

THE MICROPROCESSORS & MICROCONTROLLERS

Instructor: The Tung Than

PRACTICE EXERCISE #2:

COMMUNICATION WITH 7-SEGMENT LED AND TIMER

I. Student preparation

- Knowledge of Timer configuration.
- Learn how to use 7-segment led (7-segment light).

II. Practice content (4 points)

1. Present and draw a flowchart of the LED scanning algorithm applied to display 7-segment led. **(2 points)**
2. Using the 8051 microcontroller's Timer, design a clock circuit with 24h format with the initial time set in the source code. **(2 points)**

III. Exercises

With the above clock design, use a loop to create a delay instead of Timer. State the advantages and disadvantages of the two methods.

IV. Report (6 points)

Compress design files and report files into a file named as follows:

[<LAB...>]-[<Student code>]-Full name

The required report file contains the following contents:

1. Design result (screenshot and pasted in the report). **(1 point)**
2. Explain the operating principle of the effects, accompanied by a video (send a Google Drive link) to demonstrate the circuit operation in case the instructor cannot run the design file. **(3 points)**
3. Exercise report. **(2 points)**