**Readme File for Embedded Assignment : Stopwatch timer and tic-tac-toe game using Interrupts**

* Following features have been added in the code:
* Stop Watch timer implementation using Systick timer of TIVA.
* First three SSDs are used to display the seconds count and the last SSD is used to display the milli-seconds count.
* **SysTick\_Handler() :**

1. This function is called once in every 100ms to update the time that has elapsed.
2. The time is then displayed on the 4 seven segment displays.
3. Timer start/stop/resume/pause functionality is supported through SW1 and SW2 of TIVA and also through UART.

* SW1 of TIVA => To toggle between Timer start and Timer stop.
* SW2 of TIVA => To toggle between Timer pause and timer resume.
* Additionally, status of the timer is also displayed on the LCD and is also indicated by LED blinking of TIVA as follows:

1. **Timer Ready** :
2. This is the Stop state.
3. Here the timer value is reset to 0.0
4. LED is ON continuously and colour of LED is green.
5. **Timer Ready** is displayed on the LCD.
6. **Timer Running**:
7. When timer goes from stop to start or from pause to resume, it is denoted as **Timer Running** State.
8. In this state, Timer Running is displayed on the LCD.
9. In this state, LED will be blinking and the colour is **green**.
10. **Timer Paused**:
11. When timer goes to pause state, we display **Timer Paused** on the LCD.
12. In this state, LED will be blinking and the colour will be **blue**.

* To change the state of the timer using SW1 and SW2 of TIVA, we use interrupts on PORTF.
* **GPIO\_PORTF\_Handler()** is used to handle SW1 and SW2 press of the TIVA board.
* Additionally, tic tac toe game is also supported through the first 3 rows and columns of the 4x4 keypad.
* Player 1 is the person who uses ‘X’ and player 2 is the person who uses ‘O’.
* The key presses for the tic tac toe game is handled using interrupt function for PORTC.
* **GPIO\_PORTC\_Handler()** is used to handle the key presses of the keypad for playing the game.