

# Lab06

## Experiment 1:

- 1 Implement an electronic clock with the following functions:
  - 1.1 Finish the time display function supporting 24-hour (00-23). The time display can show hour:minute and second, and use one push button to switch the display.
  - 1.2 For the date functions in clock (no leap year), we have the following functions:
    - Day (Jan/March/May/July/Aug/Oct/Dec: 1-31, Feb: 28, Apr/June/Sept/Nov: 30),
    - Month (1-12),
    - Year (00-99).Month-Day function can display in the 4 7-segment displays, and use one push button to select the display of Year (2 Seven-Segment Displays, SSDs) or Month-Day (4 SSDs).
  - 1.3 Support one alarm function.
  - 1.4 Support a stopwatch function (Use lab5 exp2's codes).
  - 1.5 Support the setting mode to set the time, date, and alarm.

## Result:

TIME(設定時間 01:01:10):

Long press 後進入 set\_time\_min(state: 000\_001) -> 調整為 01(上限 60) ->  
short press 後進入 set\_time\_sec(state: 000\_010) -> 調整為 10(上限 60) -  
> short press 後進入 set\_time\_hour(state: 000\_011) -> 調整為 01(上限  
24) -> Long press 回到 time\_display(state: 000\_000)

<https://lurl.cc/OU0CF>

Press display\_mode 鍵選擇呈現 hour:min(state: 000\_000)或 00:sec(state:  
100\_000)

<https://lurl.cc/SaoGq>

## STOPWATCH:

Short press 後進入 stopwatch\_display(state: 001\_000) -> press  
start/stop stopwatch\_count(state:001\_001) -> press lap  
stopwatch\_lap(state:001\_010) -> press lap  
stopwatch\_count(state:001\_001) -> press start/stop  
stopwatch\_display(state: 001\_000)

<https://lurl.cc/0AJdK>

ALARM(設定鬧鐘時間 01:05):

Short press 後進入 alarm\_display(state: 010\_000) -> long press  
set\_alarm\_min(state: 010\_001) -> 調整為 05(上限 60) -> short press

set\_alarm\_hour(state: 010\_010) -> 調整為 01(上限 24) -> long press 回  
alarm\_display(state: 010\_000) -> alarm ON

<https://lurl.cc/1Q2bB>

DATE(設定日期 2002/02/02):

Short press 後進入 date\_display(state: 011\_000) -> Long press 後進入  
set\_date\_month(state: 011\_001) -> 調整為 02(上限 12) -> short press 後  
進入 set\_date\_date (state: 011\_010) -> 調整為 02(上限 28) -> short  
press 後進入 set\_date\_year(state: 011\_011) -> 調整為 02(上限 99) ->  
Long press 回到 date\_display(state: 011\_000)

<https://lurl.cc/CpU1z>

Press display\_mode 鍵選擇呈現 month:date(state: 011\_000)或  
00:year(state: 111\_000)

<https://lurl.cc/PlZiq>

ALARM ON:

鬧鐘時間 01:05:00 到了

<https://lurl.cc/UArSo>