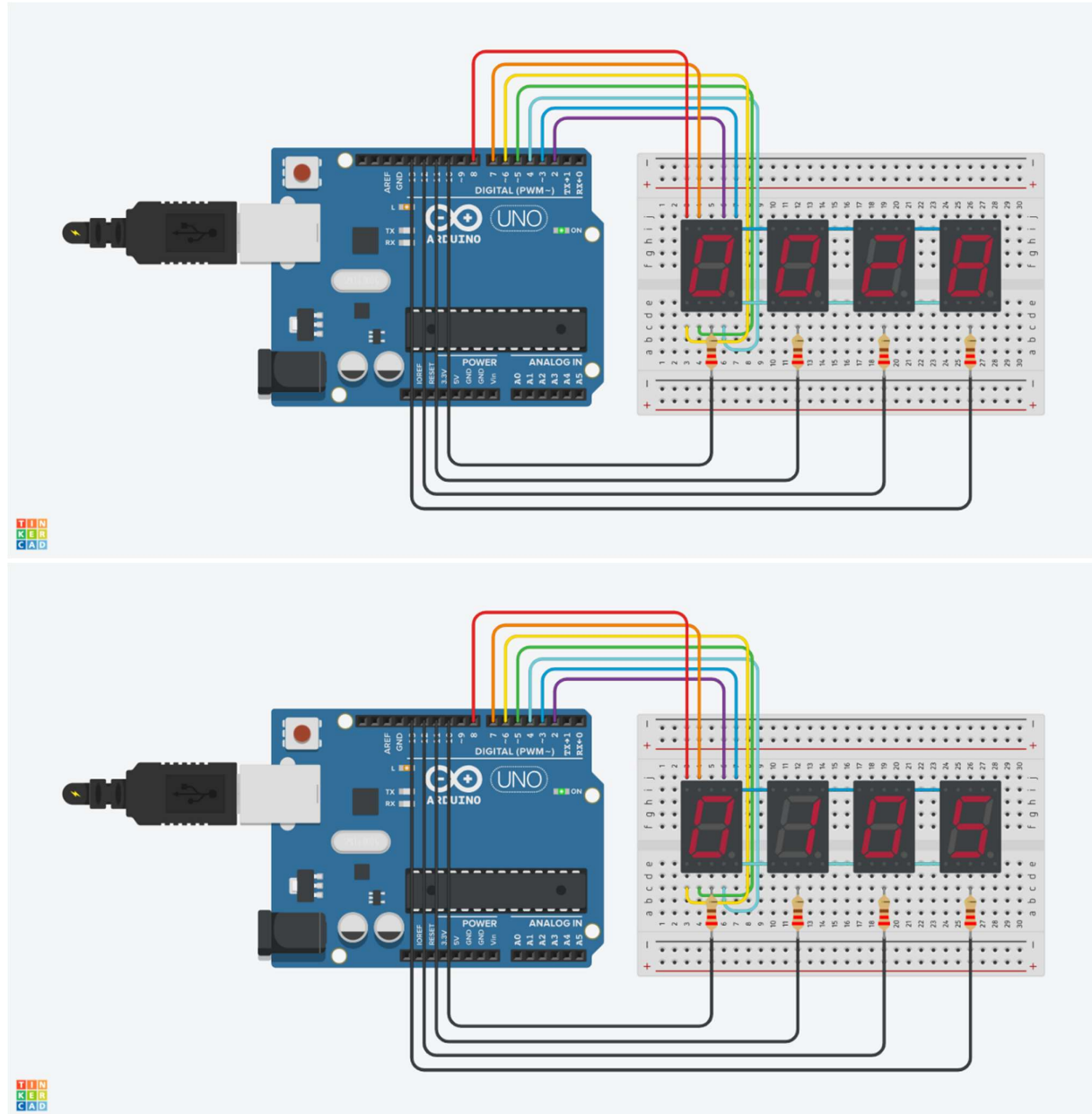


Name: Nilotpai Bose

Project: Embedded Systems (February 2025)

Project-1:

Photo of the Circuit (Showing Two Outputs):



Program:

```
// Segment pins
int segmentPins[7] = {2, 3, 4, 5, 6, 7, 8};
// Digit select pins
int digitPins[4] = {10, 11, 12, 13};
```

```

// Digits 0-9 (common cathode)
byte digitCodes[10][7] = {
    {1, 1, 1, 1, 1, 1, 0}, // 0
    {0, 1, 1, 0, 0, 0, 0}, // 1
    {1, 1, 0, 1, 1, 0, 1}, // 2
    {1, 1, 1, 1, 0, 0, 1}, // 3
    {0, 1, 1, 0, 0, 1, 1}, // 4
    {1, 0, 1, 1, 0, 1, 1}, // 5
    {1, 0, 1, 1, 1, 1, 1}, // 6
    {1, 1, 1, 0, 0, 0, 0}, // 7
    {1, 1, 1, 1, 1, 1, 1}, // 8
    {1, 1, 1, 1, 0, 1, 1}  // 9
};

unsigned int counter = 0;
unsigned long lastUpdate = 0;

void setup() {
    for (int i = 0; i < 7; i++)
        pinMode(segmentPins[i], OUTPUT);
    for (int i = 0; i < 4; i++)
        pinMode(digitPins[i], OUTPUT);
}

void loop() {
    if (millis() - lastUpdate >= 1000) {
        lastUpdate = millis();
        counter = (counter + 1) % 10000; // Wraps around after 9999
    }
    displayNumber(counter);
}

void displayNumber(int num) {
    int digits[4];
    digits[0] = num / 1000;
    digits[1] = (num / 100) % 10;
    digits[2] = (num / 10) % 10;
    digits[3] = num % 10;
}

```

```
for (int i = 0; i < 4; i++) {  
    setSegments(digits[i]);  
    digitalWrite(digitPins[i], LOW); // Enable digit  
    delay(1); // Multiplex delay  
    digitalWrite(digitPins[i], HIGH); // Disable digit  
}  
  
}  
  
void setSegments(int digit) {  
    for (int i = 0; i < 7; i++) {  
        digitalWrite(segmentPins[i], digitCodes[digit][i]);  
    }  
}
```