Assisgnment

On

Day 2: Microcontrollers and Programming

By

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To

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0.1 Introduction

On day 2, an introduction class for micro-controller was done and Arduino UNO.

0.2 Assignment Question

Is it possible to create a simulation in Tinkercad where an LED is dimmed and brightened using PWM with an Arduino? If yes, explain how you would implement this simulation step by step, including the circuit setup and example code. If not, explain why it is not possible.

—> **Solution:** Yes, we can create a simulation in Tinkercad where an LED is dimmed and brightened using PWM with an Arduino UNO. This can be done by follwing the stpes given below.

- Open TinkerCAD sofware.
- Add Arduino UNO, Breadboard, an LED and a resistor.
- Connect the anode part of LED to PMW pin marked with '~' . In my case it's pin no. 11.
- Connect the cathode of LED through resistor to GND of Arduino.
- Use analogWrite (pin,brightness), to control the LED effect.

```
# Code is as follows

int pin = 11;
int brightness = 0;
int fade = 5;

void setup() {
  pinMode(pin, OUTPUT);
}

void loop() {
  analogWrite(pin, brightness);

  brightness += fade;

  if (brightness <= 0 || brightness >= 255) {
    fade = -fade;
  }

  delay(35);  // Small delay for smooth fading
}
```