EXPERIMENT 1

Objectives

The objectives of this experiment are to observe and analyze how Arduino works.

List of Components

- Arduino
- Multimeter
- Resistor
- Potentiometer
- LED
- Breadboard

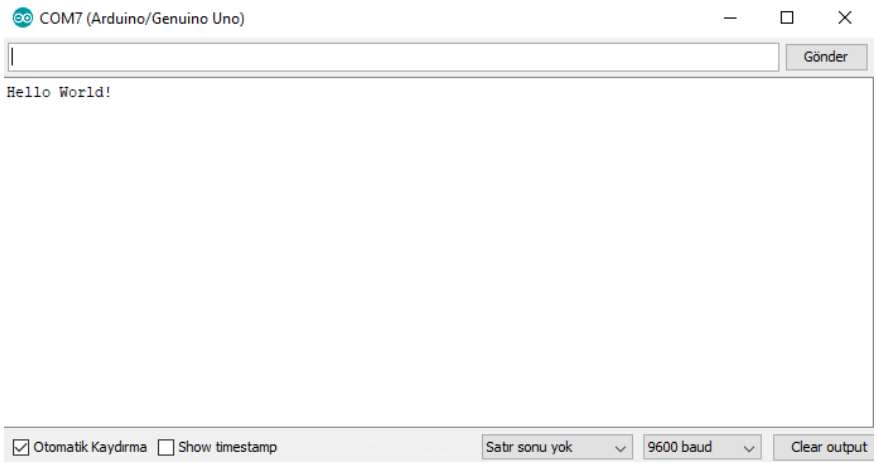
Instructions

1. First of all let's say Hello World and see from Serial Port monitor.

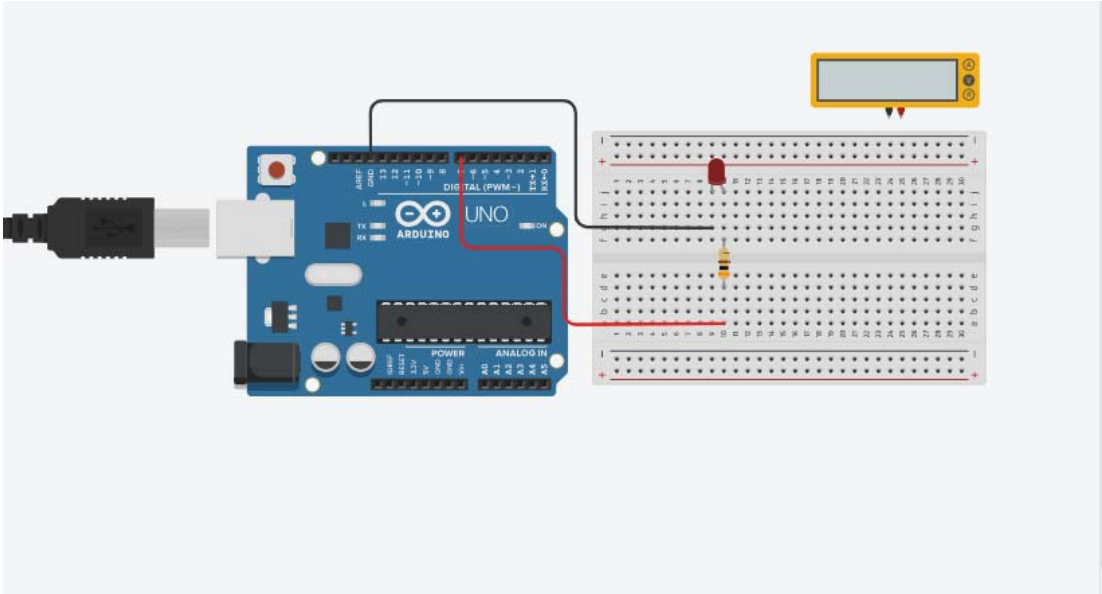
```
void setup() {
Serial.begin(9600);
Serial.println("Hello World!");
}

void loop() {

}
```



2. Let's build this circuit. Put all the components listed in materials. Connect the GND pin which is ground to the negative side of LED. Then place a resistor and connect it between the positive side of LED and Digital Pin 7. It doesn't need to be 7, you can connect it on another Digital Pin.



3. Write an Arduino code that turns LED on and off for 1 second. (Blinking LED)

Measurements and Discussions

1- What happens if you replace the LED in the opposite direction?
2- Does the color of wires have a meaning or what may be the purpose of choosing those colors?
3- How do we measure voltage, resistor and current using multimeter?
4- What happens when you change the value of the resistor?
5- What is diode? What is forward voltage in simple words? What is the difference between ideal diodes and real diodes?
6- Replace the resistor with potentiometer and change its value like in step 4.
7- Does it make sense if you exceed 20 mA for a single pin? (Check pin schematic)
8- Why are the resistors connected to the positive sides of LEDs?
9- What is baud rate?
10- Fill in the table.

Minimum current for LED before it blows up.	
Maximum resistor for LED before it blows up.	