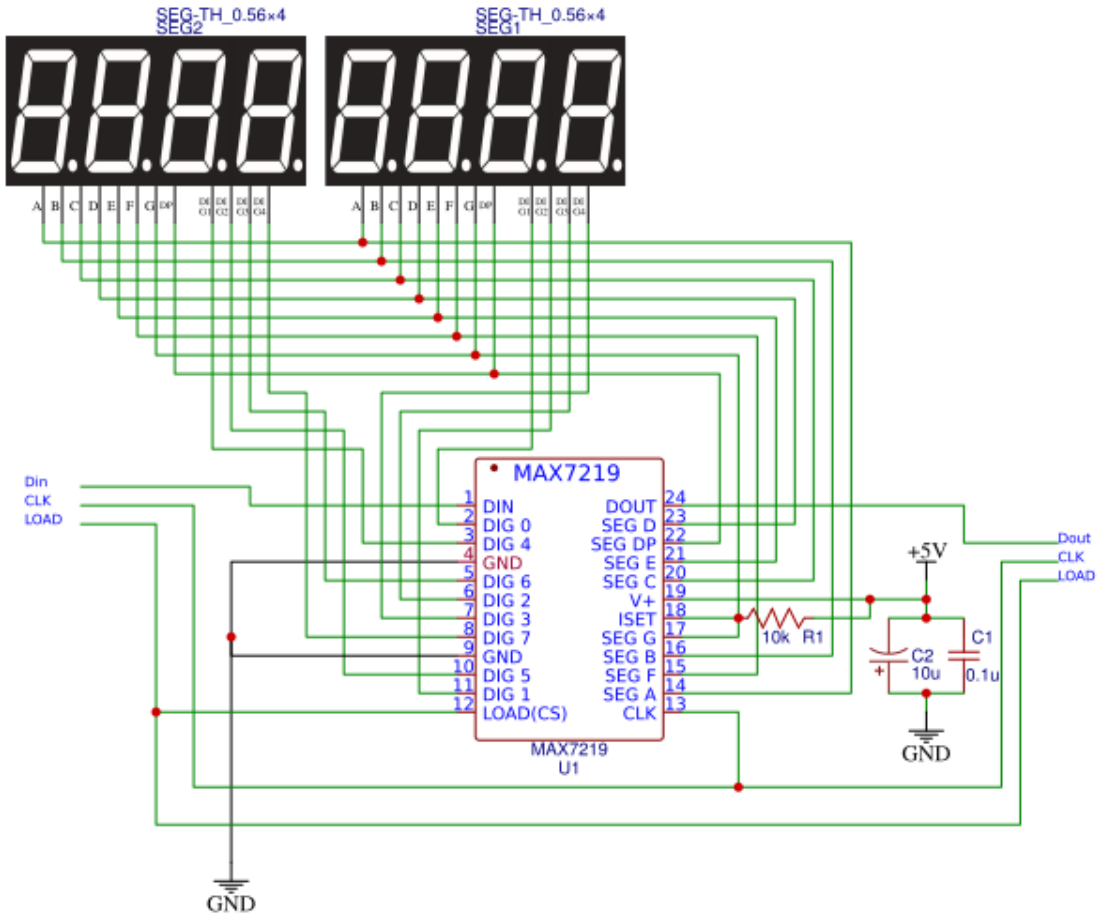
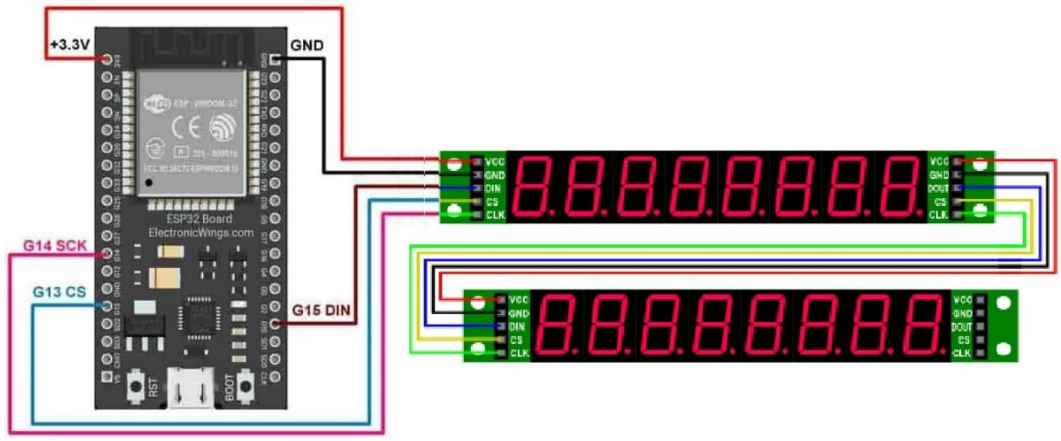
Getting Start ESP32: ESP32 GPIO + ESP32 Interface
Mission 6/12 – ESP32 + 8Digit 7Segment with MAX7219

1. Read https://www.cybertice.com/p/715
2. Read https://www.arduitronics.com/p/1553

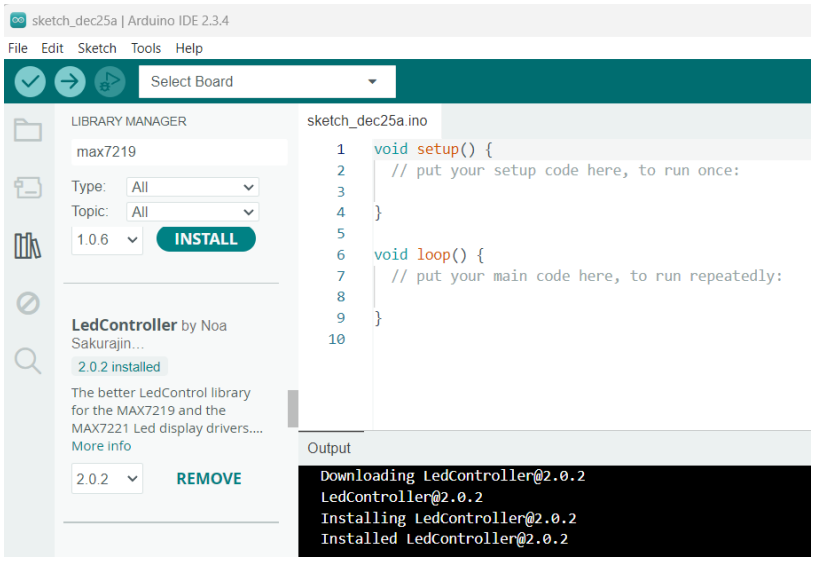
VCC GND DI ➔ CS CLK		VCC GND DO ➔ CS CLK

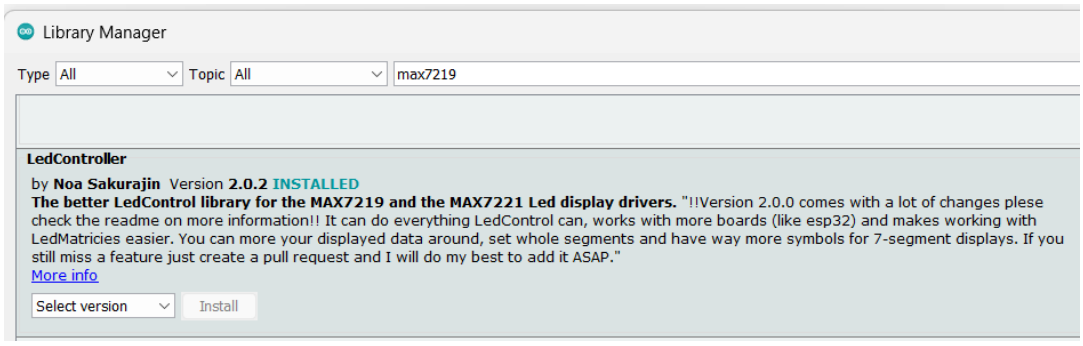


Cascade 2 Module



3. Add Library: Sketch → Include Library → Manage
4. Filter with "max7219", Select LedControl by Noa Sakurajin Version 2.0.2





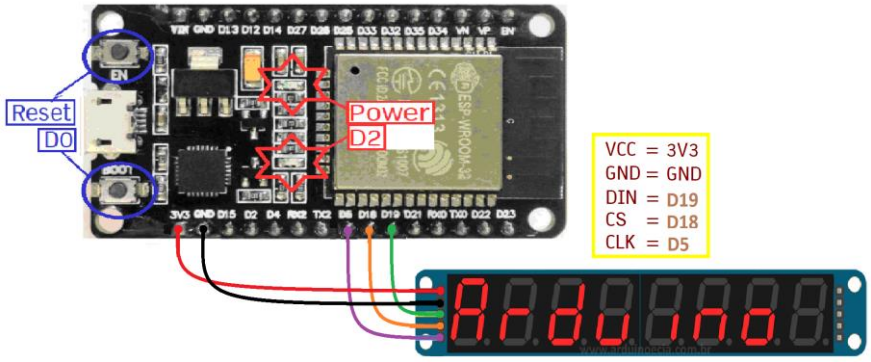
LedController by Noa Sakurajin Version 2.0.2

5. Test Code 1 “Test0501-Hello MAX7219”

```
#include "LedController.hpp"
#define Pin_DIN 19  // D19
#define Pin_CS 18   // D18
#define Pin_CLK 5   // D5

LedController<1, 1> lc;

void setup() {
  lc = LedController<1, 1>(Pin_DIN,
Pin_CLK, Pin_CS);
  lc.setIntensity(8);
  lc.clearMatrix();
}
void loop()
{ lc.setDigit(0, 7, 1, false);
  lc.setDigit(0, 6, 2, false);
  lc.setDigit(0, 5, 3, false);
  lc.setDigit(0, 4, 4, false);
  lc.setDigit(0, 3, 5, false);
  lc.setDigit(0, 2, 6, false);
  lc.setDigit(0, 1, 7, false);
  lc.setDigit(0, 0, 8, false);
  delay(1000);
}
```



6. Test Code 2 “Test0502-Counter”

```
#include "LedController.hpp"
#define Pin_DIN 19  // D19
#define Pin_CS 18   // D18
#define Pin_CLK 5   // D5
long int nCounter = 87654321;
LedController<1, 1> lc;

void setup() {
  lc = LedController<1, 1>(Pin_DIN, Pin_CLK, Pin_CS);
  lc.setIntensity(8);
  lc.clearMatrix();
  Serial.begin(19200);
}
void loop()
{ long int Tempp;
  int singleDigit;
  Tempp = nCounter;
  Serial.println(Tempp);
  singleDigit = Tempp % 10; Tempp /= 10;    lc.setDigit(0, 0, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;    lc.setDigit(0, 1, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;    lc.setDigit(0, 2, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;    lc.setDigit(0, 3, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;    lc.setDigit(0, 4, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;    lc.setDigit(0, 5, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;    lc.setDigit(0, 6, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;    lc.setDigit(0, 7, singleDigit, false);
  delay(100);
  nCounter--;
}
```

- “lc.setDigit(0, 7, singleDigit, false);”
  0 = Module Number 0
  7 = Digit 7
  Single Digit = Value Display
  false = no dot display

7. Test Code 3 “Test0503-Switch Counter”

```
#include "LedController.hpp"

#define DebounceDelay  100
#define Counter_Switch  0  // D0 or BOOT
#define Pin_DIN 19  // D19
#define Pin_CS  18  // D18
#define Pin_CLK 5   // D5
int nCounter = 1234;
LedController<1, 1> lc;

void M7219_Display(int Tempp) {
  int singleDigit;
  singleDigit = Tempp % 10; Tempp /= 10;     lc.setDigit(0, 0, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;     lc.setDigit(0, 1, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;     lc.setDigit(0, 2, singleDigit, false);
  singleDigit = Tempp % 10; Tempp /= 10;     lc.setDigit(0, 3, singleDigit, false);

  lc.setChar(0,7,'C',false);
  lc.setChar(0,6,'n',false);
  lc.setChar(0,5,'t',false);
  lc.setRow(0,4,B00001001); // tabc defg
}


void setup() {
  pinMode(Counter_Switch, INPUT_PULLUP);
  lc = LedController<1, 1>(Pin_DIN, Pin_CLK, Pin_CS);
  lc.setIntensity(8);
  lc.clearMatrix();
  Serial.begin(115200);
  M7219_Display(nCounter);
}

void loop()
{ if (digitalRead(Counter_Switch) == LOW) {    // If Switch Press
    delay(DebounceDelay);    // Debounce Delay H->L
    while (digitalRead(Counter_Switch) == LOW); // wail until release
    delay(DebounceDelay);    // Debounce Delay L->H
    nCounter++;
    Serial.println(nCounter);
    M7219_Display(nCounter);
  }
}
```

- How are the following commands different?

- lc.setDigit(0, 3, singleDigit, false);

- lc.setChar(0,5,'t',false);

- lc.setRow(0,4,B00001001); // tabc defg