```c
/* Name: David (DongYun) Kim
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 * Course: ENEL351
 * Description: ENEL351 Project - Smart Parking System
 * File name: timer.c
 */

#include "stm32f10x.h"
#include "timer.h"

/*****************************************************************************************************************/

/* Loop based delay routine - not used, included as example
*/
/*****************************************************************************************************************/

void delay(uint32_t delay_time)
{
 uint32_t i;
 for (i=0; i <=delay_time; i++)
 {}
}

/*****************************************************************************************************************/

/* TIMER 2 : Timer 2 is used for generating delay times and is not available for other tasks
*/
/*****************************************************************************************************************/

void tim2_init(void)
{
 RCC->APB1ENR |= RCC_APB1ENR_TIM2EN;
 TIM2->CR1 = 0; //ensure timer is off
 TIM2->PSC = 72 -1;
 TIM2->ARR = 0xffff - 1;
 TIM2->CR1 |= TIM_CR1_CEN;
 while(!(TIM2->SR & TIM_SR_UIF)); //Wait for the counter to generate its first update event

}

void delay_us(uint16_t delay_time_us)
{
 TIM2->CNT = 0;
 while (TIM2->CNT <= delay_time_us)
 {}

}

void delay_ms(uint16_t delay_time_ms)
{
 for (uint16_t i=0; i<delay_time_ms; i++)
 {
  delay_us (1000); // delay of 1 ms
 }
}
```