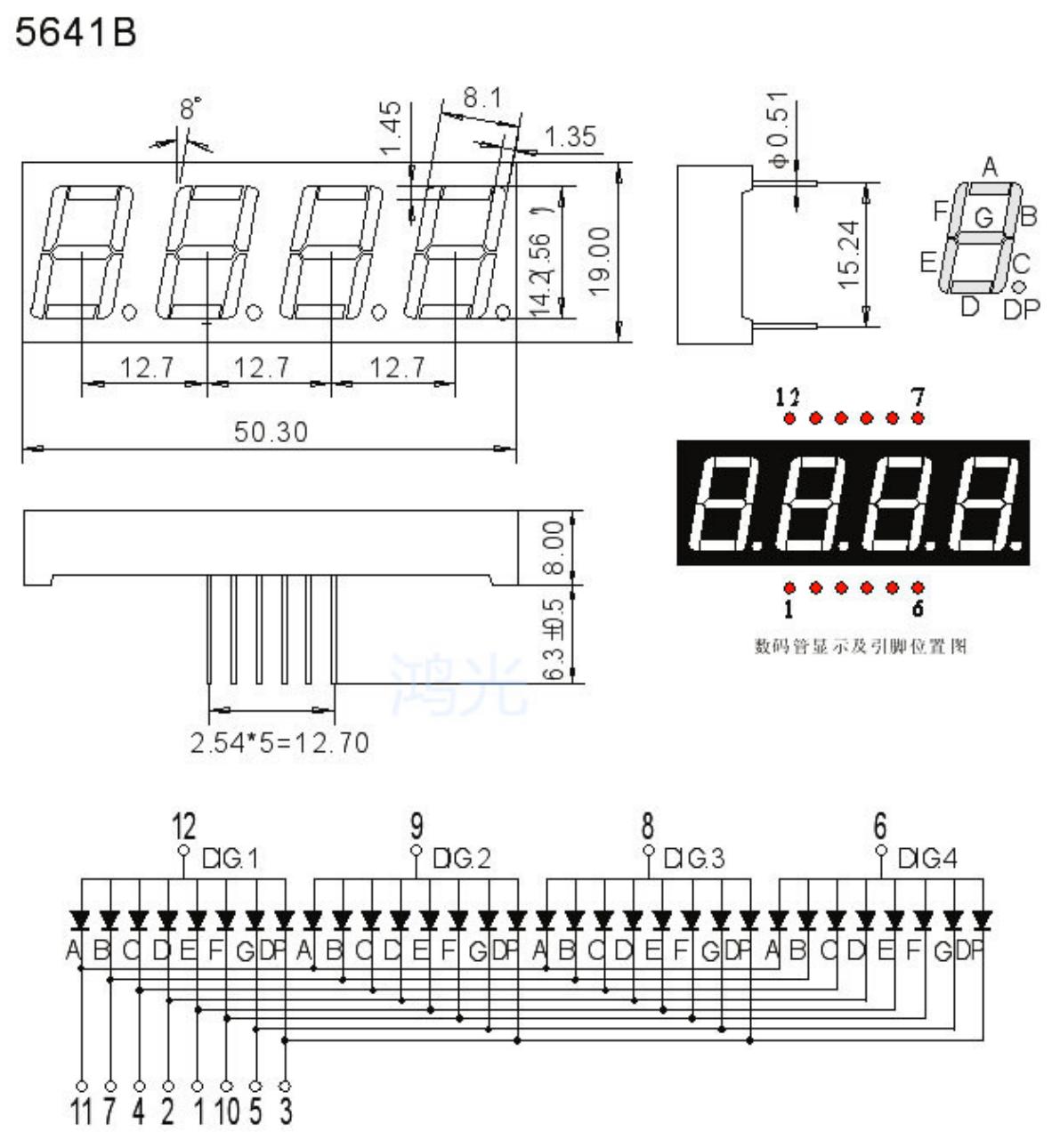


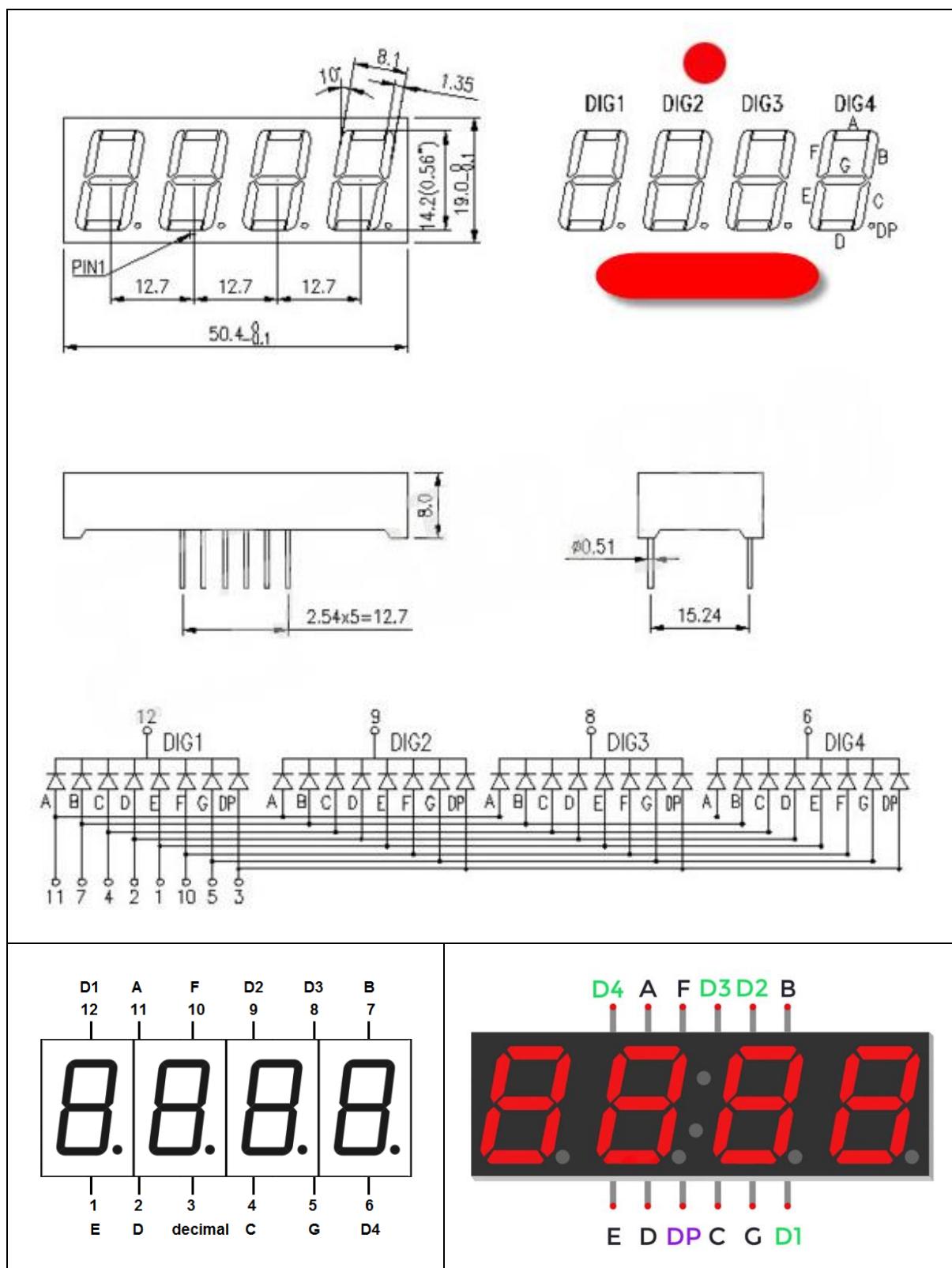
Getting Start ESP32: ESP32 GPIO + ESP32 Interface

Mission 4/12 – ESP32 with 4_Digit 7_Segment

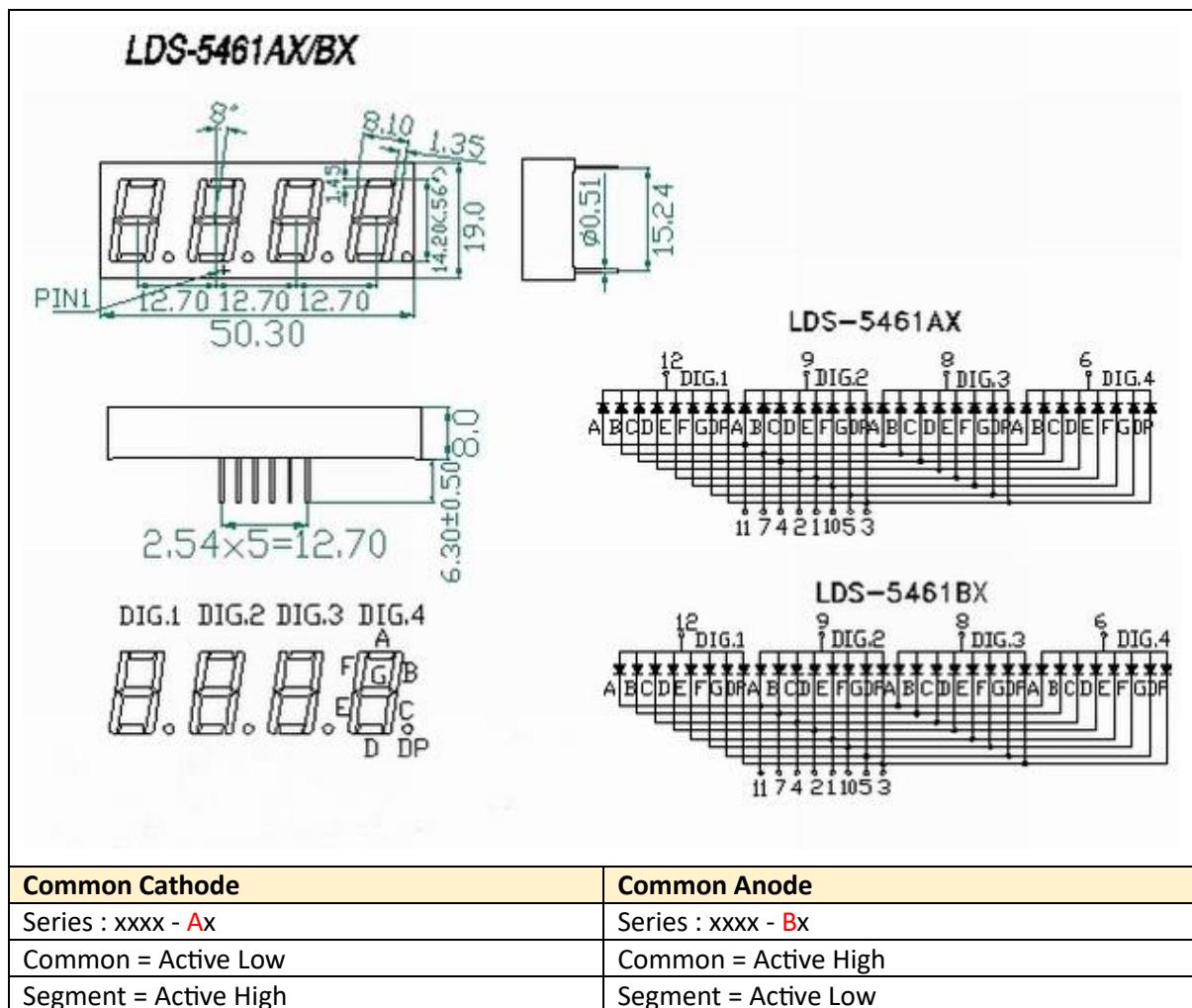
1. 5461BS, 5641BS, 5641BH: 0.56" 4Digit Common Anode 7Segment



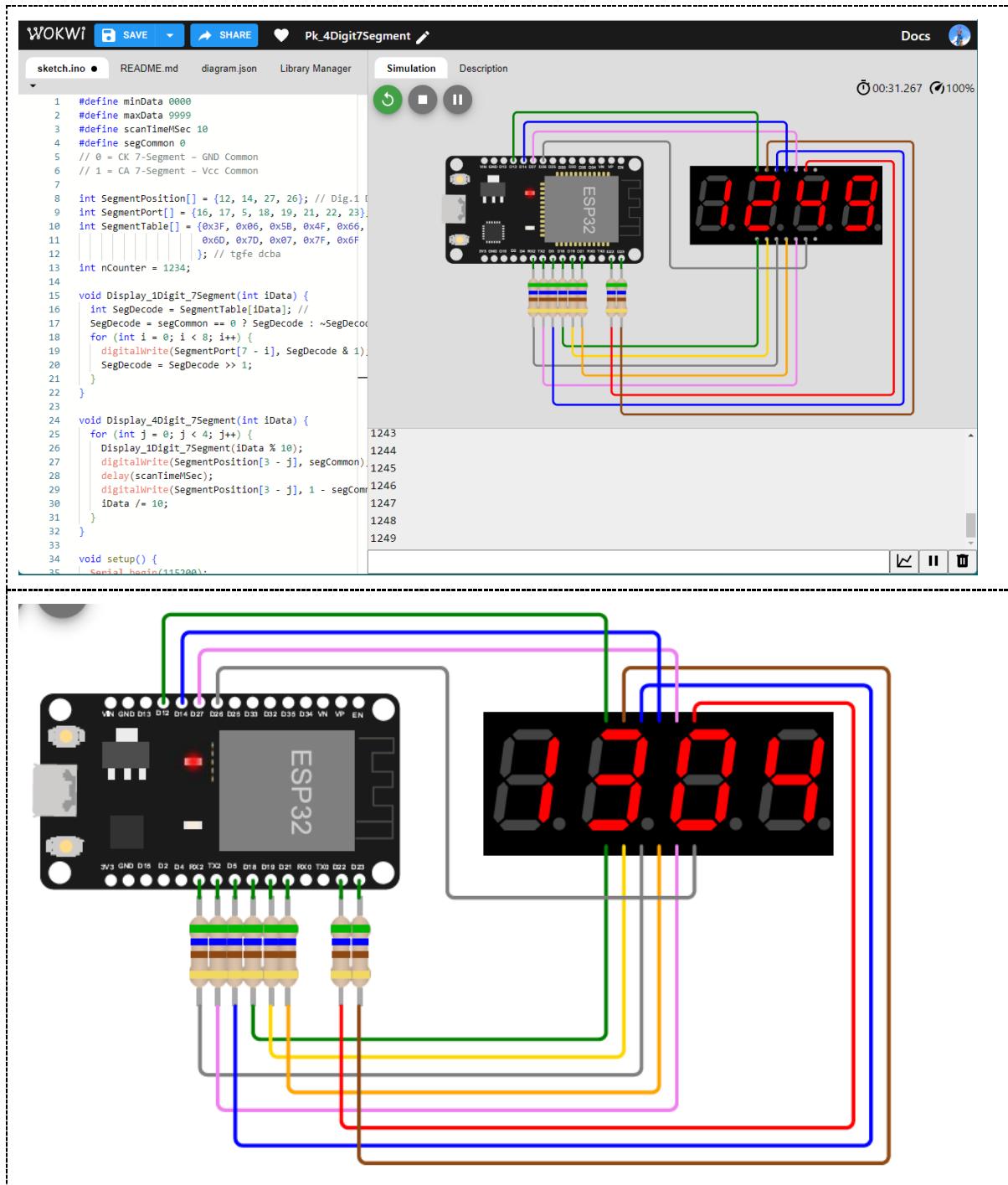
2. 5461AS ,5641AS: 0.56" 4Digit Common Cathode 7Segment



3. Series A(CK) and Series B(CA) of 7Segment



4. Read <https://onlinesimulators.quora.com/ESP32-Seven-Segment-Counter-Example-Wokwi-ESP32-Simulator>
5. Create New ESP32 Project <https://wokwi.com/projects/new/esp32>
6. Edit diagram_json →
7. Edit Arduino C Code →
8. Test Online >> <https://wokwi.com/projects/388875874176273409>



9. Test Code “Test0401-Test 4Digit 7Segment” with esp32 board

```
#define minData 0000
#define maxData 9999
#define scanTimeMSec 10
#define segCommon 0
// 0 = CK 7-Segment – GND Common
// 1 = CA 7-Segment – Vcc Common

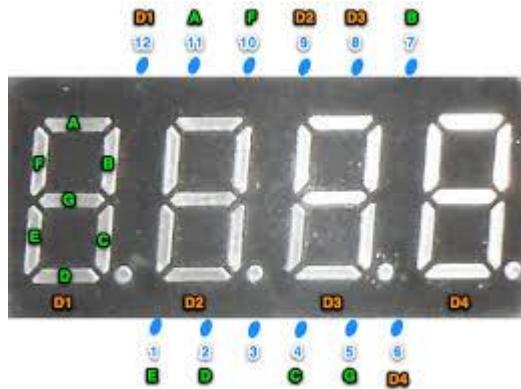
int SegmentPosition[] = {12, 14, 27, 26}; // Dig.1 Dig.2 Dig.3 Dig.4
int SegmentPort[] = {16, 17, 5, 18, 19, 21, 22, 23}; // tgfe dcba
int SegmentTable[] = {0x3F, 0x06, 0x5B, 0x4F, 0x66,
    0x6D, 0x7D, 0x07, 0x7F, 0x6F
}; // tgfe dcba
int nCounter = 1234;

void Display_1Digit_7Segment(int iData) {
    int SegDecode = SegmentTable[iData]; //
    SegDecode = segCommon == 0 ? SegDecode : ~SegDecode;
    for (int i = 0; i < 8; i++) {
        digitalWrite(SegmentPort[7 - i], SegDecode & 1);
        SegDecode = SegDecode >> 1;
    }
}

void Display_4Digit_7Segment(int iData) {
    for (int j = 0; j < 4; j++) {
        Display_1Digit_7Segment(iData % 10);
        digitalWrite(SegmentPosition[3 - j], segCommon);
        delay(scanTimeMSec);
        digitalWrite(SegmentPosition[3 - j], 1 - segCommon);
        iData /= 10;
    }
}

void setup() {
    Serial.begin(115200);
    for (int i = 0; i < 8; i++) {
        pinMode(SegmentPort[i], OUTPUT);
        pinMode(SegmentPosition[i], OUTPUT);
        digitalWrite(SegmentPosition[i], 1 - segCommon);
    }
}

void loop() {
    Serial.println(nCounter);
    for (int nloop = 0; nloop < 50; nloop++)
        Display_4Digit_7Segment(nCounter);
    nCounter++;
    nCounter = nCounter < minData ? maxData : nCounter;
    nCounter = nCounter > maxData ? minData : nCounter;
}
```



Common = 12, 14, 27, 26
 tgfe -- dcba = 16, 17, 5, 18 -- 19, 21, 22, 23

diagram.json

```
{
  "version": 1,
  "author": "Wichai Srisuruk",
  "editor": "wokwi",
  "parts": [
    {
      "type": "wokwi-esp32-devkit-v1",
      "id": "esp",
      "top": 52.1,
      "left": -275.4,
      "rotate": 90,
      "attrs": {}
    },
    {
      "type": "wokwi-resistor",
      "id": "r1",
      "top": 235.2,
      "left": -173.35,
      "rotate": 90,
      "attrs": { "value": "560" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r2",
      "top": 235.2,
      "left": -182.95,
      "rotate": 90,
      "attrs": { "value": "560" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r3",
      "top": 235.2,
      "left": -221.35,
      "rotate": 90,
      "attrs": { "value": "560" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r4",
      "top": 235.2,
      "left": -211.75,
      "rotate": 90,
      "attrs": { "value": "560" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r5",
      "top": 235.2,
      "left": -240.55,
      "rotate": 90,
      "attrs": { "value": "560" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r6",
      "top": 235.2,
      "left": -230.95,
      "rotate": 90,
      "attrs": { "value": "560" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r7",
      "top": 235.2,
      "left": -259.75,
      "rotate": 90,
      "attrs": { "value": "560" }
    },
    {
      "type": "wokwi-resistor",
      "id": "r8",
      "top": 235.2,
      "left": -250.15,
      "rotate": 90,
      "attrs": { "value": "560" }
    },
    {
      "type": "wokwi-7segment",
      "id": "sevseg1",
      "top": 111.42,
      "left": -75.68,
      "attrs": { "digits": "4", "colon": "", "common": "cathode" }
    },
    "connections": [
      ["esp:TX0", "$serialMonitor:RX", "", []],
      ["esp:RX0", "$serialMonitor:Tx", "", []],
      ["r1", "esp:D25", "green", [ "v0" ]],
      ["r2", "esp:D22", "green", [ "v0" ]],
      ["esp:D21", "r41", "green", [ "v0" ]],
      ["esp:D19", "r31", "green", [ "v0" ]],
      ["esp:D18", "r61", "green", [ "v0" ]],
      ["esp:D5", "S1", "green", [ "v0" ]],
      ["esp:TX2", "r8:1", "green", [ "v0" ]],
      ["esp:RX2", "r7:1", "green", [ "v0" ]],
      ["sevseg1:E", "r6:2", "green", [ "v104.76", "h-143.99" ]],
      ["sevseg1:D", "r3:2", "gold", [ "v114.36", "h-182.4" ]],
      ["sevseg1:DP", "r7:2", "gray", [ "v123.96", "h-230.4" ]],
      ["sevseg1:C", "r4:2", "orange", [ "v133.56", "h-48" ]],
      ["sevseg1:G", "r8:2", "purple", [ "v143.16", "h-67.2" ]],
      ["sevseg1:I", "r2:2", "purple", [ "v143.16", "h-278.4" ]],
      ["sevseg1:F", "r5:2", "blue", [ "v143.16", "h-143.99" ]],
      ["sevseg1:A", "r6:2", "#8f614", [ "v-28.8", "h144", "v268.8", "h-28.8" ]],
      ["sevseg1:DIG4", "esp:D26", "gray", [ "v27.96", "h-134.4", "v-124.8", "h-124.8", "v19.2" ]],
      ["sevseg1:DIG3", "esp:D27", "purple", [ "v-38.4", "h-19.2" ]],
      ["sevseg1:DIG2", "esp:D14", "blue", [ "v-48", "h-19.2" ]],
      ["sevseg1:DIG1", "esp:D12", "green", [ "v-57.6", "h-19.19" ]]
    ],
    "dependencies": {}
  ]
}
```

Code7Seg.ino

```
#define minData 0000
#define maxData 9999
#define scanTimeMSec 10
#define segCommon 0
// 0 = CK 7-Segment - GND Common
// 1 = CA 7-Segment - Vcc Common

int SegmentPosition[] = {12, 14, 27, 26}; // Dig.1 Dig.2 Dig.3 Dig.4
int SegmentPort[] = {16, 17, 5, 18, 19, 21, 22, 23}; // tgef dbca
int SegmentTable[] = {0x3F, 0x06, 0x5B, 0x4F, 0x66,
                      0x00, 0x6D, 0x7D, 0x07, 0x7F, 0x6F
                     }, // tgef dbca
int nCounter = 1234;

void Display_1Digit_7Segment(int iData) {
  int SegDecode = SegmentTable[iData];
  if (SegDecode == 0 ? SegDecode : ~SegDecode);
  for (int i = 0; i < 8; i++) {
    digitalWrite(SegmentPort[7 - i], SegDecode & 1);
    SegDecode = SegDecode >> 1;
  }
}

void Display_4Digit_7Segment(int iData) {
  for (int j = 0; j < 4; j++) {
    Display_1Digit_7Segment((iData % 10));
    digitalWrite(SegmentPosition[3 - j], segCommon);
    delay(scanTimeMSec);
    digitalWrite(SegmentPosition[3 - j], 1 - segCommon);
    iData /= 10;
  }
}

void setup() {
  Serial.begin(115200);
  for (int i = 0; i < 8; i++)
    pinMode(SegmentPort[i], OUTPUT);
  for (int i = 0; i < 4; i++)
    pinMode(SegmentPosition[i], OUTPUT);
  digitalWrite(SegmentPosition[0], 1 - segCommon);
}

void loop() {
  Serial.println(nCounter);
  for (int nloop = 0; nloop < 50; nloop++)
    Display_4Digit_7Segment(nCounter);
  nCounter++;
  nCounter = nCounter < minData ? maxData : nCounter;
  nCounter = nCounter > maxData ? minData : nCounter;
}
```