**HANDS ON EXPERIMENT-G5**

**The 7 segment Display**

**EXPERIMENT 1: Printing Numbers to the Single Digit Display**

CODE:

const int segmentPins[8] = {2, 3, 4, 5, 6, 7, 8};

const int commonCathodePin = 9;

const byte numbers[11] = {

B11111100,

B01100000,

B11011010,

B11110010,

B01100110,

B10110110,

B10111110,

B11100000,

B11111110,

B11110110

};

void setup() {

for (int i = 0; i < 7; i++) {

pinMode(segmentPins[i], OUTPUT);

}

pinMode(commonCathodePin, OUTPUT);

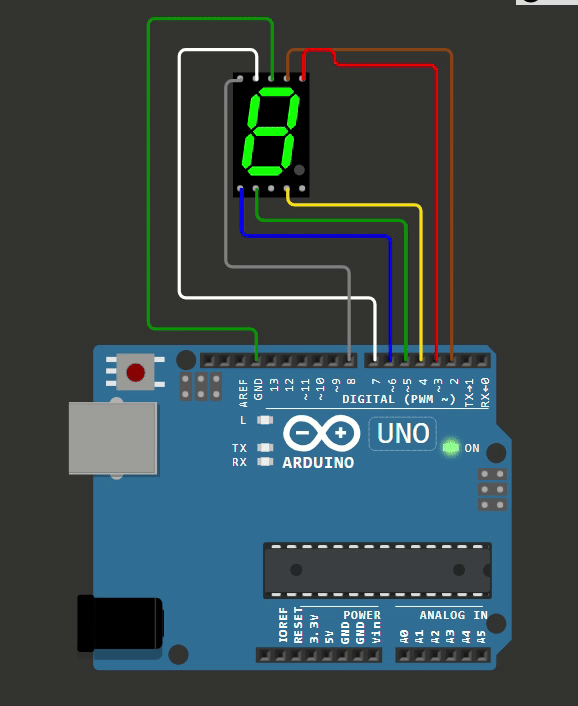
}

void loop() {

for (int i = 0; i < 10; i++)

{

displayNumber(i);

 delay(1000);

}

}

void displayNumber(int num) {

for (int i = 0; i < 8; i++) {

digitalWrite(segmentPins[i], HIGH);

}

for (int i = 0; i < 8; i++) {

if (bitRead(numbers[num], i) == LOW) {

digitalWrite(segmentPins[7-i], LOW);

}

}

}

**Link of the Project:** [**HANDS ON EXP 1**](https://wokwi.com/projects/413192687455624193)

**EXPERIMENT 2: Printing Numbers using the SevSeg library with a 4-digit display. It displays a counter that counts up, showing Deci seconds.**

**CODE:**

#include "SevSeg.h"

SevSeg sevseg;

void setup() {

  byte numDigits = 4;

  byte digitPins[] = {2, 3, 4, 5};

  byte segmentPins[] = {6, 7, 8, 9, 10, 11, 12, 13};

  bool resistorsOnSegments = false;

  byte hardwareConfig = COMMON\_ANODE;

  bool updateWithDelays = false;

  bool leadingZeros = false;

  bool disableDecPoint = false;

  sevseg.begin(hardwareConfig, numDigits, digitPins, segmentPins, resistorsOnSegments,

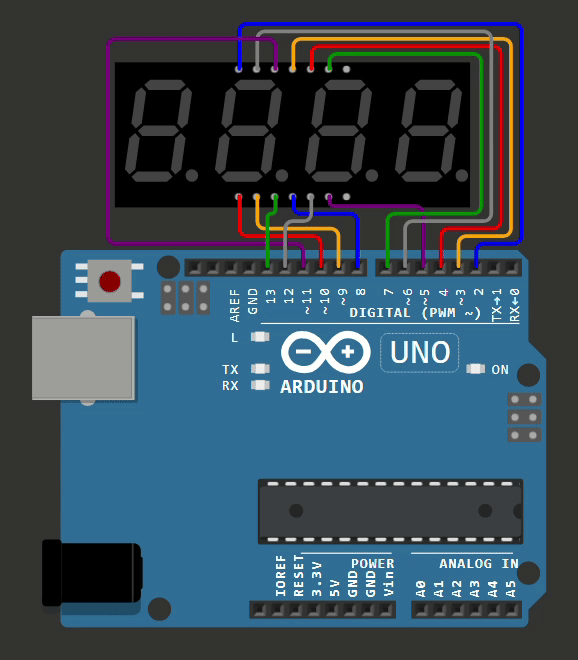
  updateWithDelays, leadingZeros, disableDecPoint);

  sevseg.setBrightness(90);

}

void loop() {

  static unsigned long timer = millis();

  static int deciSeconds = 0;

  if (millis() - timer >= 100) {

    timer += 100;

    deciSeconds++;

    if (deciSeconds == 10000) {

      deciSeconds=0;

    }

    sevseg.setNumber(deciSeconds, 1);

  }

  sevseg.refreshDisplay();

}

**Link of the Project:** [**HANDS ON EXP 2**](https://wokwi.com/projects/413194473000510465)

**EXPERIMENT 3: [Digital Dice Using 7 digit display](https://wokwi.com/projects/376402110371680257)**

**CODE:**

**#define resett 15**

**#define dice 14**

**char digit[6]={0x02, 0x79, 0x24, 0x30, 0x19, 0x12};**

**int pin[7]={6,5,4,3,2,1,0};**

**void setup()**

**{**

**for(int i=0;i<7;i++)**

**pinMode(pin[i], OUTPUT);**

**pinMode(dice, INPUT);**

**pinMode(resett, INPUT);**

**digitalWrite(dice, HIGH);**

**digitalWrite(resett, HIGH);**

**int temp=0x40;**

**for(int i=0;i<7;i++)**

**{**

**int temp1=temp&0x01;**

**digitalWrite(pin[i], temp1);**

**temp=temp>>1;**

**}**

**delay(1000);**

**}**

**void loop()**

**{**

**int temp=rand();**

**if(digitalRead(dice)==0)**

**{**

**int k=temp%6;**

**temp=digit[k];**

**wait();**

**for(int i=0;i<7;i++)**

**{**

**int temp1=temp&0x01;**

**digitalWrite(pin[i], temp1);**

**temp=temp>>1;**

**}**

**delay(200);**

**}**

**if(digitalRead(resett)==0)**

**{**

**temp=0x40;**

**for(int i=0;i<7;i++)**

**{**

**int temp1=temp&0x01;**

**digitalWrite(pin[i], temp1);**

**temp=temp>>1;**

**}**

**}**

**}**

**void wait()**

**{**

**for(int m=0;m<10;m++)**

**{**

**for(int k=0;k<6;k++)**

**{**

**int ch=digit[k];**

**A circuit board with colorful wires

Description automatically generated**

**for(int l=0;l<7;l++)**

**{**

**char tem2=ch&0x01;**

**digitalWrite(pin[l], tem2);**

**ch=ch>>1;**

**}**

**delay(50);**

**}**

**}**

**}**

**Link of the Project:** [**HAND ON EXP 3**](https://wokwi.com/projects/413195318999083009)