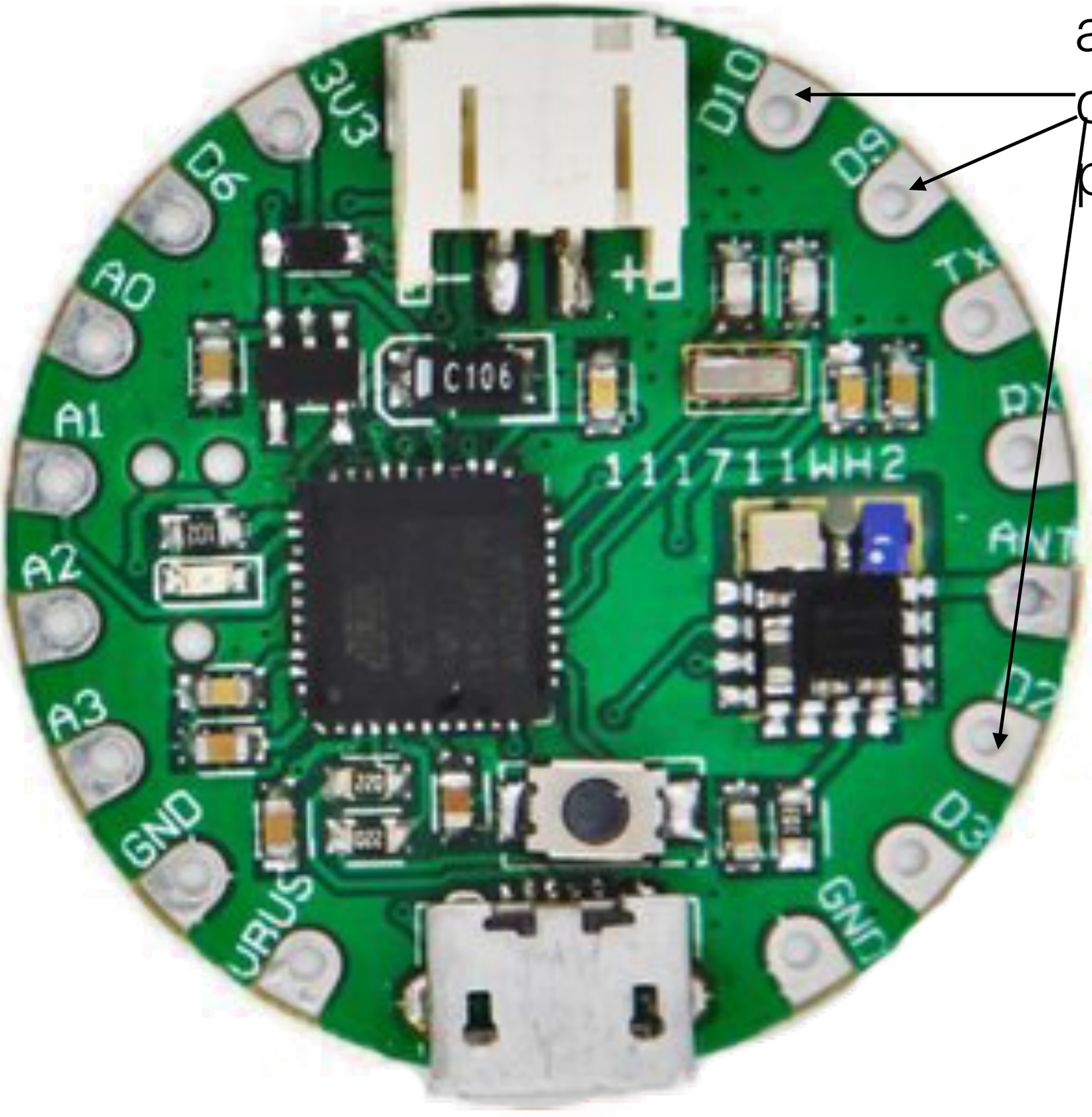
coloured light

vibrate



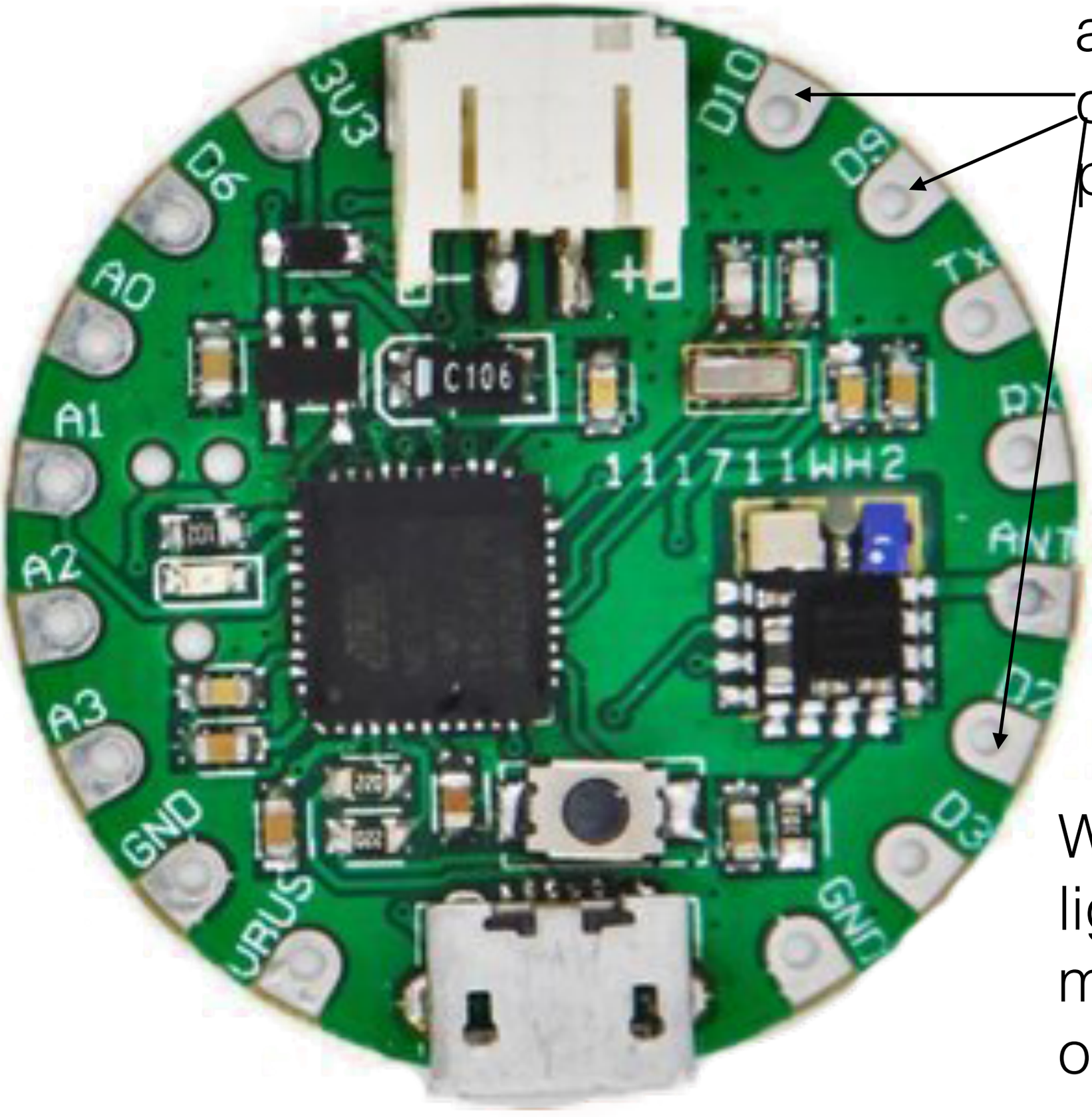
more light

OUTPUT



We can switch on and off power at the digital pins programmatically.

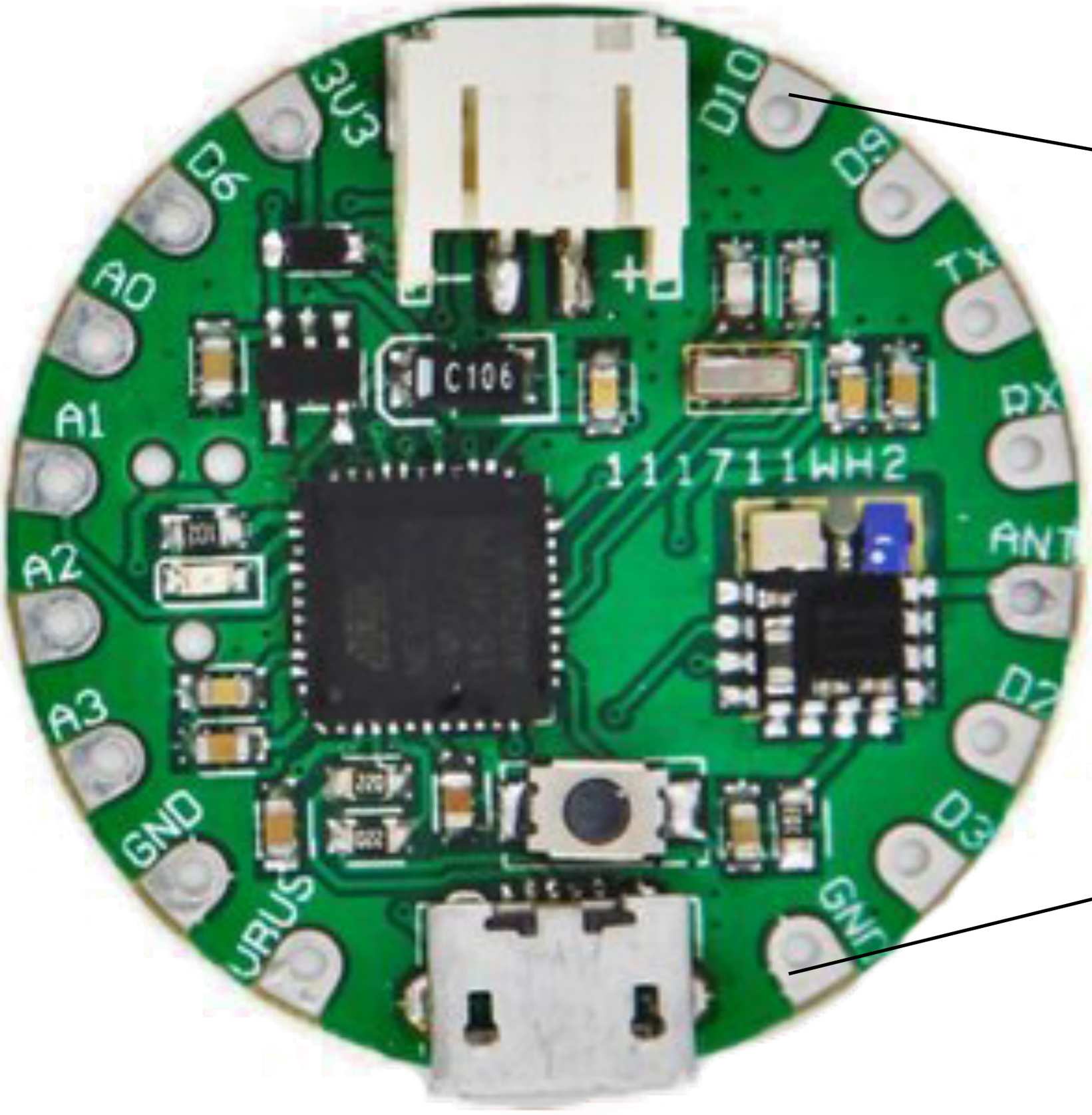
OUTPUT

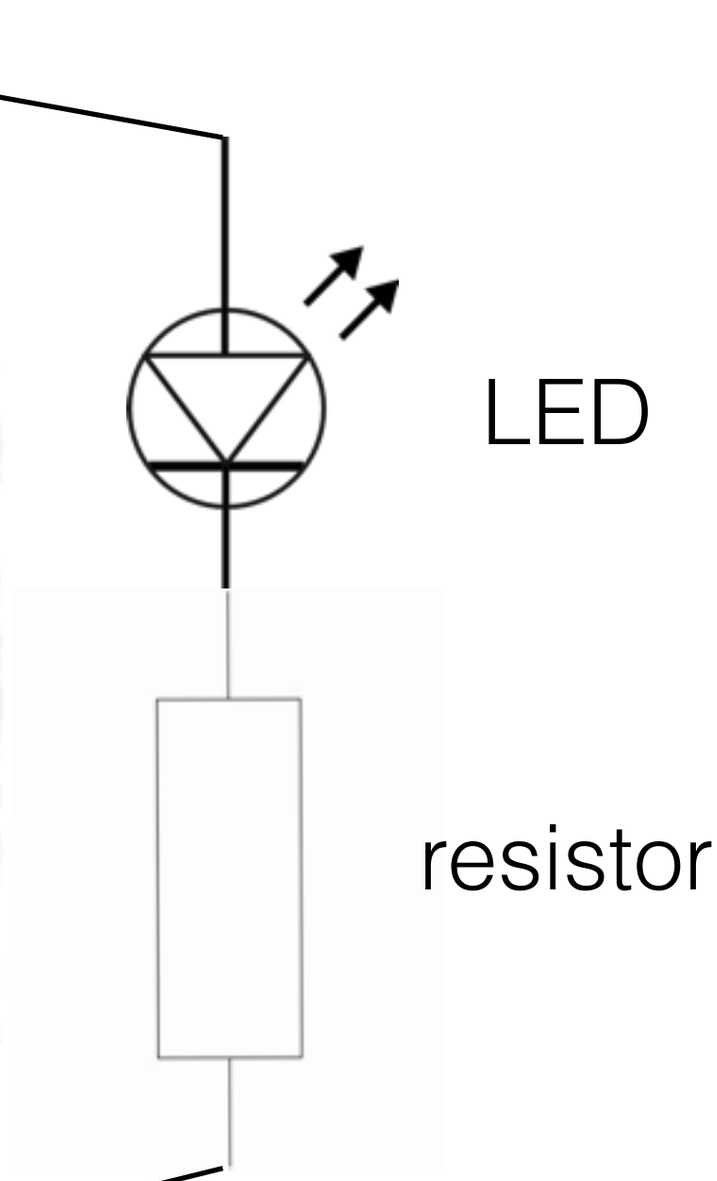


We can switch on and off power at the digital pins programmatically.

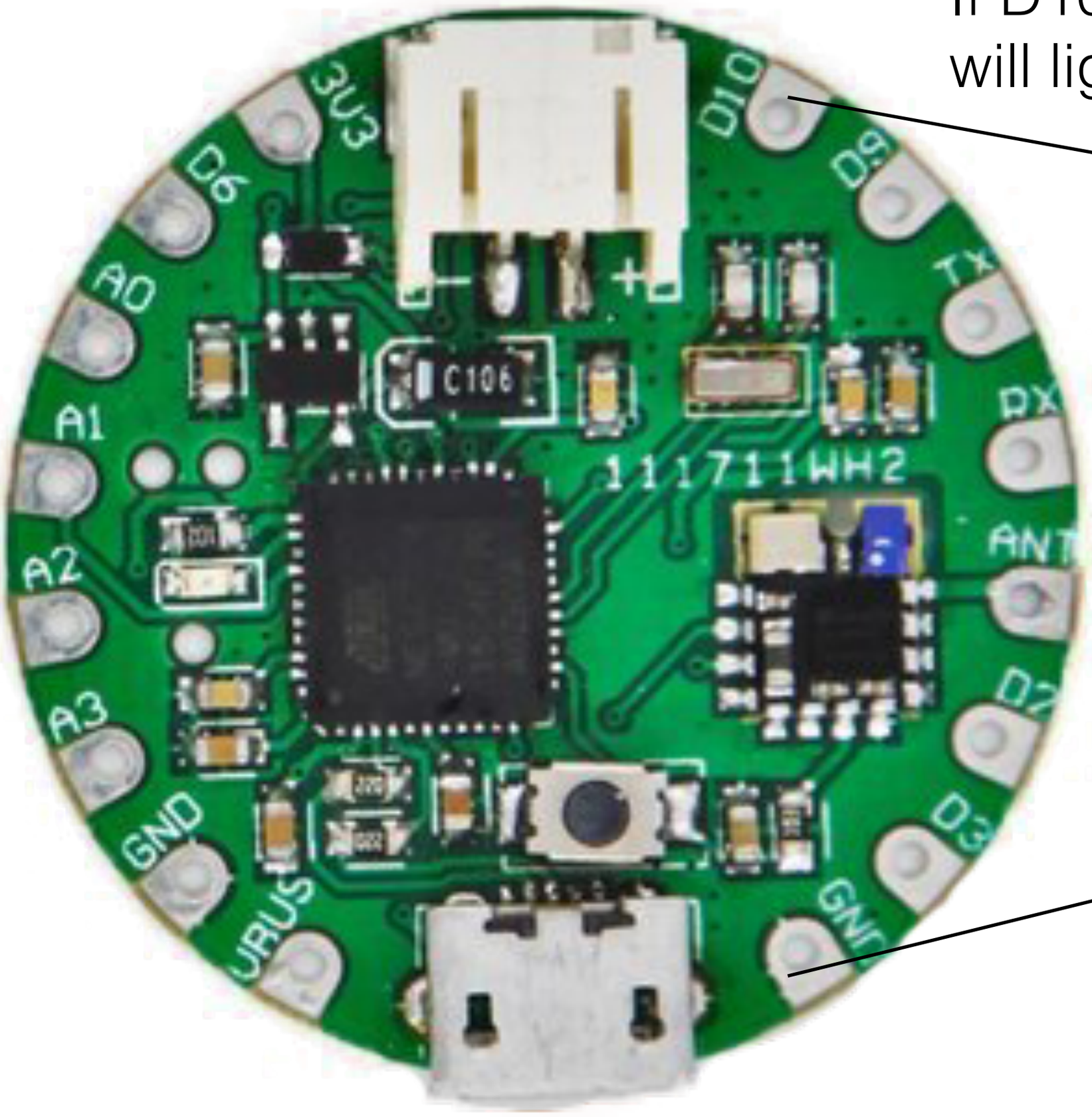
What if we attached lights or buzzers or motors to the digital output pins?

OUTPUT: ADDING AN LED

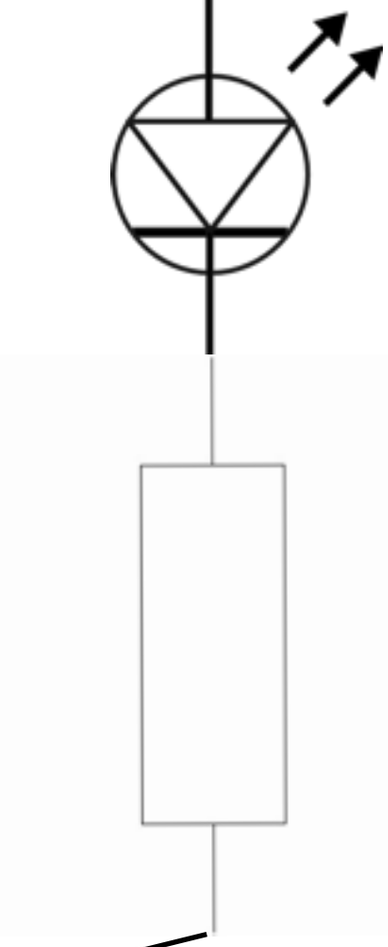




OUTPUT: ADDING AN LED



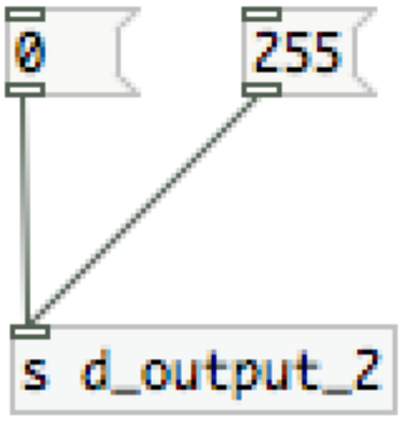
If D10 is on the LED will light up



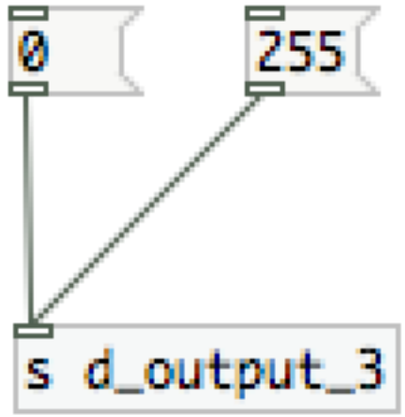
LED

resistor

How to switch on power at BLEPAD digital Output pin?



pin D2



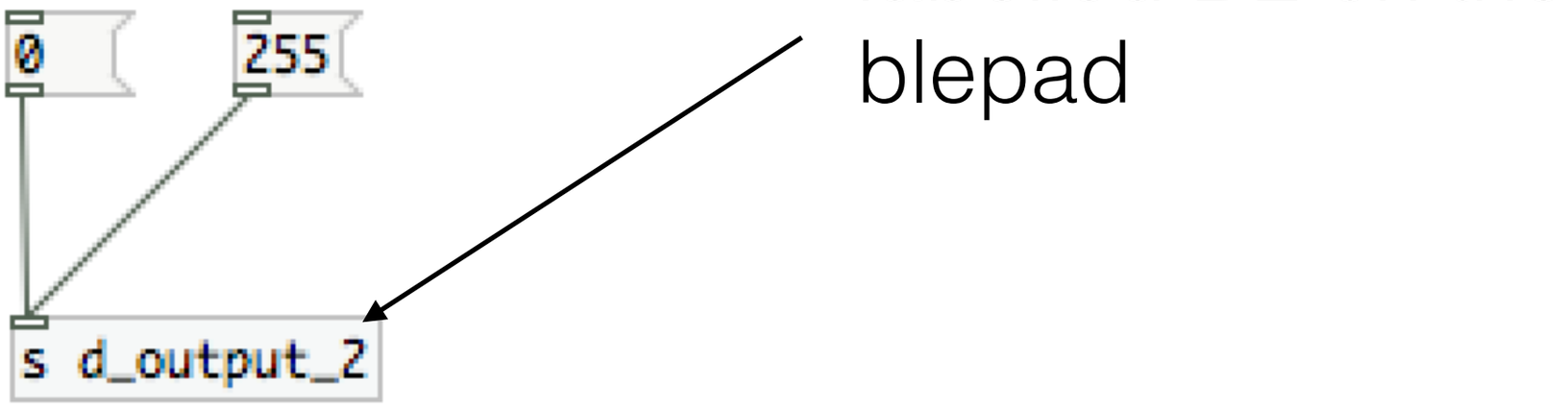
pin D3

Conor has been working hard to make this easy for us.

Sending 0 will turn off the power at the pin

Sending 255 will turn on the power at the pin

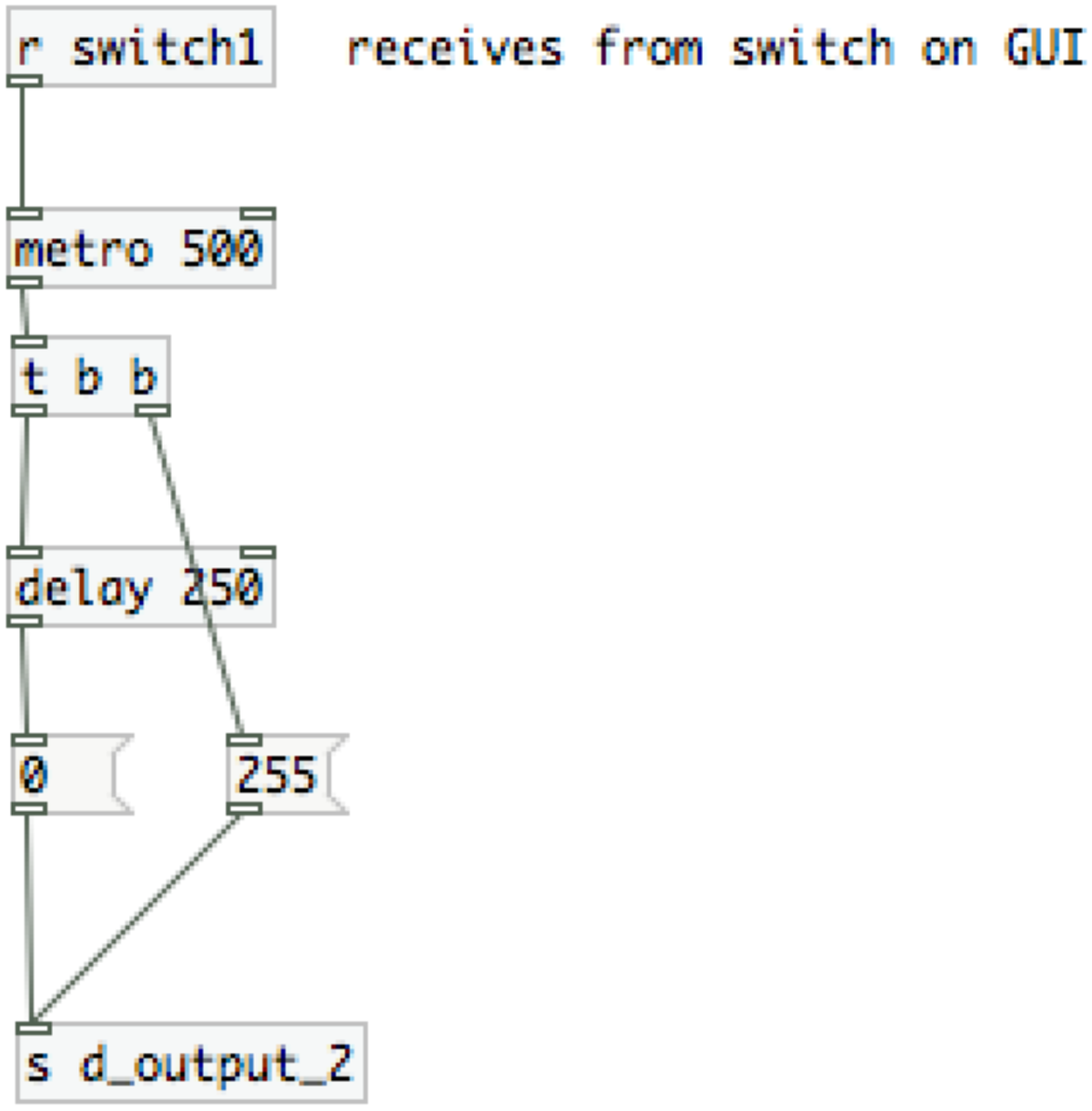
We Control The digital Output pin from PD



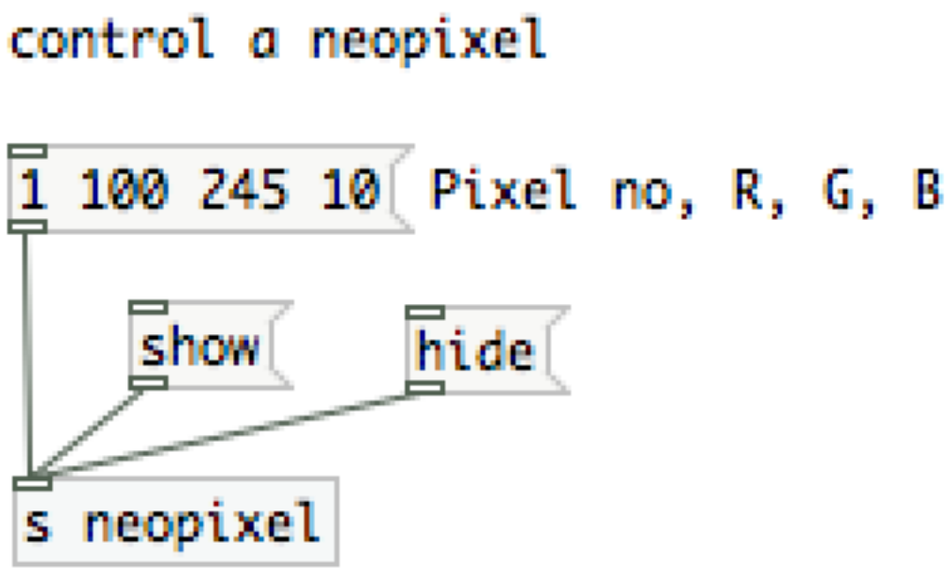
The digital output labelled D2 on the blepad

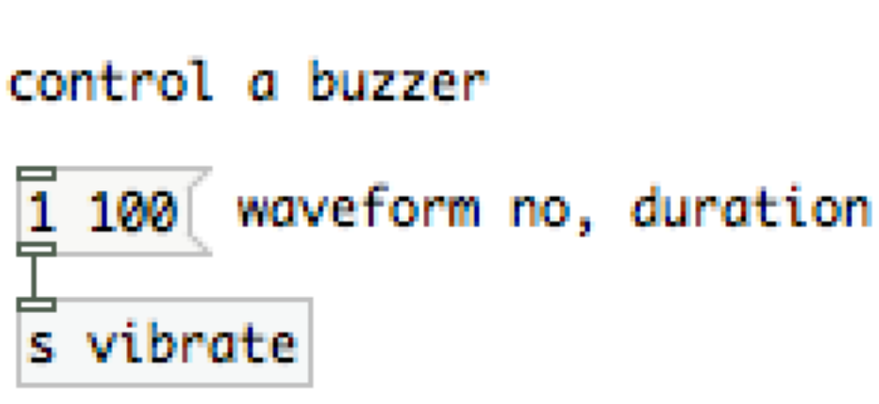
Sending 0 will turn off the power at the pin
Sending 255 will turn on the power at the pin

Whats this going to allow us to do?



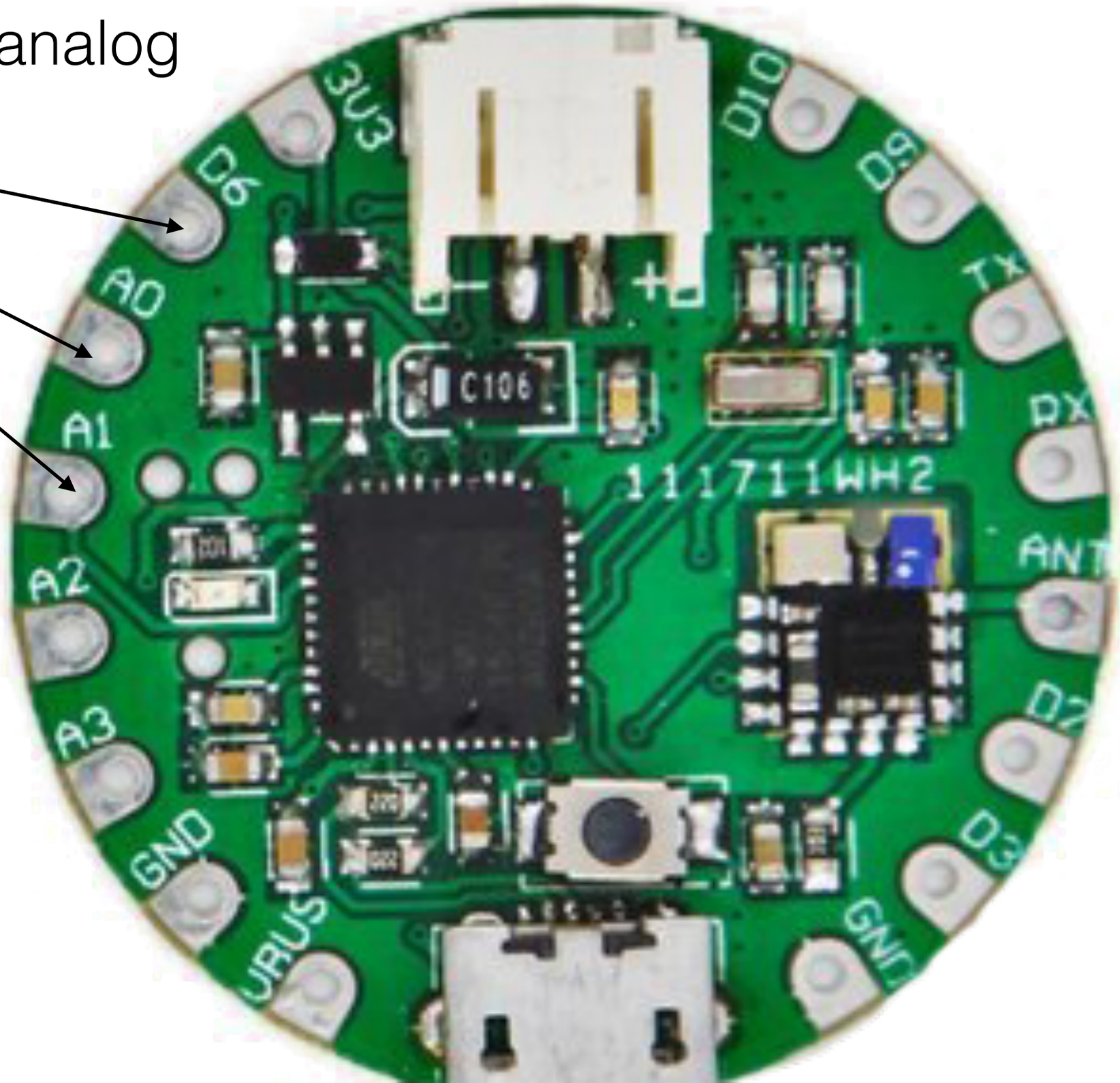
some more outputs





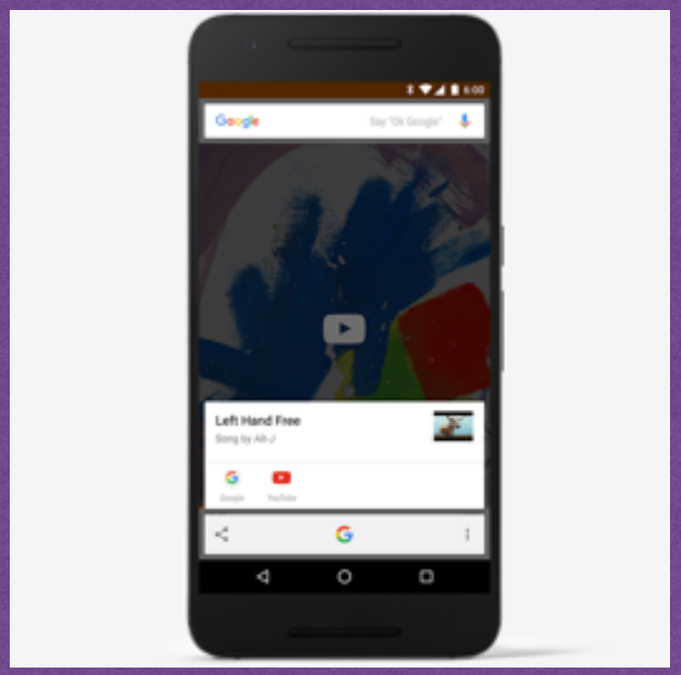
INPUT

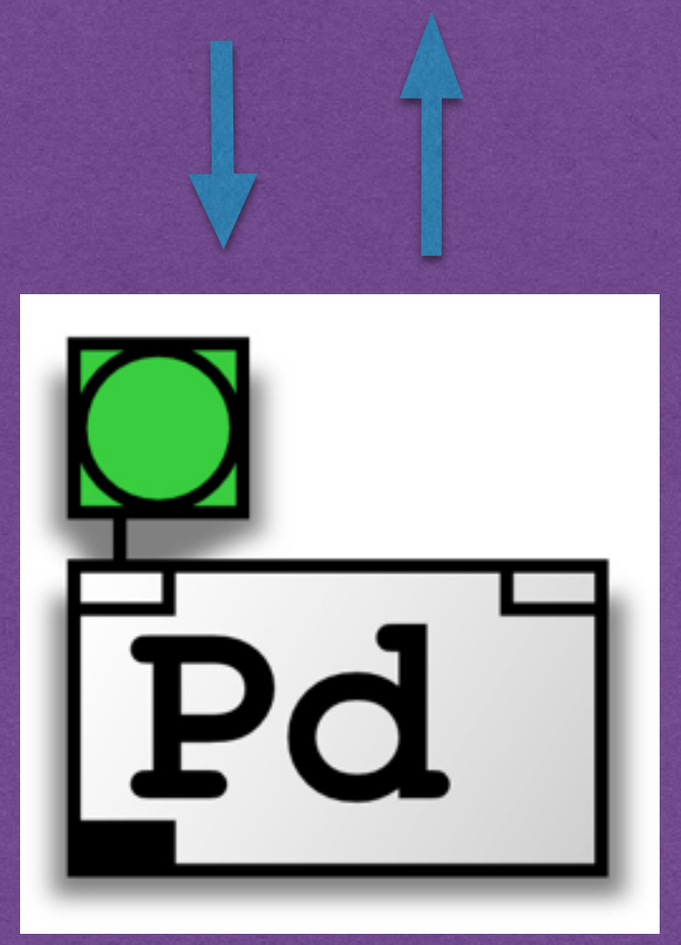
We can measure the electrical signal at digital and analog **inputs**

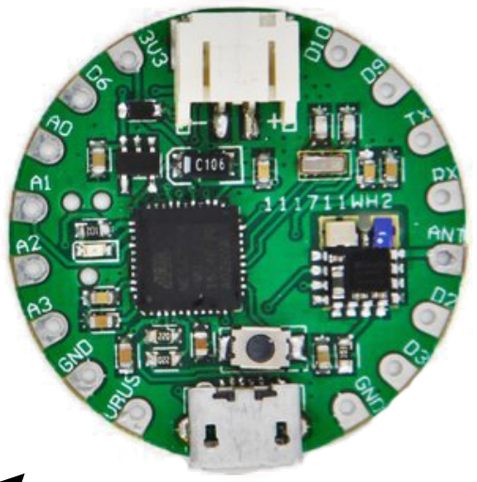


This signal could be created by a button or a sensor

Input







button

temperature

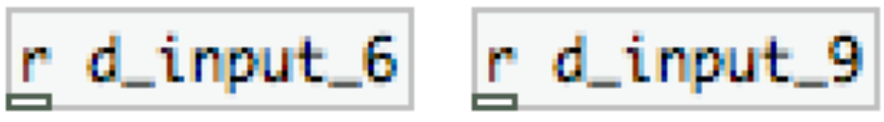
pressure

Handling Input from sensors connected to BLEPAD

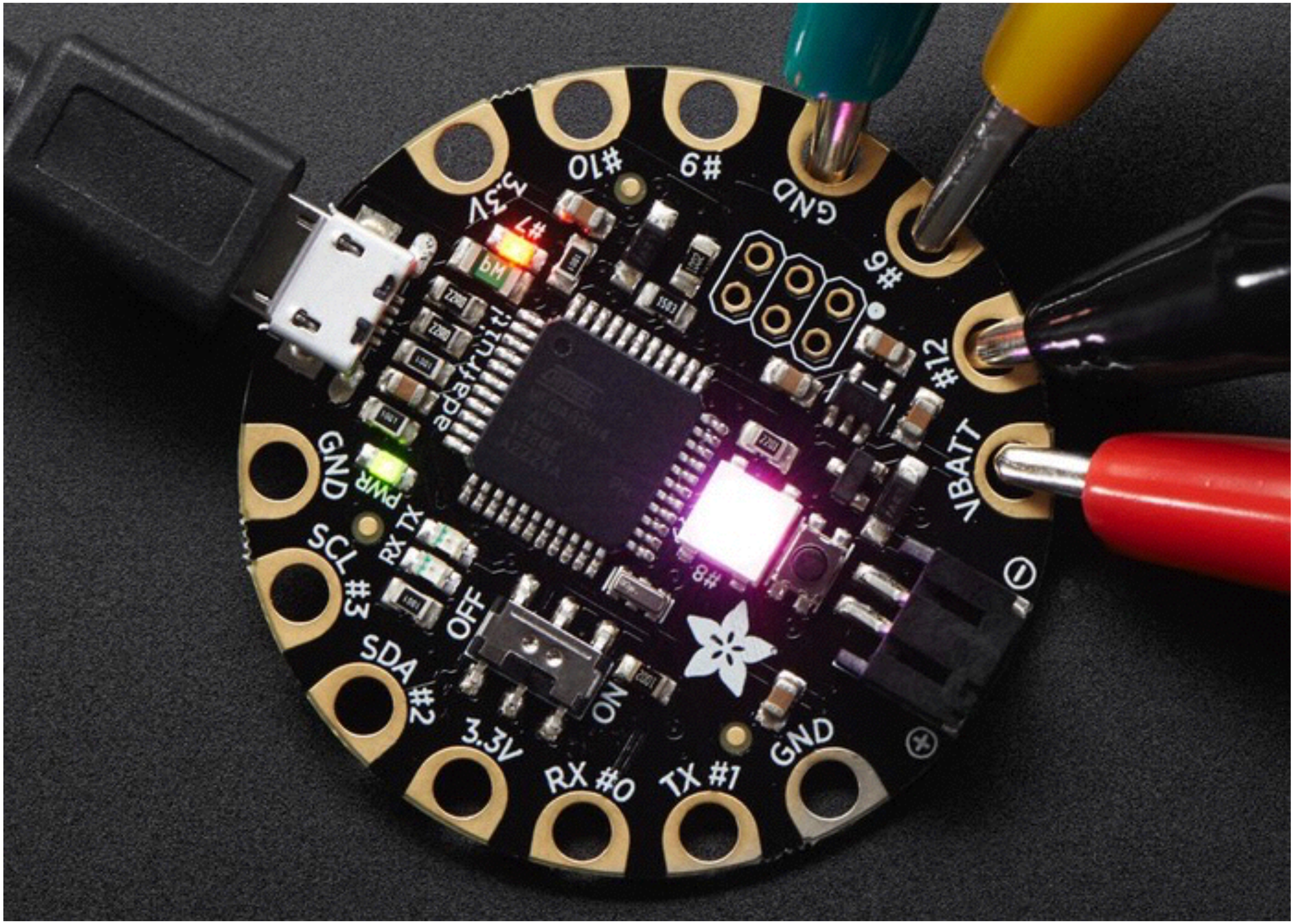
you will receive a value between 0 and 1023. If 0V applied to pin you will receive 0. If 3.3V applied to pin you will receive 1023

if 3.3V applied to digital pin you will receive a 1

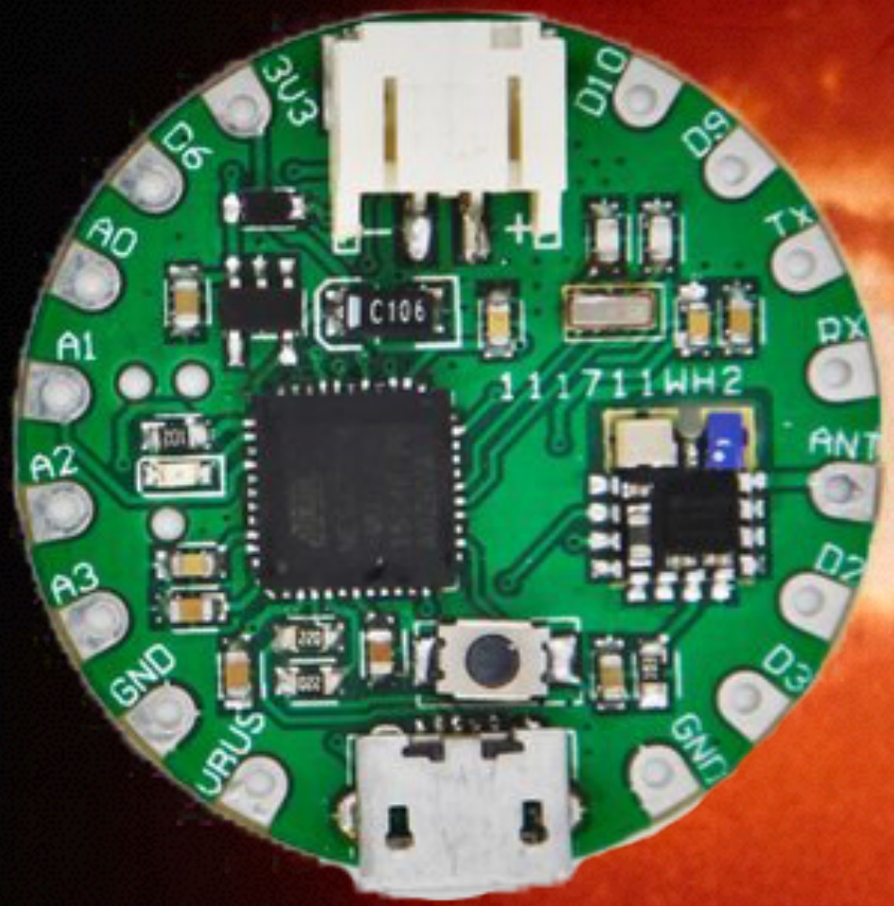
if 0V applied to digital pin you will receive a 0

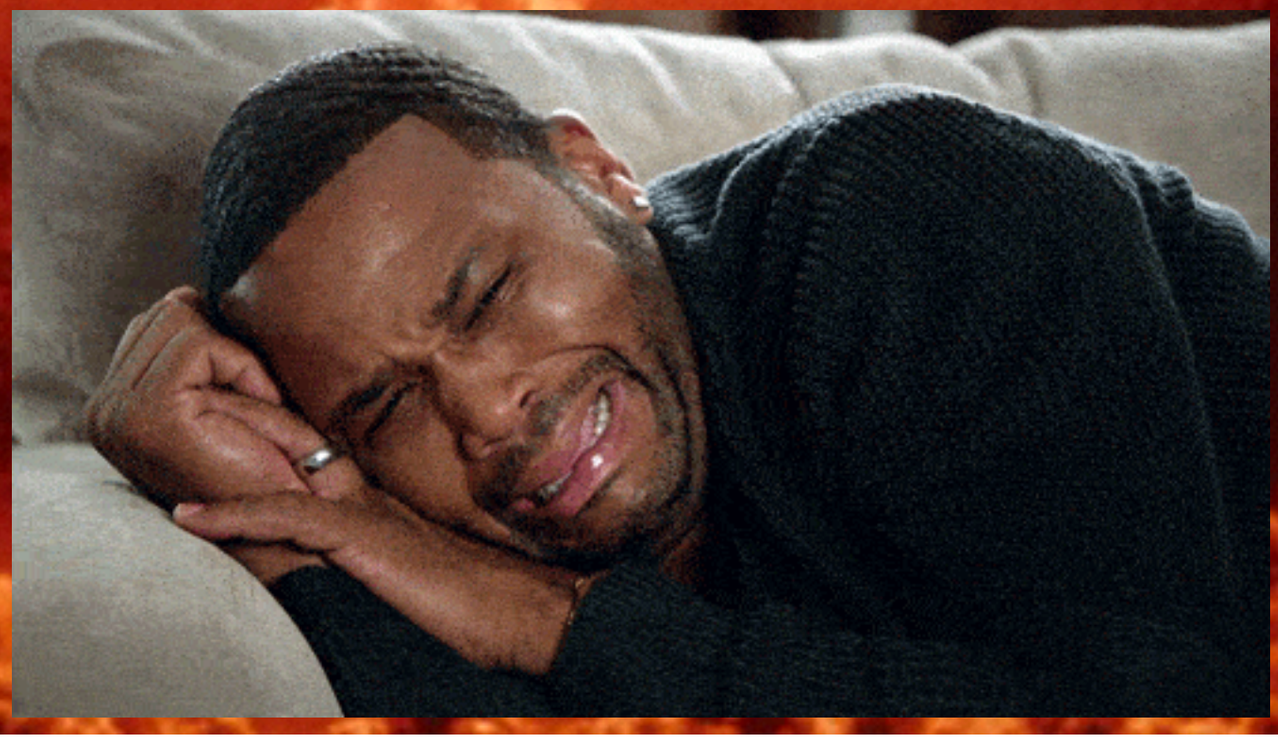


Connect to BLEPAD using crocodile clips

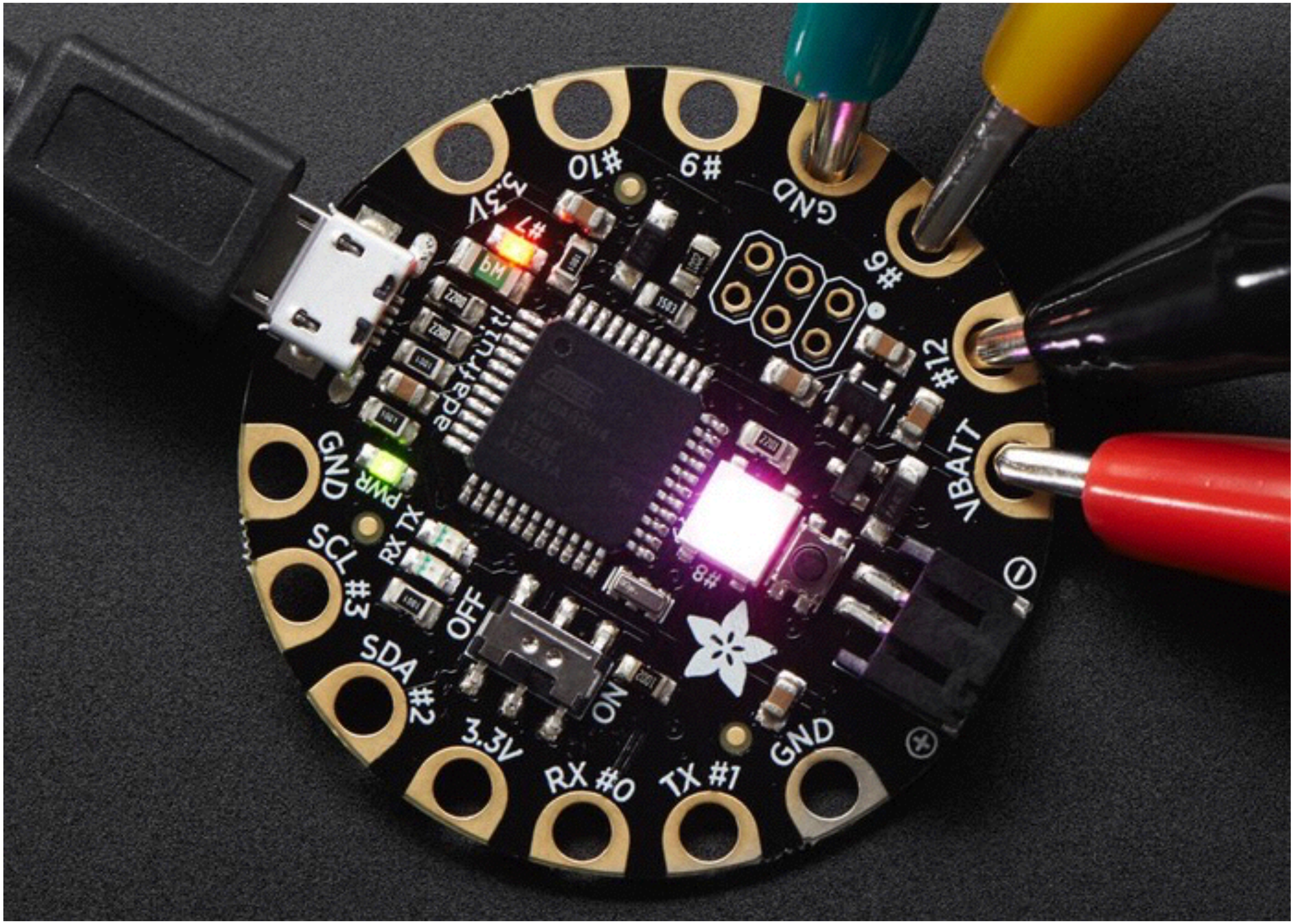


CAUTION: SHORT CIRCUITS





Connect to BLEPAD using crocodile clips



SHORT CIRCUITS

- If the clip slips onto the pad beside it: BOOM
- If the clip slips forward and contacts part of the circuit: BOOM
- BE CAREFUL!!!! Read Lab instructions carefully.
- Check connections with Conor or me **before** connecting battery or USB. Connect Power last!!.
- Each BLEPAD = €20 and takes 1 month to arrive from China!

Final Project

- Start thinking about how you can use combinations of inputs and outputs to achieve your design aim.

- Where should the sensors and outputs be placed on the user?

- What might colour or buzz strength indicate?