Embedded Systems Design Assignment 1

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Question:

| Write a Program (in c ) for Cortex m3/m4 processor to achieve the following:   * Define an Array of 10 elements and add odd elements of this array. * Use the following functions to select the process stack pointer:   x = \_\_get\_CONTROL(); Read the current value of CONTROL  \_\_set\_CONTROL(x); //  Set the CONTROL value to x  Write a single program to implement the above requirements. Verify the correctness of the program by  loading on board and debugging. |
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Solution:

| **#include "stm32f4xx.h" #include<stdio.h> int odd\_sum(int arr[], int size)  {  int sum = 0; // initializing sum to 0   int i=0; // initializing the loop variable to 0   for (i = 0; i < size; i++) // for loop to run the loop till the array elements are done.. so using size   {  if (arr[i] % 2 != 0) //checking if the element is odd or even.  {  sum += arr[i]; // if its odd, then only add to sum.  }  } //done with the elements   return sum; // return the sum to the main function. }  int main(void)   {  int x = \_\_get\_CONTROL(); // get the output sum to display the results.  int sum=0; //initializing sum to 0   int c[] = {11, 20, 35, 47, 51, 6, 70, 82, 91, 10}; // declaring array "c" with 10 elements   int size = sizeof(c) / sizeof(c[0]); //declaring size to be the size of array.   sum = odd\_sum(c, size); // calling the odd\_sum function, where the actual code is written.  printf("Sum of odd elements: %d\n", sum);   \_\_set\_CONTROL(x); // set the output sum to display   RCC->AHB1ENR |= 1; // enabling the clock for GPIOA peripheral.   GPIOA->MODER |= 0x5555; // configuring the GPIOA as output    GPIOA->ODR = 0x00;   GPIOA->ODR = sum; // set the value of the output data register of the GPIOA peripheral to the value of the variable "output"  return 0; }** |
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I could run the program on the given kit successfully but it may be noted that the output can be seen only after clicking 3 times on the run button after debugging.