

# THE MICROPROCESSORS & MICROCONTROLLERS

Instructor: The Tung Than

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## PRACTICE EXERCISE #3:

### USING INTERRUPT

#### I. Student preparation

- Knowledge of how to install and use Interrupt.

#### II. Practice content

1. Present and draw a flowchart to handle 2 buttons with the following functions:
  - Button A: Pause/Resume stopwatch
  - Button B: Reset the stopwatch.
2. Using AT89C51/AT89C52 in combination with 4 7-Segment LED modules and 2 buttons above, design a Sport clock circuit with the ability to count accurately to 1% of seconds, counting range from 00.00 seconds to 99.99 seconds and has 2 buttons to control Pause/Resume and Reset.

#### III. Exercises

Add 2 buttons to the Sport watch with the following function:

- Button C: Increase the number of seconds counting to 1 second
- Button D: Decrease the number of seconds to 1 second

#### IV. Report

**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).
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. Exercise report.