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output not toggling error - help with lab 12

I know today is the last day to submit labs for this class, but I wanted to see if anyone out there was able to help me find me error in lab 12. I plan to finish the labs even if I don't finish them in time to submit them for a grade, so that I can learn what I did incorrectly. I already did enough to earn a certificate anyway. So if anyone can help me find my error with the output not toggling correctly in lab 12, please let me know. Thank you! Karen

Code and Error message from command window are below.

```
#include "TExaS.h"
#include "..//tm4c123gh6pm.h"
unsigned char switchPressedLastTime = 0;
unsigned char toggleOrQuiet = 0;
// basic functions defined at end of startup.s
void DisableInterrupts(void); // Disable interrupts
void EnableInterrupts(void); // Enable interrupts
void WaitForInterrupt(void); // low power mode
// *************Sound_Init*********************
// Initialize SysTick periodic interrupts
// Input: none
// Output: none
// input from PA3, output from PA2, SysTick interrupts
void Sound_Init(void){
unsigned long volatile delay;

SYSCTL_RCGC2_R |= 0x00000001; // activate port A
delay = SYSCTL_RCGC2_R;
GPIO_PORTA_AMSEL_R &= ~0x20; // no analog
GPIO_PORTA_PCTL_R &= ~0x00F00000; // regular function
GPIO_PORTA_DIR_R |= 0x04; // make PA2 out
GPIO_PORTA_DIR_R &= ~0x08; // (c) make PA3 in
GPIO_PORTA_DR8R_R |= 0x04; // can drive up to 8mA out
GPIO_PORTA_AFSEL_R &= ~0x0C; // disable alt funct on PA2 and PA3
GPIO_PORTA_DEN_R |= 0x0C; // enable digital I/O on PA2 and PA3
NVIC_ST_CTRL_R = 0; // disable SysTick during setup
}
// Interrupt service routine
// Executed every 880Hz
void SysTick_Handler(void){
unsigned long switchCurrentlyPressed = 0;

switchCurrentlyPressed = GPIO_PORTA_DATA_R &= 0x08; //PA3 input connected to switch
if ( (!switchPressedLastTime) && (switchCurrentlyPressed) ) { //01 (state of 2 globals) switch button pressed
switchPressedLastTime = 1;
//if already toggling, and button gets pressed, then button press means turn off
//if NOT already toggling, and button gets pressed, then button press means to start the toggling
if (toggleOrQuiet == 1)
toggleOrQuiet = 0;
else
toggleOrQuiet = 1;
}
else if ( (switchPressedLastTime) && (switchCurrentlyPressed) ) { //11 (state of 2 globals)
toggleOrQuiet = 1;
}
else if ( (!switchPressedLastTime) && (!switchCurrentlyPressed) ) { //00 (state of 2 globals)
toggleOrQuiet = 0;
}
else if ( (switchPressedLastTime) && (!switchCurrentlyPressed) ) { //10 (state of 2 globals)
switchPressedLastTime = 0;
toggleOrQuiet = 1;
}
if (toggleOrQuiet)
GPIO_PORTA_DATA_R ^= 0x04; // toggle PA2 440 Hz tone output
else
//turn off tone
GPIO_PORTA_DATA_R &= ~0x04; //make PA2 output low - tone off

}
// *************SysTick_Init*********************
// Initialize SysTick periodic interrupts
// Input: interrupt period
// Units of period are 62.5ns (assuming 16 MHz clock)
// Maximum is 2^24-1
```

```
// Minimum is determined by length of ISR
// Output: none
void SysTick_Init(unsigned long period){
NVIC_ST_CTRL_R = 0; // disable SysTick during setup
NVIC_ST_CTRL_R = 0x00000005; // enable SysTick with core clock
NVIC_ST_RELOAD_R = period-1;// reload value
NVIC_ST_CURRENT_R = 0; // any write to current clears it
//NVIC_SYS_PRI3_R = NVIC_SYS_PRI3_R&0x00FFFFFF; // priority 0
NVIC_SYS_PRI3_R = (NVIC_SYS_PRI3_R&0x00FFFFFF)|0x40000000; // priority 2
// enable SysTick with core clock and interrupts
NVIC_ST_CTRL_R = 0x07;
EnableInterrupts();
}

int main(void){// activate grader and set system clock to 80 MHz
TExaS_Init(SW_PIN_PA3, HEADPHONE_PIN_PA2,ScopeOn);
//PLL_Init(); // 80 MHz
Sound_Init(); //90909 count?
SysTick_Init(90909); // (1.13635 ms / 62.5ns) = 18182 count period to toggle output for tone
EnableInterrupts(); // enable after all initialization are done
while(1){
// main program is free to perform other tasks
// do not use WaitForInterrupt() here, it may cause the TExaS to crash
}
}
```

Command

```
   Pass: PORTA PUR bit 3 is low
   Pass: PORTA DIR bit 3 is low
   Pass: PORTA AFSEL bit 3 is low
   Pass: PORTA AMSEL bit 3 is low
   Pass: PORTA PCTL bits  are low
 - Verifying output (PA2) configuration...
   Pass: PORTA DEN bit 2 is high
   Pass: PORTA DIR bit 2 is high
   Pass: PORTA AFSEL bit 2 is low
   Pass: PORTA AMSEL bit 2 is low
   Pass: PORTA PCTL bits  are low

 - Verifying SysTick configuration...
   Pass: SysTick enable bit is high
   Pass: SysTick clock source bit is high
   Pass: SysTick interrupt enable bit is high
   Pass: SysTick enable bit is high

 - Verifying SysTick Reload...
   Pass: RELOAD constant of 90908 will interrupt 880 times/sec

 - Verifying PLL configuration...
   Pass: RCC XTAL bits are configured for 16 MHz XTAL (0x540)
   Pass: RCC2 OSCSRC2 bits are zero
   Pass: RCC2 PWRDN2 bit is low
   Pass: RCC2 DIV400 bit is high
   Pass: RCC2 USERCC2 bit is high
   Pass: RCC2 SYSDIV2 bits are 4
1) Switch not pressed test, output should be off :
   Pass: initially the output is low
2) Switch pressed test, output should toggle at 440 Hz :
   Fail: output not toggling
Done grading. Score is 45
```

lab12

Just now by Karen West

the students' answer, *where students collectively construct a single answer*

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followup discussions *for lingering questions and comments*