

tangible

ANALOG INPUT

Tangible Matrix

Context	DIGITAL	ANALOG
INPUTS	BUTTON	POTENTIOMETER photoCell
OUTPUTS	LED BLINK	LED FADE

Analog INPUTs

Context	DIGITAL	ANALOG
INPUTS	BUTTON	POTENTIOMETER photoCell
OUTPUTS	LED BLINK	LED FADE

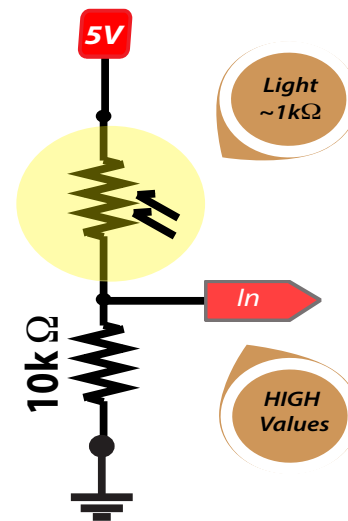
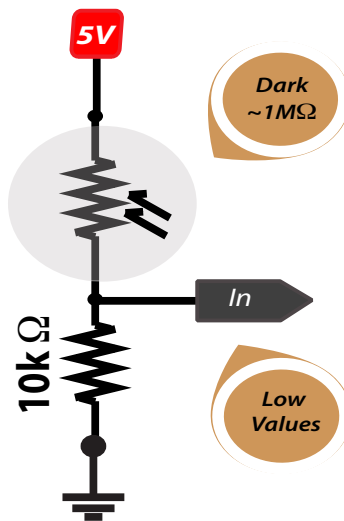
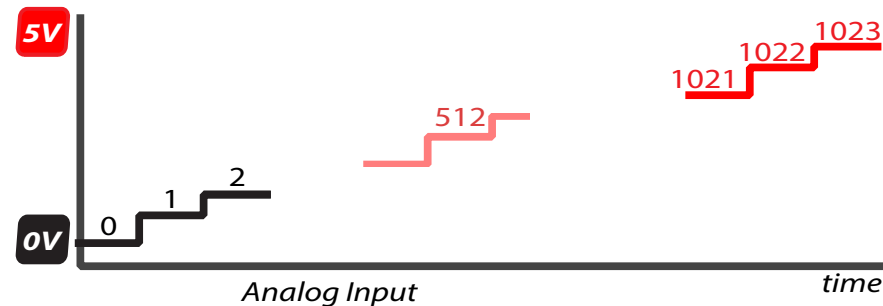
REFERENCE

Analog Input

CONTEXT

	Digital	Analog
Input		
Output		

CIRCUIT



COMMAND

```
int state = analogRead ( pin );
```

- *pin* = A0-A5
- *state* = 0 - 1023 (*int*)

CODE

```
int lightPin = 5; // or A5
int state = 0;

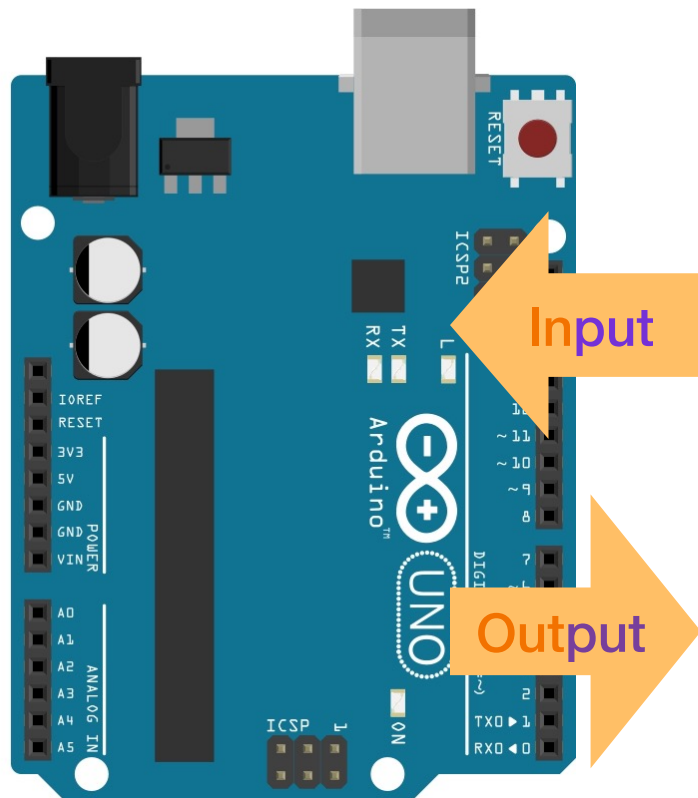
void setup() {
    pinMode(lightPin, INPUT);
    Serial.begin(9600);
}

void loop() {
    state = analogRead( lightPin );
    Serial.println(state);
    delay(50);
}
```

The CONTEXT

INPUT / OUTPUT

When we discuss **INPUT** and **OUTPUT** we mean relative to our **ARDUINO**.



INPUT

Electric **SIGNAL** that moves **IN** to the **Arduino**

OUTPUT

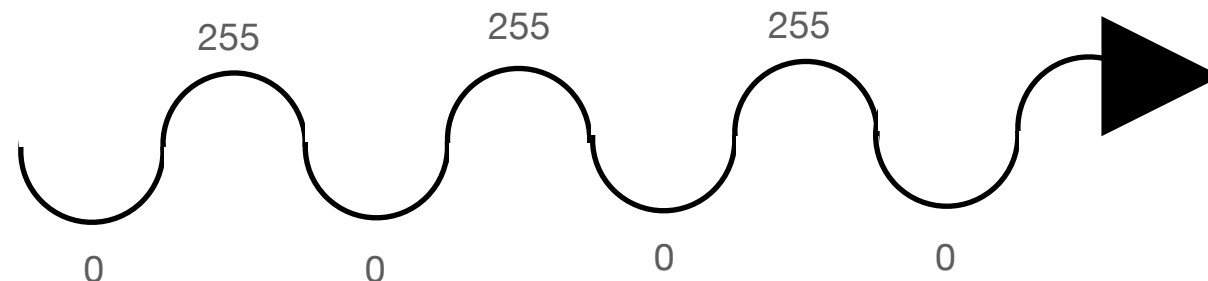
Electric **SIGNAL** that moves **OUT** of the **Arduino**

ANALOG

Refers to **SIGNALS**, **CIRCUITS** or **LOGICAL** systems that
are

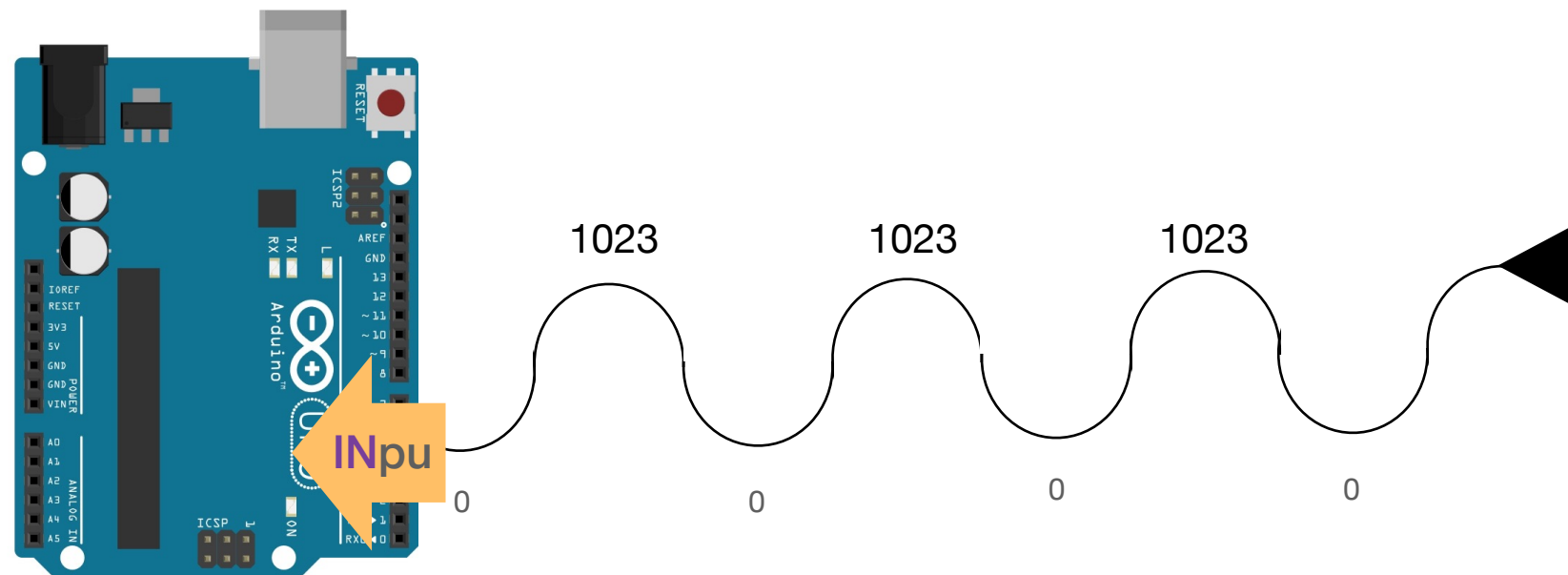
VARIABLE OR GRADUATED

An **VARIABLE** SIGNAL:



ANALOG INPUT

An **CONTINUOUS** SIGNAL that moves **INTO** the Arduino



The CODE

Analog **Input** (**Read** a PhotoCell)

```
int state = analogRead( pin );
```

state = 0-1023

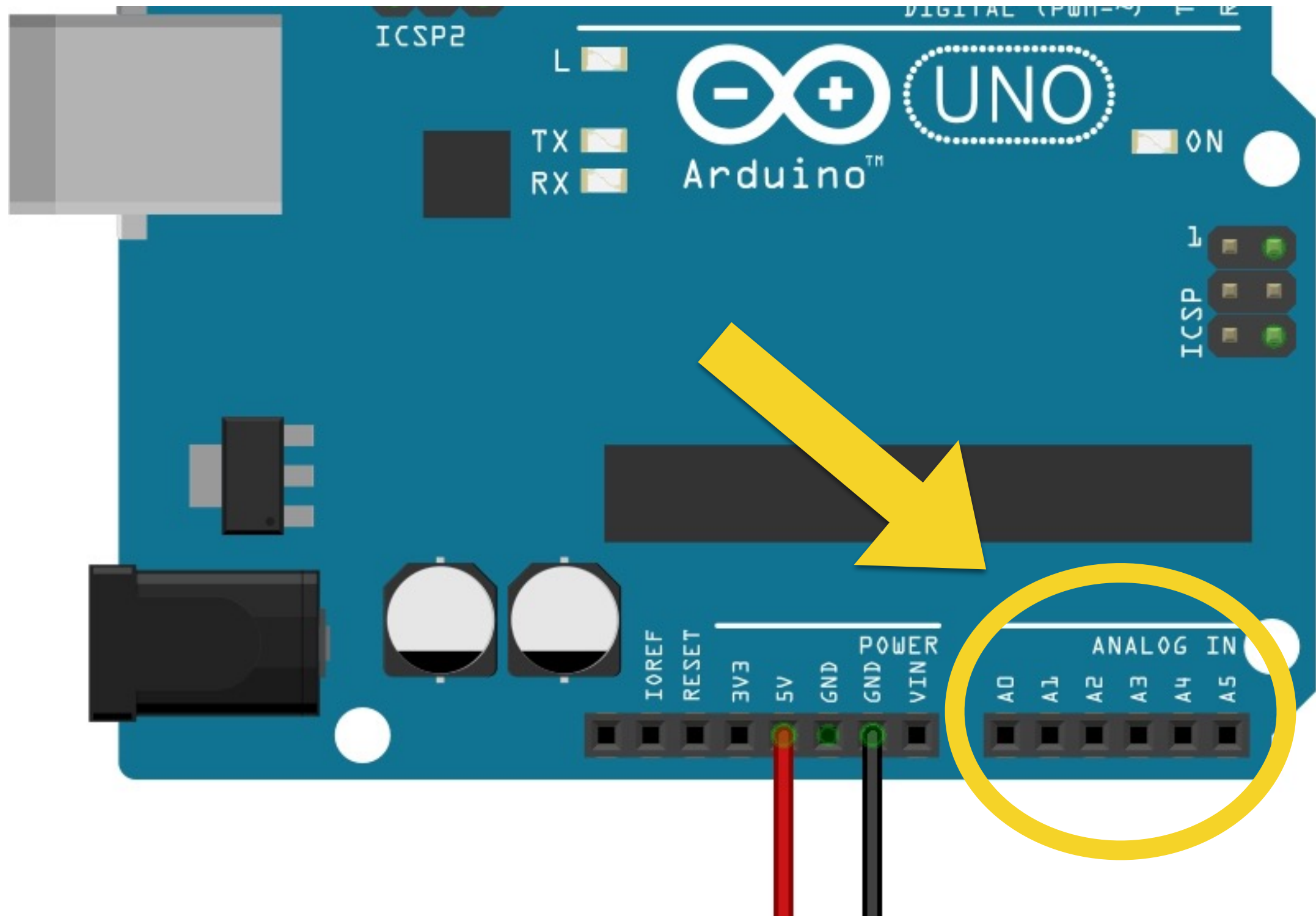
Digital **Input** (**Read** a Button)

```
int state = digitalRead( pin );
```

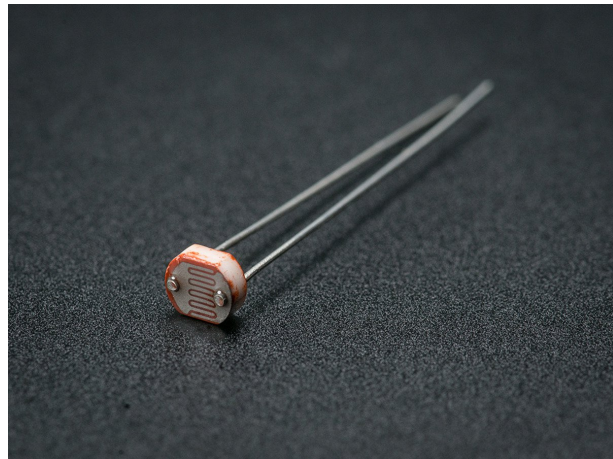
state = 0, 1

The Circuit

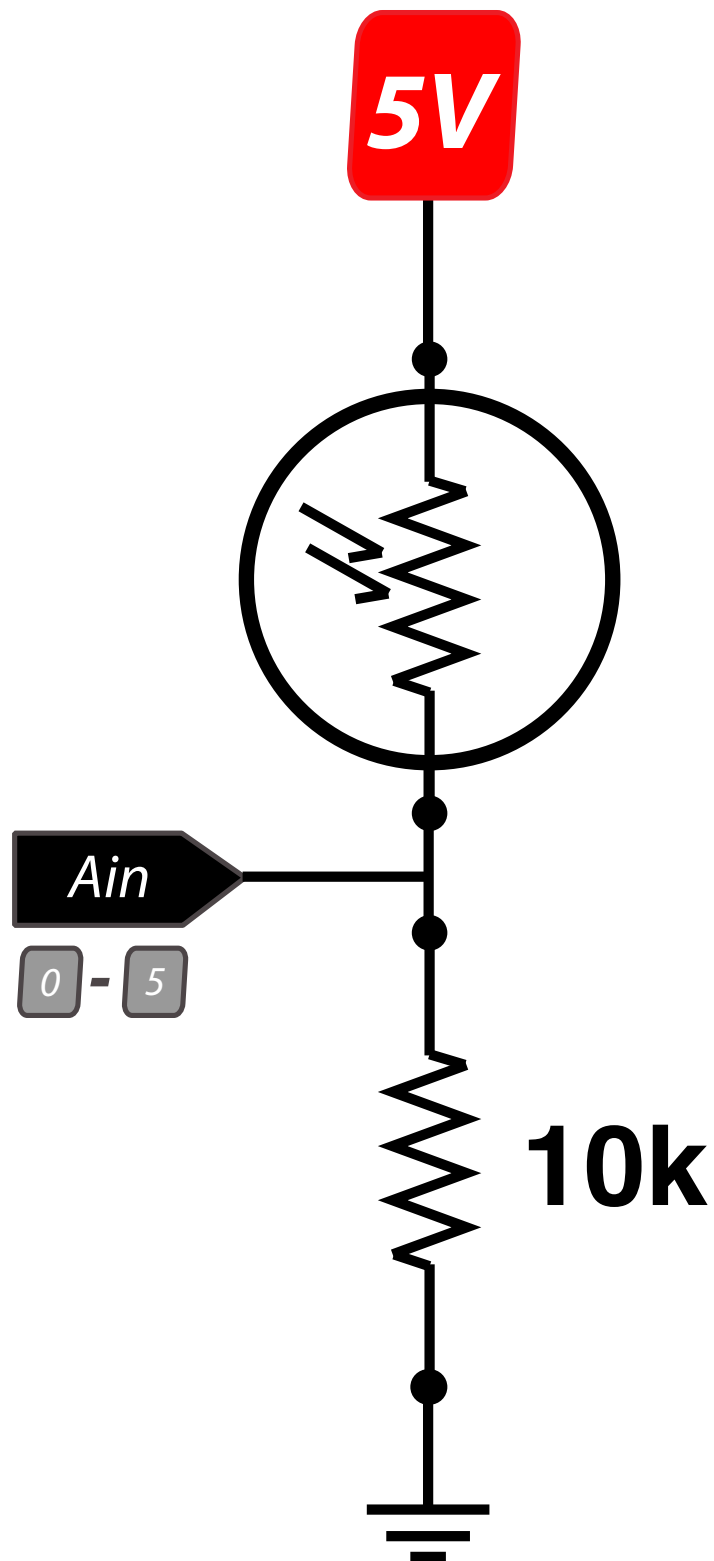
Analog INPUT :: Connections



Analog INPUT :: Schematic

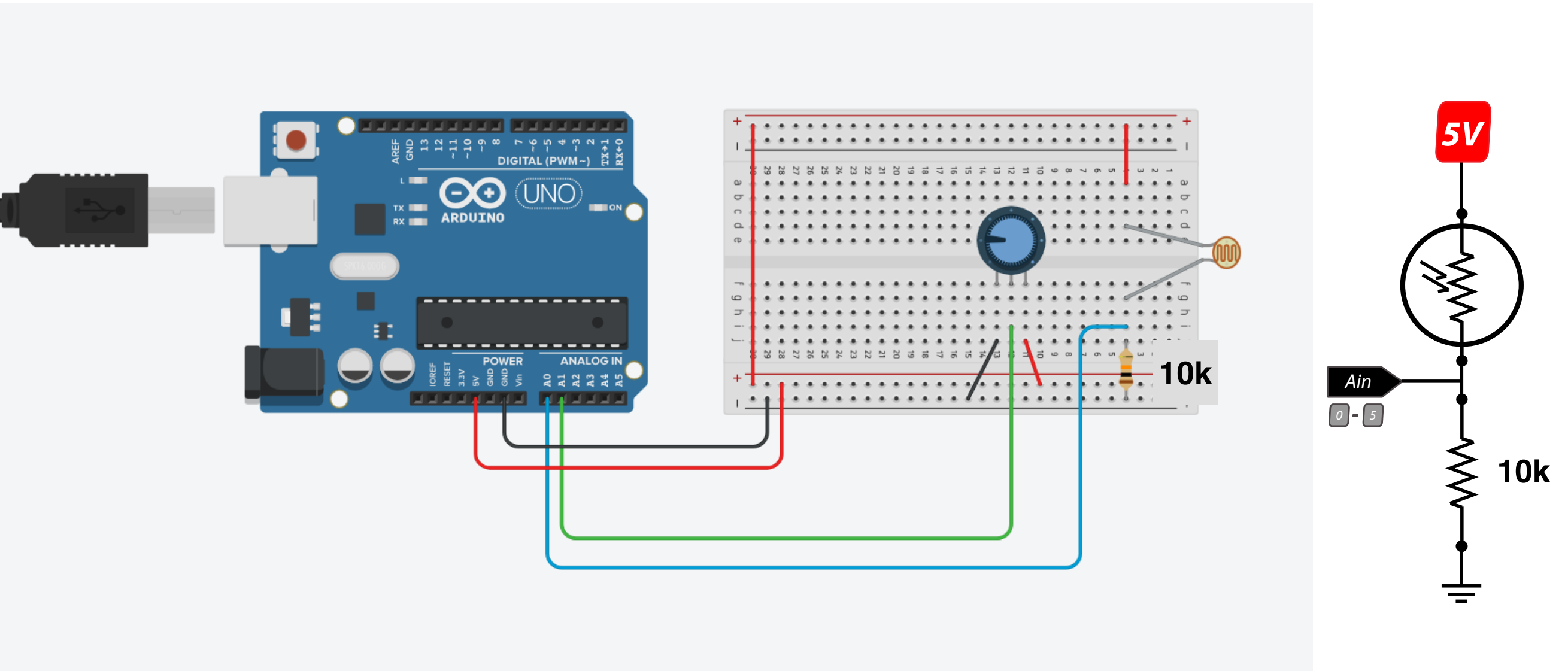


fixed : br, bl, or



photocell
(variable resistor)

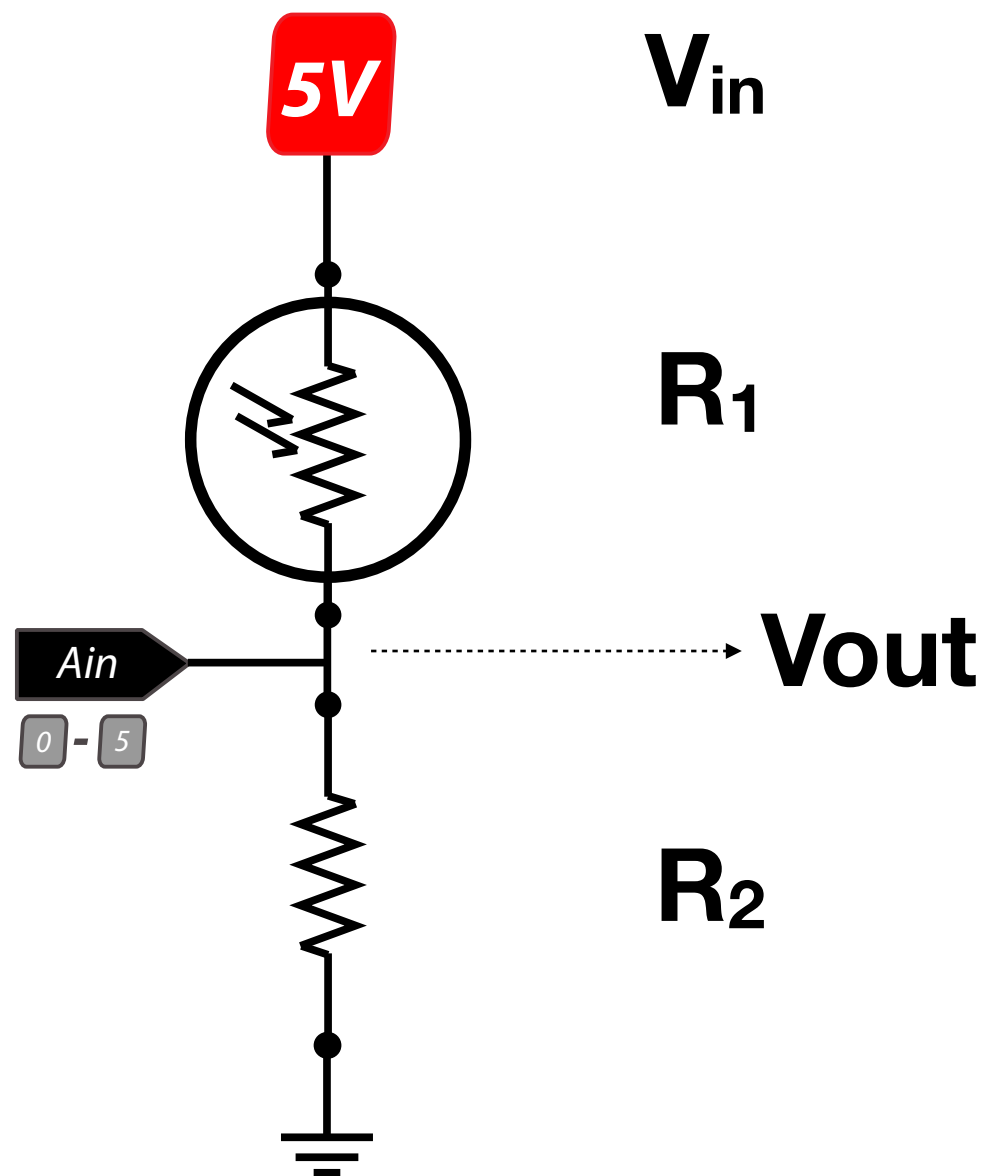
Analog INPUT :: Schematic



Add CODE

What's Going ON ?

Voltage Divider



$$V_{out} = \frac{R_2}{R_1 + R_2} \times V_{in}$$

Voltage Divider

$$V_{out} = \frac{R_2}{R_1 + R_2} \times V_{in}$$

