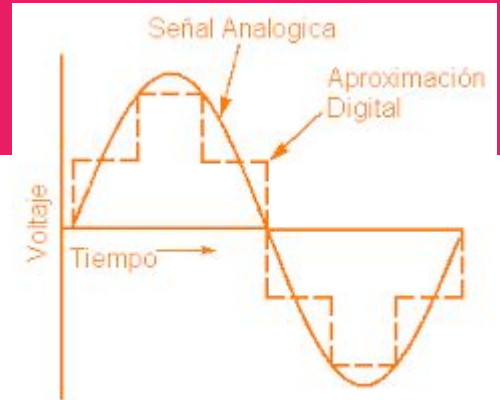


# Entradas y Salidas Analógicas -

Prototipado de Aplicaciones de Electrónica  
usando Arduino

# Entradas Analógicas



# AnalogRead

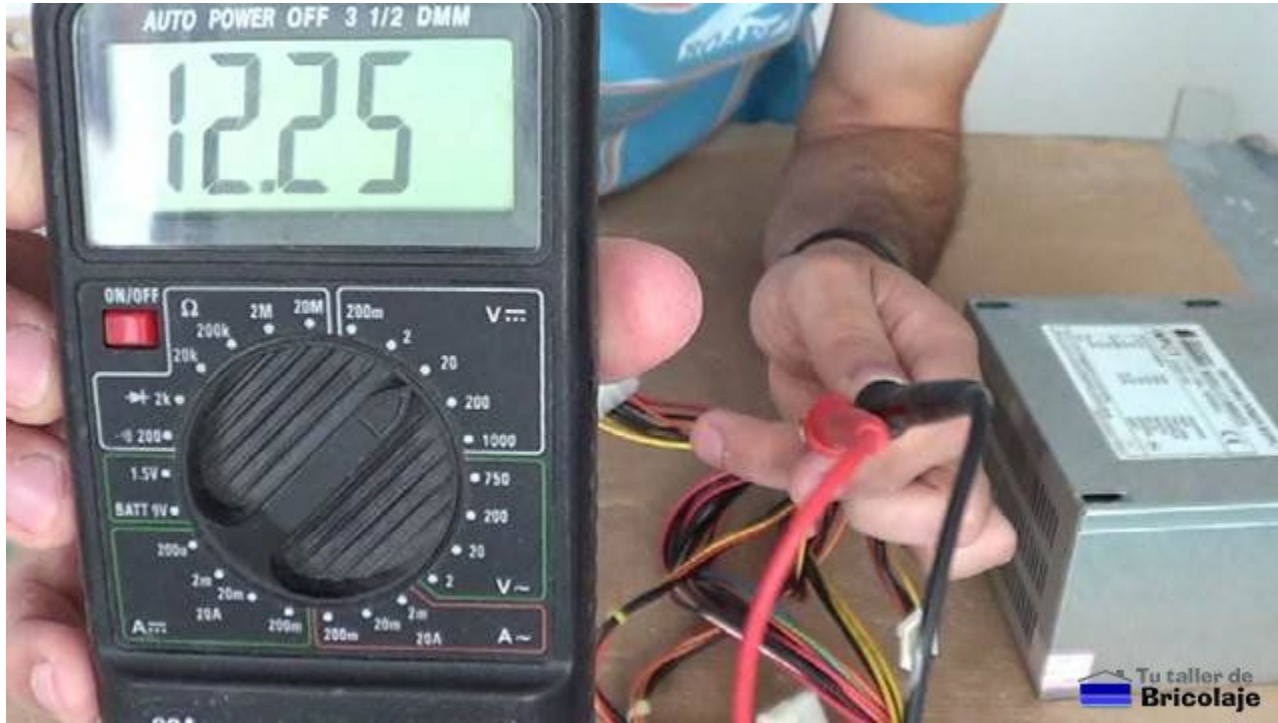
— — —



BOARD	OPERATING VOLTAGE	USABLE PINS	MAX RESOLUTION
Uno	5 Volts	A0 to A5	10 bits
Mini, Nano	5 Volts	A0 to A7	10 bits
Mega, Mega2560, MegaADK	5 Volts	A0 to A14	10 bits
Micro	5 Volts	A0 to A11*	10 bits
Leonardo	5 Volts	A0 to A11*	10 bits
Zero	3.3 Volts	A0 to A5	12 bits**
Due	3.3 Volts	A0 to A11	12 bits**
MKR Family boards	3.3 Volts	A0 to A6	12 bits**

# Digitalización de Señales

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¿Qué valores puedo leer?

# Digitalización de Señales

— — —  
¿Cantidad de bits?

1 bit  $\rightarrow$  0 ...1

2 bits  $\rightarrow$  00 ... 01 ... 10 ...11

4 bits  $\rightarrow$  0000 ... 1111

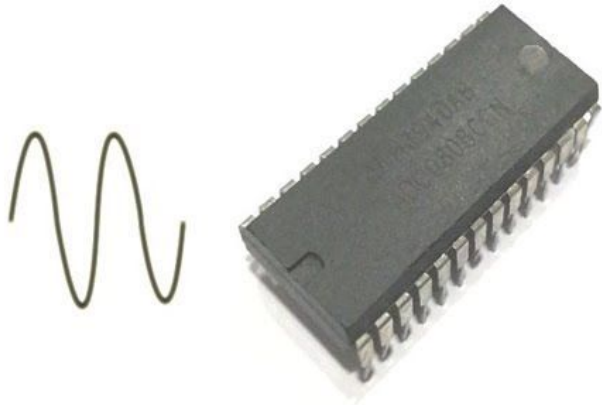
8 bit  $\rightarrow$  0 ...255

10 bits  $\rightarrow$  0 ... 1023

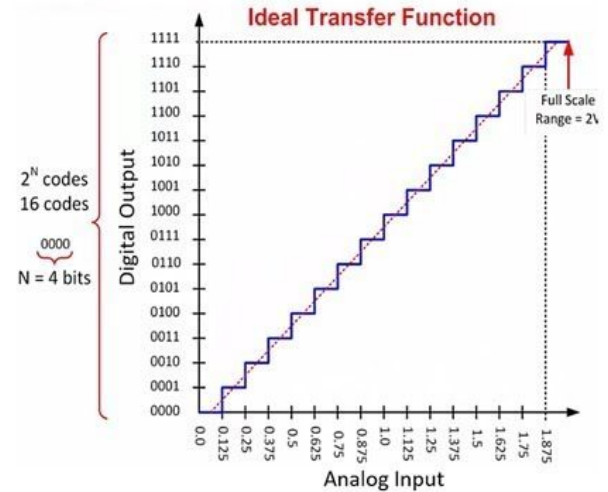
12 bits  $\rightarrow$  0... 4095

**RESOLUCIÓN**

# ADC Conversor analogico a digital

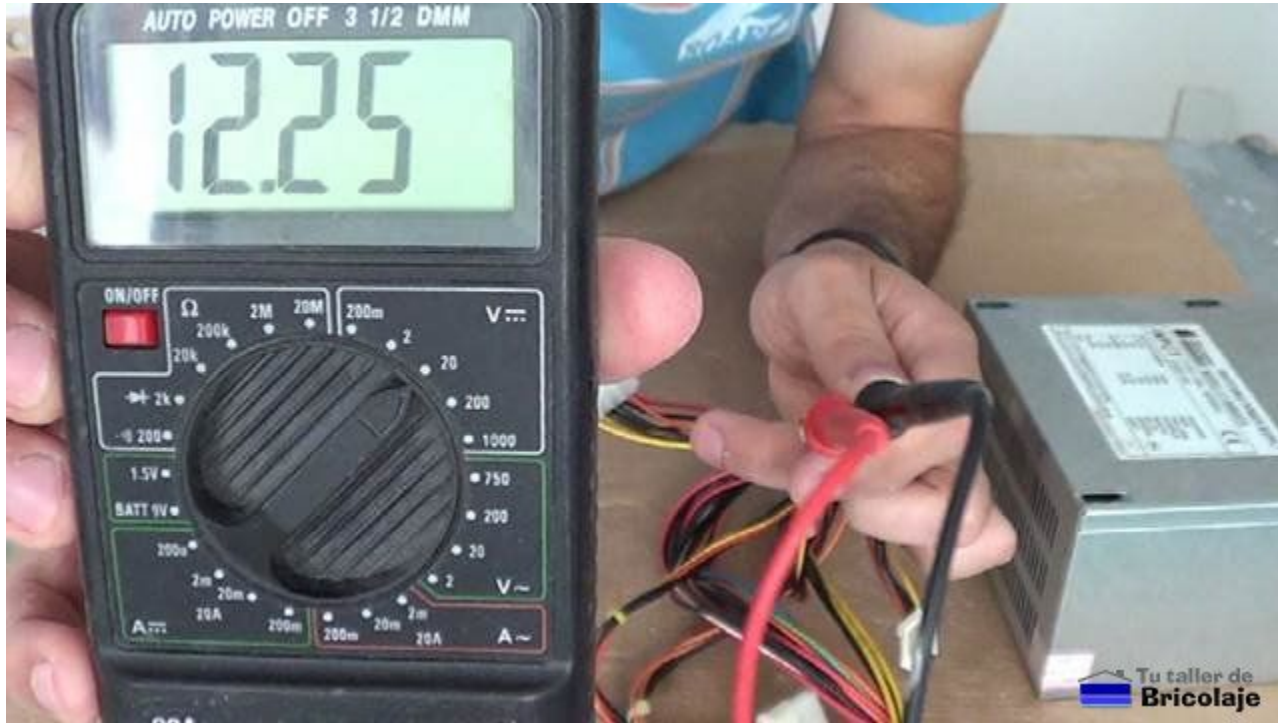


→  
→  
→  
001101110



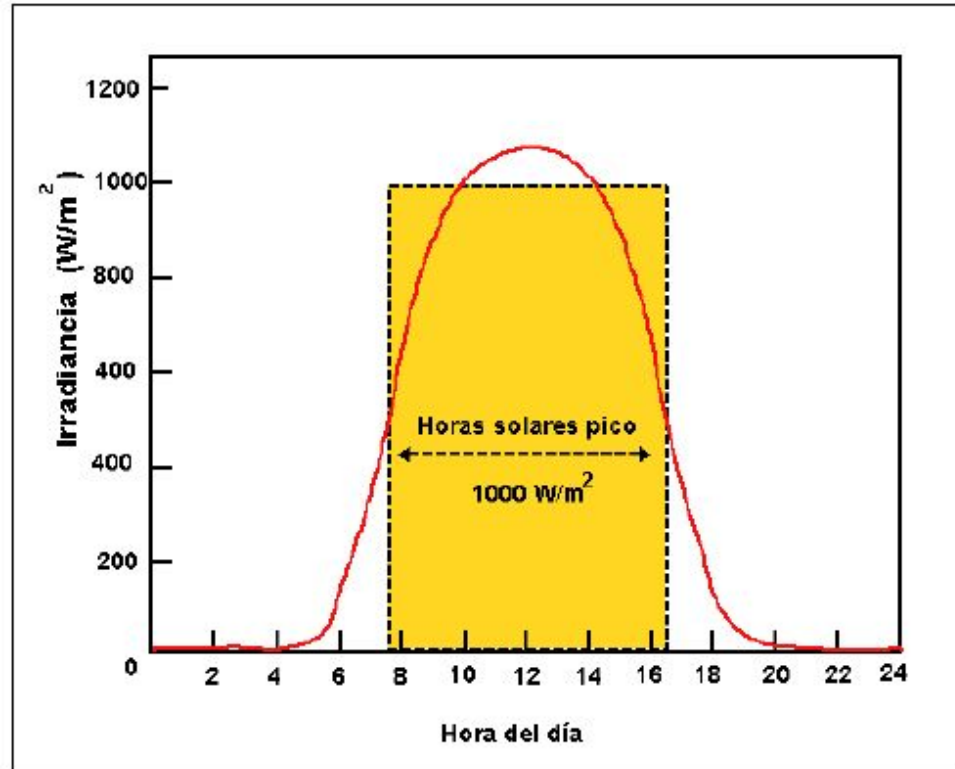
# Digitalización de Señales

— — —



¿Cada cuánto se refrescan los valores?

# Digitalización de Señales



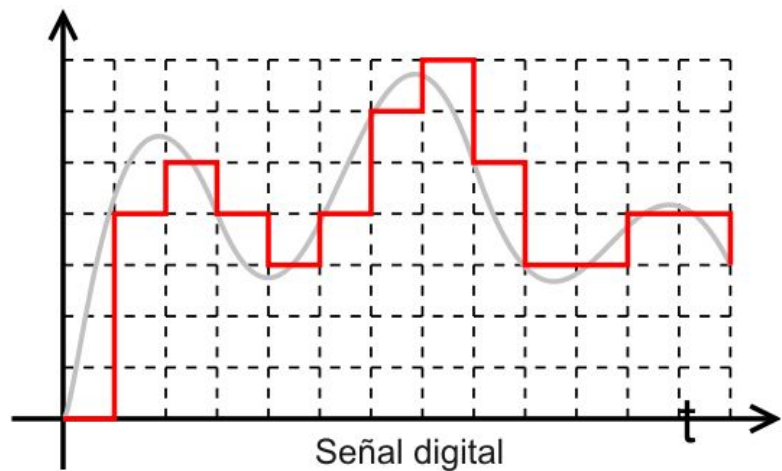
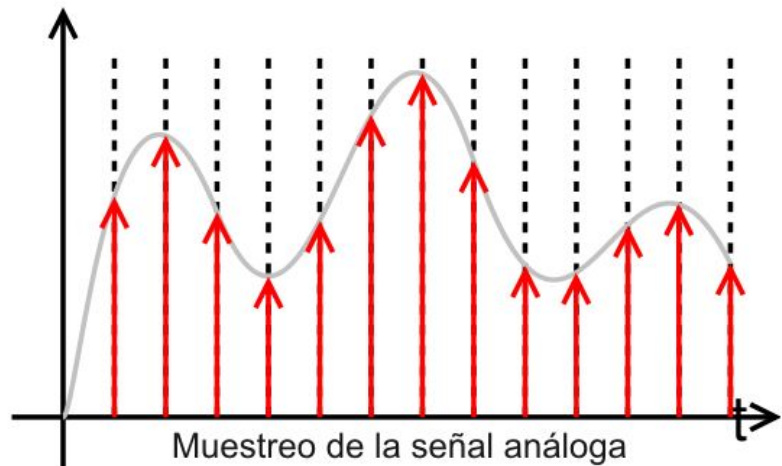


# Digitalización de Señales

— — —

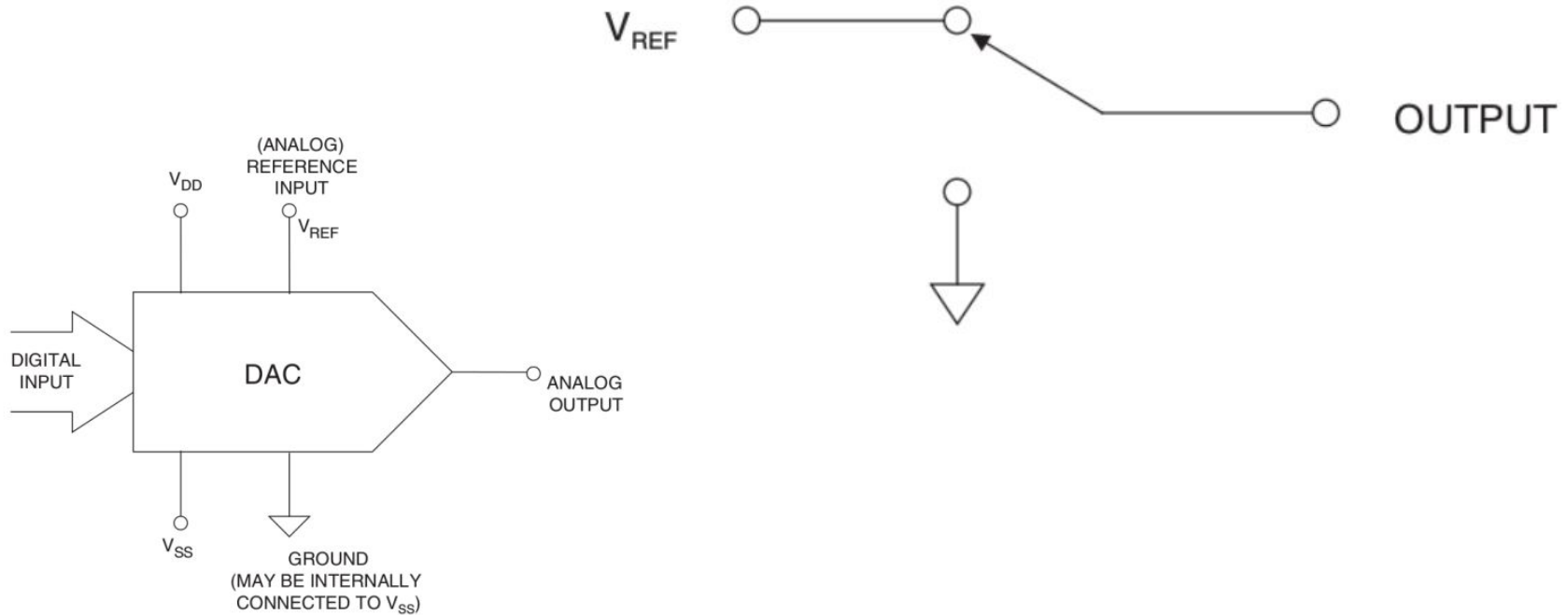


# Digitalización de Señales

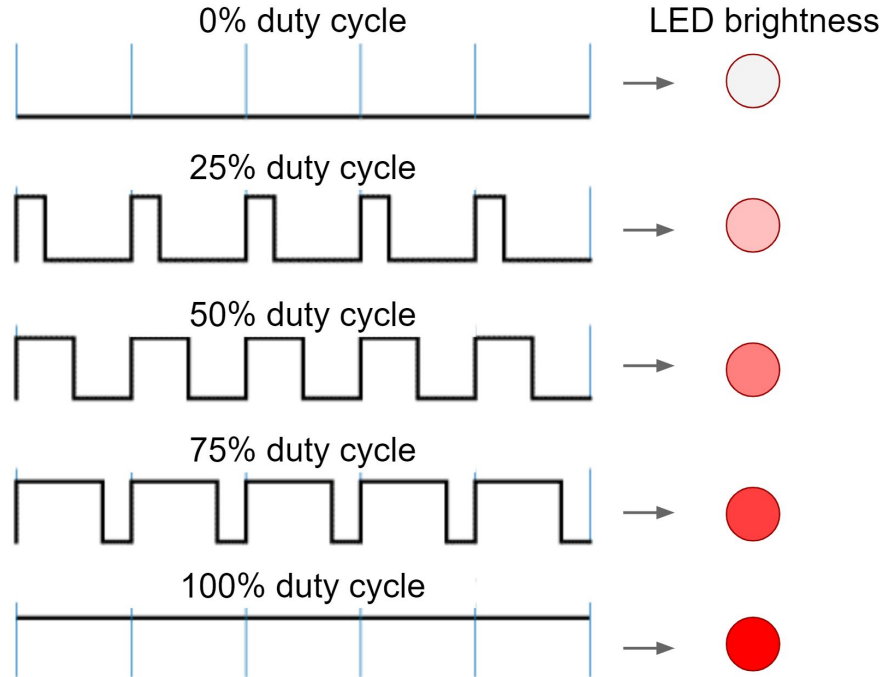
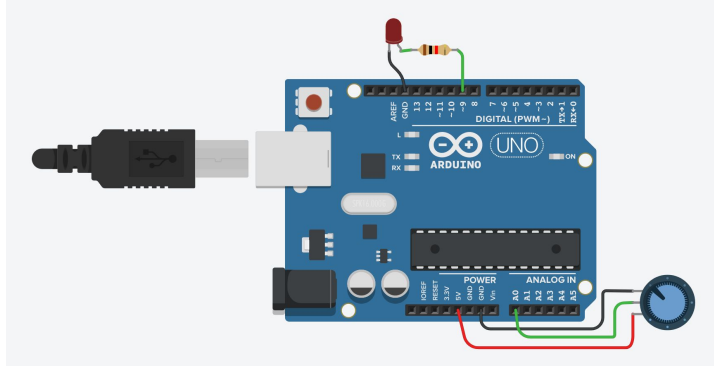


# Salidas Analógicas

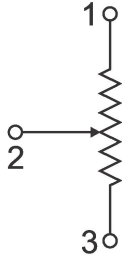
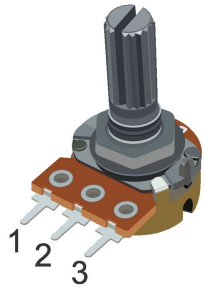
# Conversión Digital - Analógica



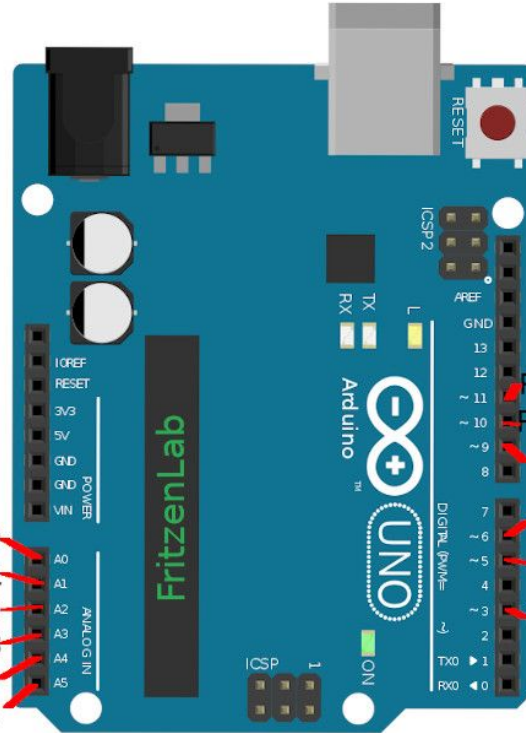
# Salidas Analógicas ?



# Entradas y Salidas Analógicas - Hello World Analógico



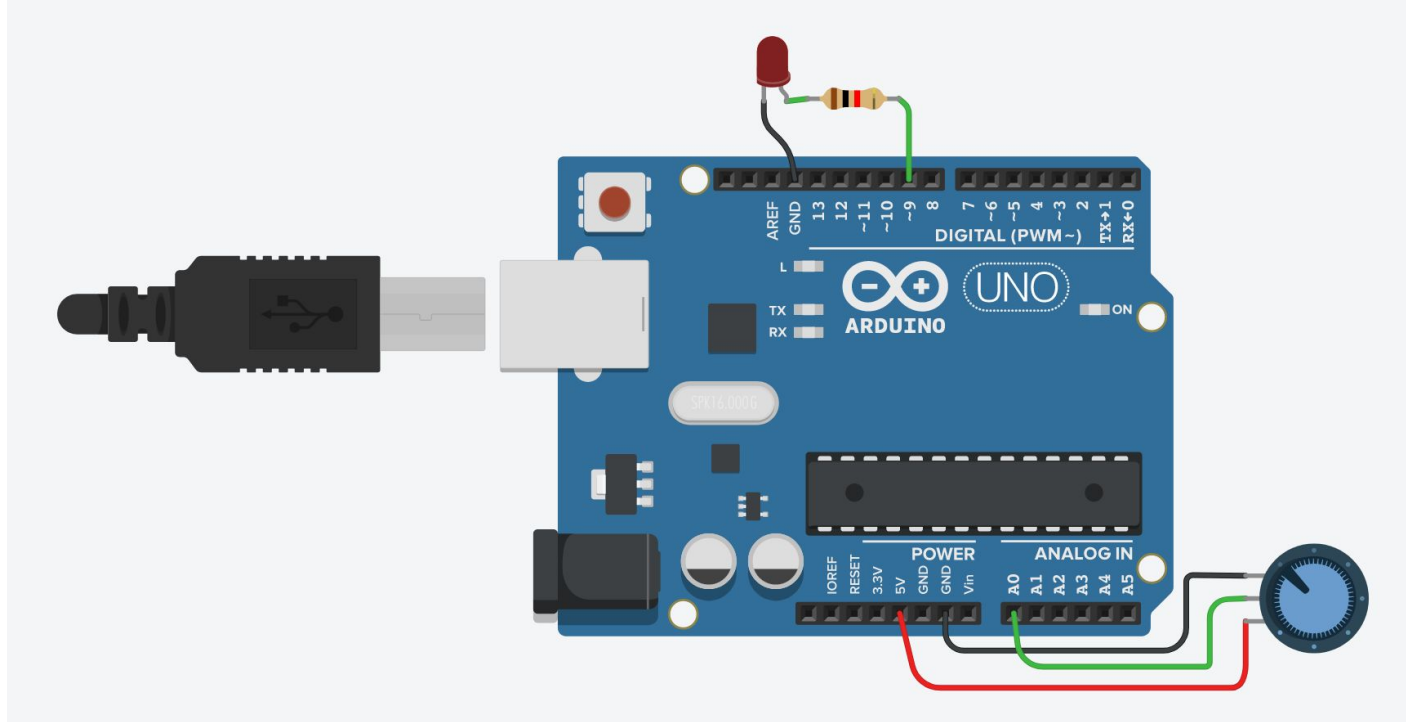
Analog input A0  
Analog input A1  
Analog input A2  
Analog input A3  
Analog input A4  
Analog input A5

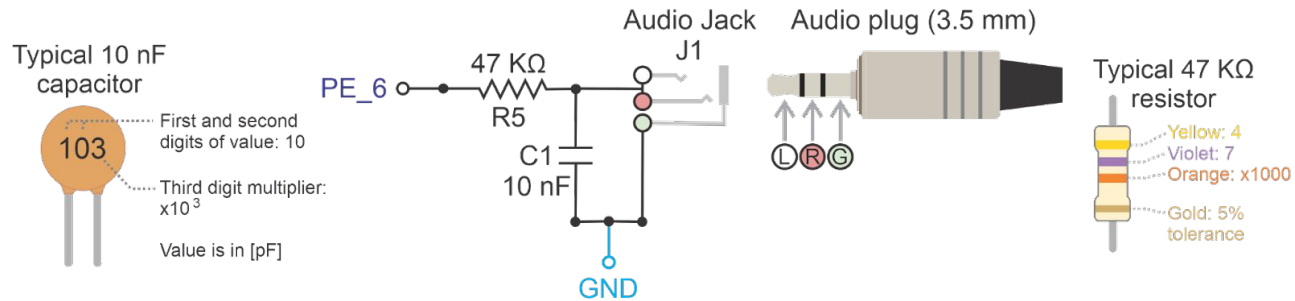
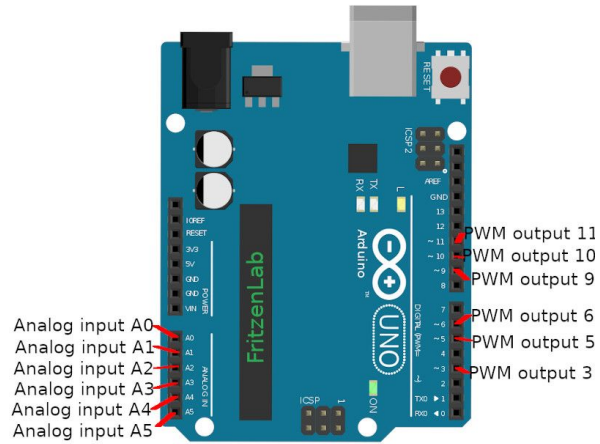


PWM output 11  
PWM output 10  
PWM output 9  
PWM output 6  
PWM output 5  
PWM output 3

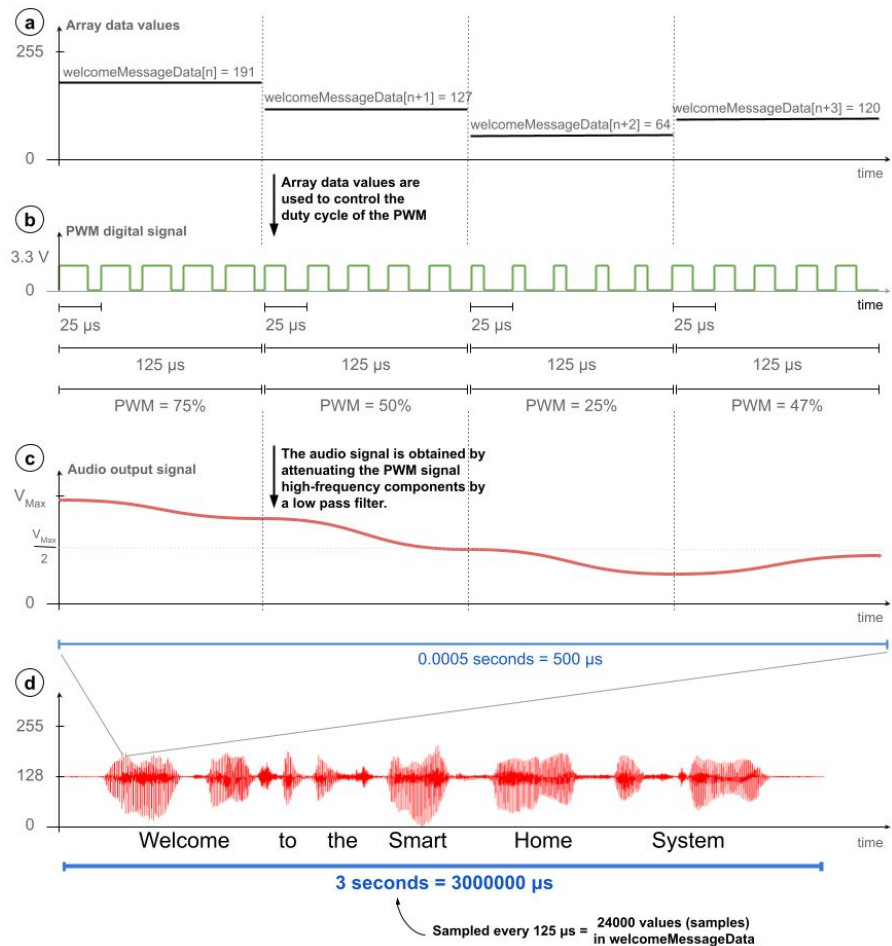
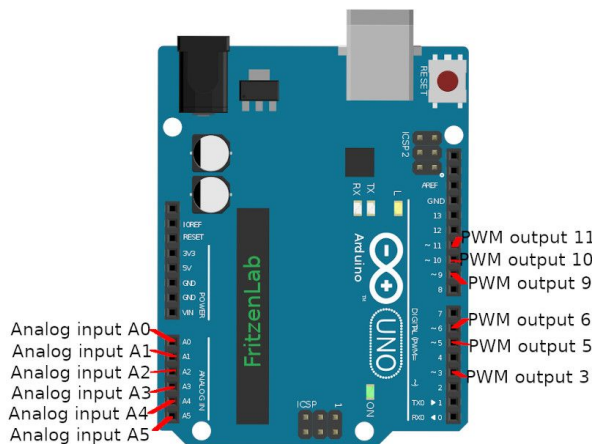
# Set Up - Control de Brillo

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- ATmega328p Datasheet