

Control instruction and I/O operation

1. Purpose

- Familiarize with the control instruction: branching, subroutine calling
- Familiarize with time delay calculation
- Familiarize with I/O port operation using pushbutton/led as example

Note for this lab:

Keep looping/judging in assembly (not C, C code, the three files format are only for running the program as indicated in Friday, Feb.18 's lecture),

2. Task

Task 1: (60%)

Connect one pushbutton 1 to Port D pin 1, one LED to Port D pin 4

- TA set a time interval for how long the LED on and how long LED off;
- You start to make program to read the pushbutton, if pushed, flashing LED with time interval set by TA.
- the program is effective after it is run once, i.e., at anytime pushbutton can be pushed and LED will flash.

TA evaluation and signature

1000

TA set time interval: ms

Read switch:

Flashing LED:

Time interval correct:

Task 2: (40%) Connect 3 pushbuttons 1, 2, 3 to Port D pin 1,2, 3 and 3 LEDs 1, 2, 3 to Port D pin 4, 5, 6. Make an assembly code as follows.

Pushbutton 1 controls LED1, i.e., pushbutton 1 pressed, LED1 keeps flashing with X1 ms on and X1 ms off till pushbutton1 is released.

Pushbutton 2 controls LED2, i.e., pushbutton 2 pressed, LED2 keeps flashing with X2 ms on and X2 ms off till pushbutton 2 is released..

Pushbutton 3 controls LED3, i.e., pushbutton 3 pressed, LED3 keeps flashing with X3 ms on and X3 ms off till pushbutton3 is released..

X1: 500 ms; **X2** 500 ms; **X3** 500 ms
set by TA /