



# MAKE-i-STAN

a makerspace for everyone

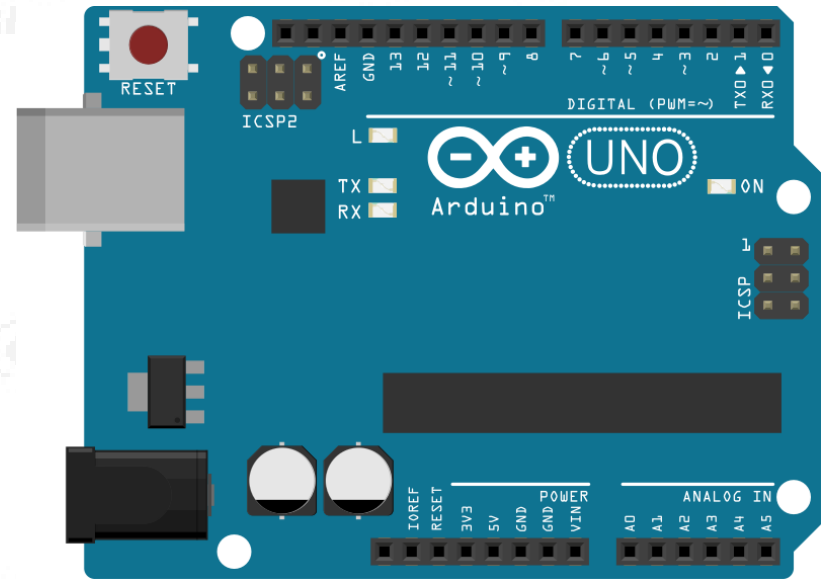
# Intro to Arduino & Basic Electronics

# **Device engineered by an artist**

- **Artist/ designer Hernando Barragan's masters thesis**
- **Intended for use by a “non-technical audience”**
- **Coding background helps**

# Arduino

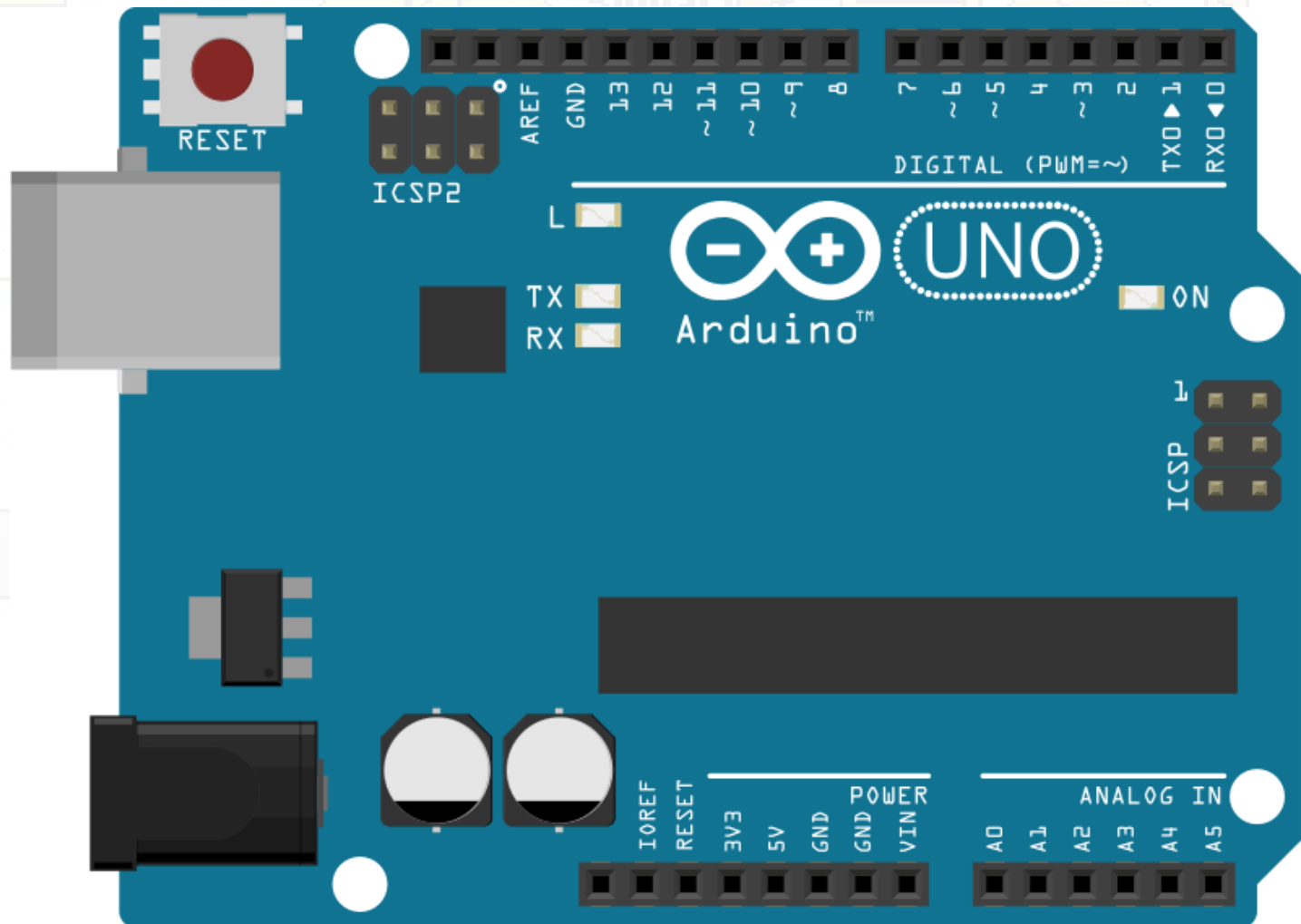
- **A microcontroller**
  - **Small computer**
- **Processor**
- **Memory**
- **Input/output**
  - **Peripherals**



# Arduino family



# Arduino uno



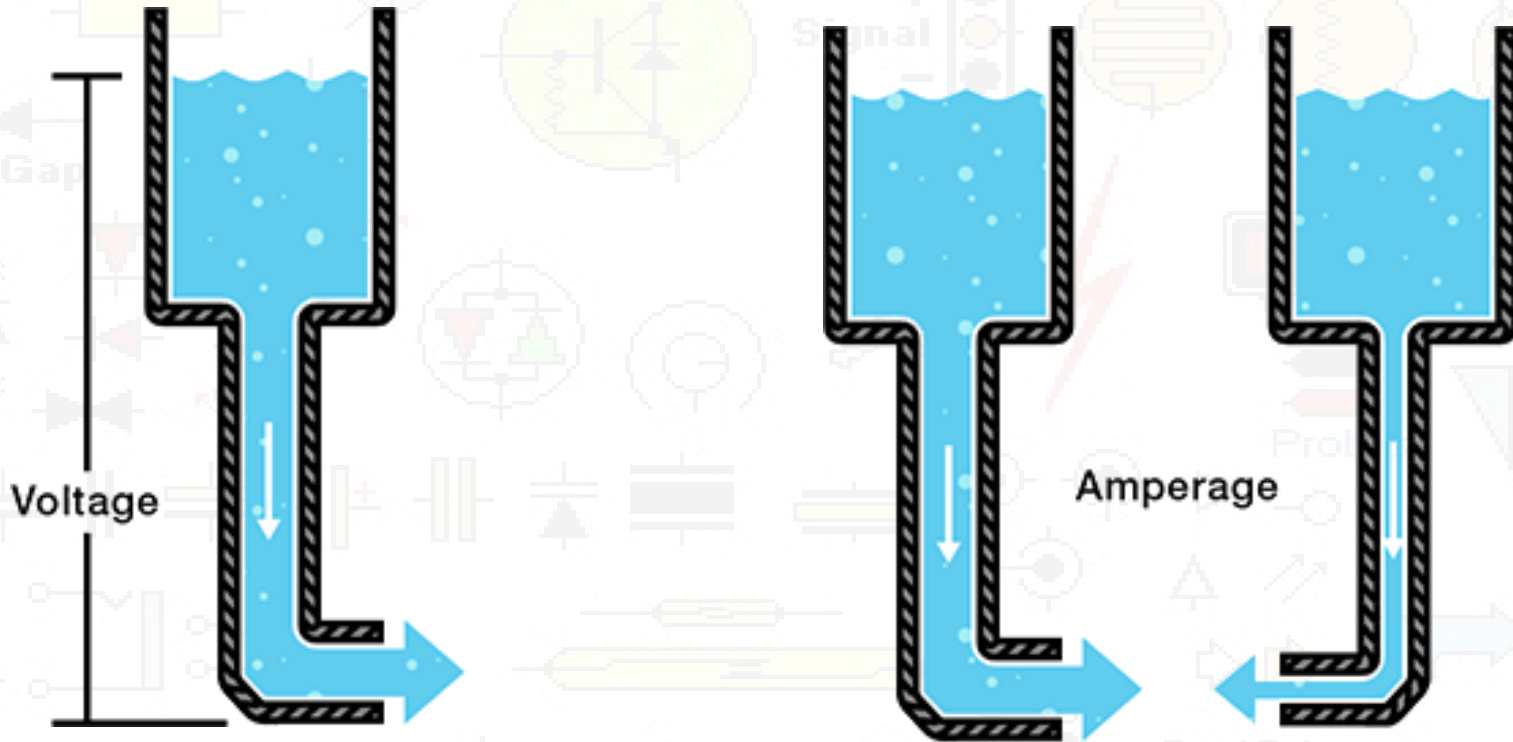
# **What do you need, to start**

- 1. Arduino uno board**
- 2. Arduino IDE / Software on computers**
- 3. Basic electronics knowledge**
- 4. The courage to code**
- 5. Peripherals (sensors, LED's, shields etc)**

# Basic electronics



# Voltage, Current & Resistance Analogy



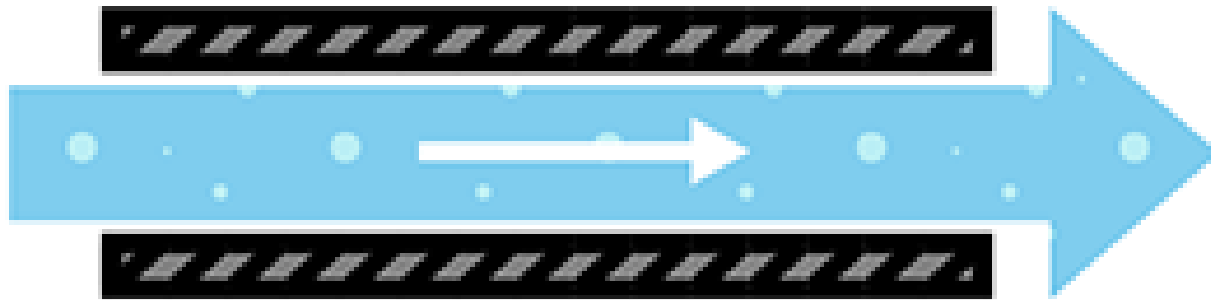
**Charge = Amount of water**

**Voltage = Pressure**

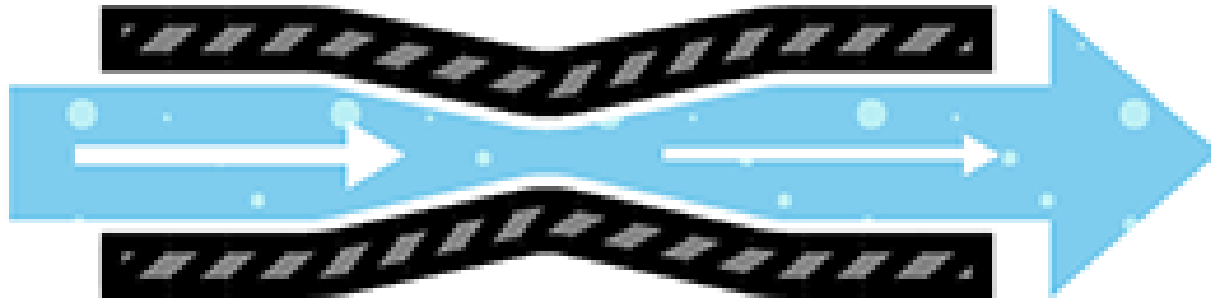
**Current = flow**

# Resistance

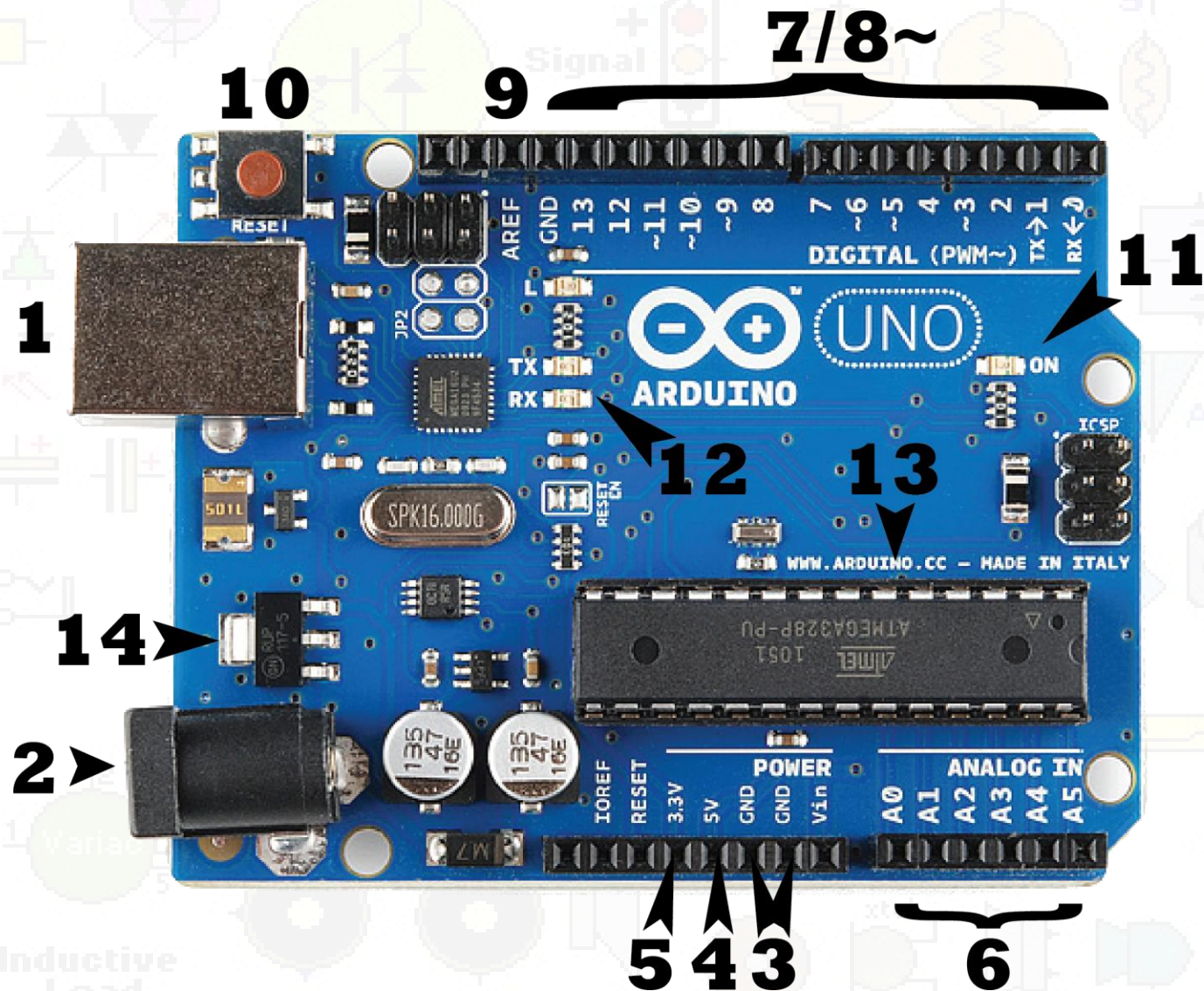
Less resistance



More resistance



# What's on Arduino



**1. USB**

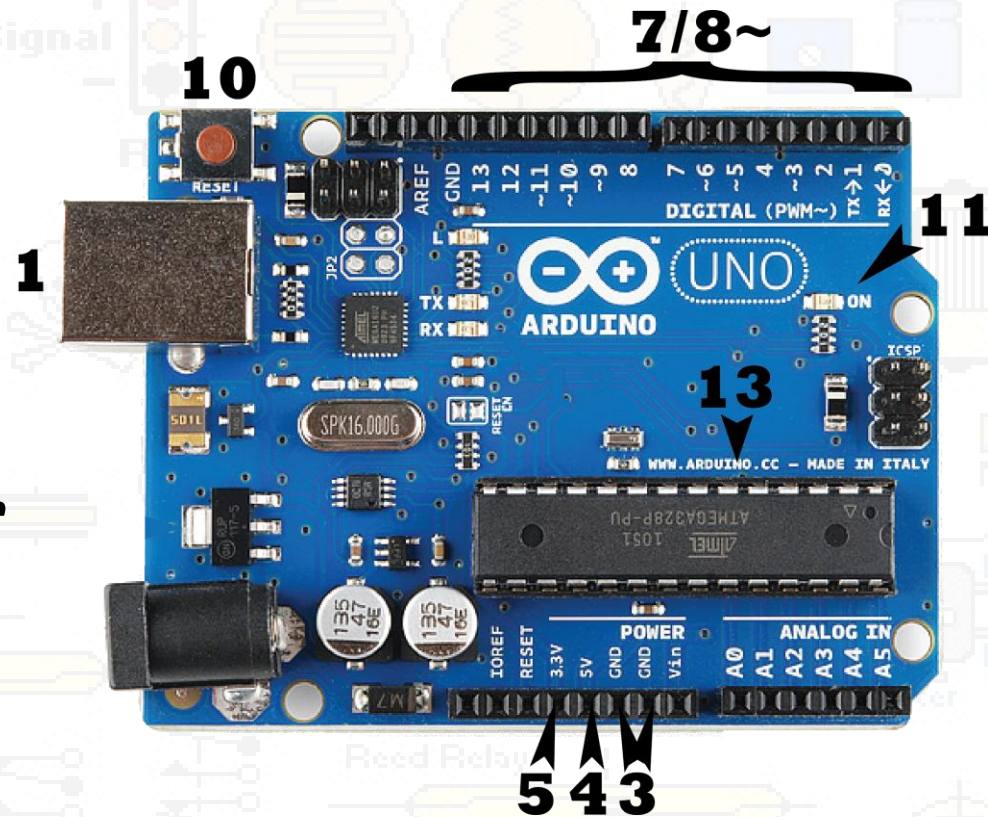
**3.4.5. Gnd, 5V, 3.3V**

**7/8~. Digital pins**

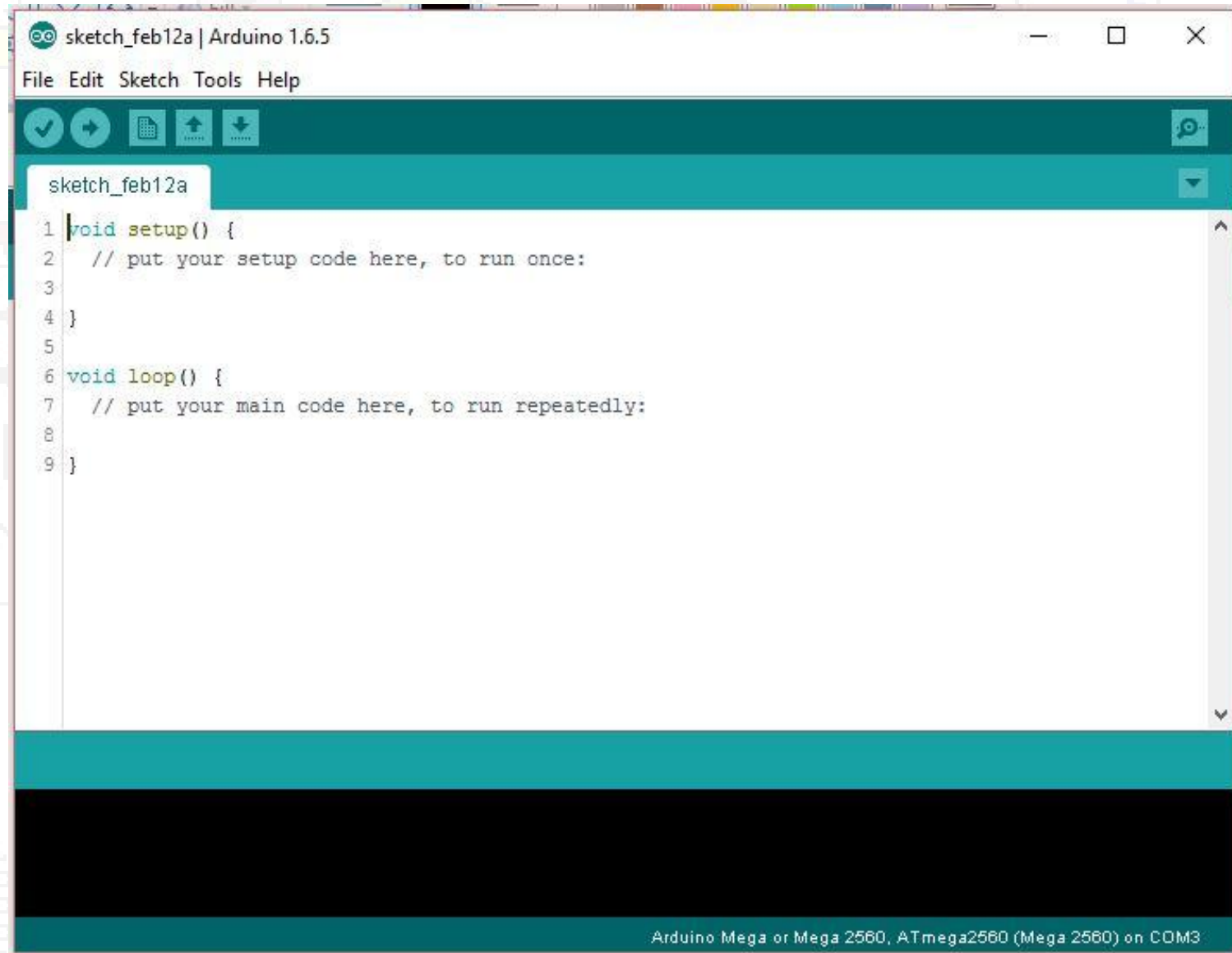
**10. Reset button**

**11. Power LED indicator**

**13. Processor**



# Arduino IDE



# Running Arduino IDE

**In Arduino IDE(software in your PC)**

**Go to: File**

↳ **Go to: Examples**

↳ **Go to: 01. Basics**

↳ **Go to: Blink**

↳ **Go to: Fading**

➤ **Verify and then upload**



# What's in the code

- **Void setup()**

- Setting output and input pins  
initialize digital pin 13 as an output.

- **Void loop()**

- Logic of execution is written here

- Turn the LED on, wait for a second,  
turn it off again

# Bread board

