

# Learning Report – Embedded C – Hardware + Programming + Testing



*L&T Technology Services*



## Document History

Ver.Rel. No.	Release Date	Prepared. By	Reviewed By	Approved By	Remarks/Revision Details
1.0	26-12-20	Parepalli Sai kumar		Dr. Vivek K and Bhargav N	
1.1	03-01-21	Parepalli Sai kumar		Dr. Vivek K and Bhargav N	

## Contents

<b>1 MAKE EXECUTION IN GIT .....</b>	<b>4</b>
1.1 FILES AFTER EXECUTION OF MAKE.....	4
1.2 HEADER SECTION OF MAIN.O .....	5
<b>2 MINI PROJECT .....</b>	<b>6</b>
2.1 MAIN LOGIC FUNCTION .....	6
2.2 GIT LINK:.....	6

## 1 Make Execution in GIT

```

C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.19042.685]
(c) 2020 Microsoft Corporation. All rights reserved.

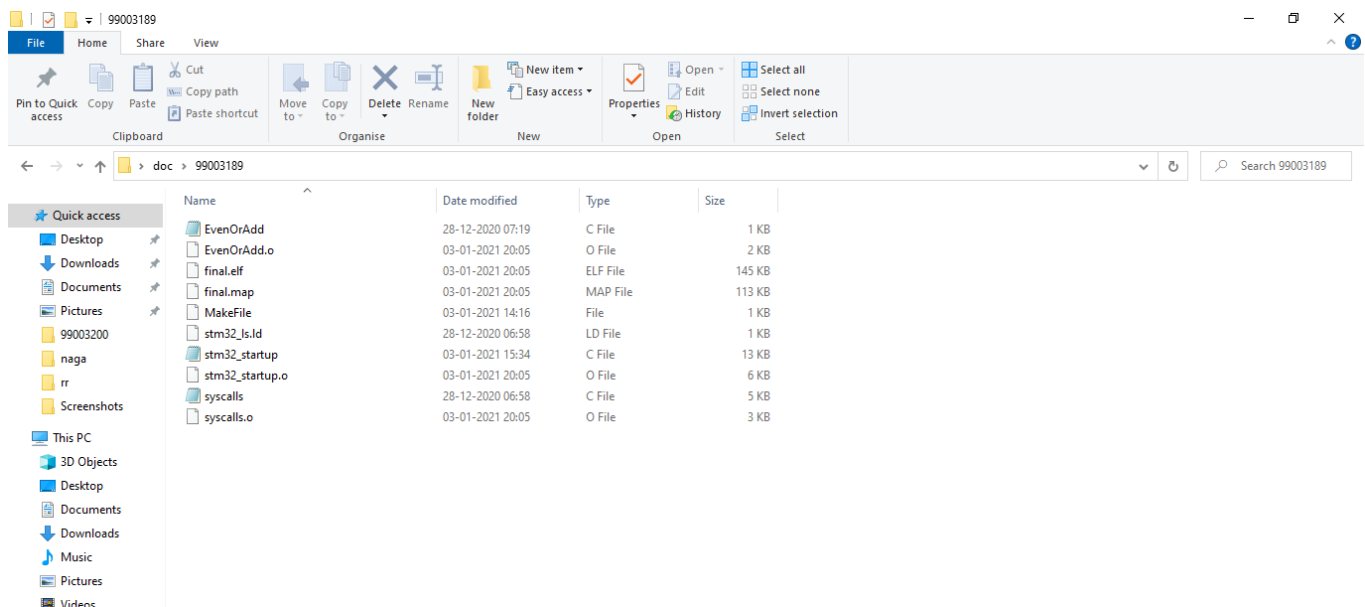
C:\Users\saiapk\Desktop\doc\99003189>make
make: Nothing to be done for 'all'.

C:\Users\saiapk\Desktop\doc\99003189>rm *.o

C:\Users\saiapk\Desktop\doc\99003189>make
arm-none-eabi-gcc -c -mcpu=cortex-m4 -mthumb -mfloat-abi=soft -std=gnu11 -Wall -O0 -o EvenOrAdd.o EvenOrAdd.c
arm-none-eabi-gcc -c -mcpu=cortex-m4 -mthumb -mfloat-abi=soft -std=gnu11 -Wall -O0 -o stm32_startup.o stm32_startup.c
arm-none-eabi-gcc -c -mcpu=cortex-m4 -mthumb -mfloat-abi=soft -std=gnu11 -Wall -O0 -o syscalls.o syscalls.c
arm-none-eabi-gcc -mcpu=cortex-m4 -mthumb -mfloat-abi=soft --specs=nano.specs -T stm32_ls.ld -Wl,-Map=final.map -o final.elf EvenOrAdd.o stm32_startup.o syscalls.o

C:\Users\saiapk\Desktop\doc\99003189>
    
```

### 1.1 Files after execution of Make



## 1.2 Header section of main.o

```
saipk@DESKTOP-75K4IJR MINGW64 ~/Desktop/doc/99003189 (master)
$ arm-none-eabi-objdump.exe -h stm32_startup.o

stm32_startup.o:      file format elf32-littlearm

Sections:
Idx Name              Size      VMA          LMA          File off  Algn
  0 .text              00000090  00000000  00000000  00000034  2**2
    CONTENTS, ALLOC, LOAD, RELOC, READONLY, CODE
  1 .data              00000000  00000000  00000000  000000c4  2**0
    CONTENTS, ALLOC, LOAD, DATA
  2 .bss              00000000  00000000  00000000  000000c4  2**0
    ALLOC
  3 .isr_vector        00000188  00000000  00000000  000000c4  2**2
    CONTENTS, ALLOC, LOAD, RELOC, DATA
  4 .comment           0000004e  00000000  00000000  0000024c  2**0
    CONTENTS, READONLY
  5 .ARM.attributes    0000002e  00000000  00000000  0000029a  2**0
    CONTENTS, READONLY

saipk@DESKTOP-75K4IJR MINGW64 ~/Desktop/doc/99003189 (master)
$ |
```

## 2 Mini project

### 2.1 Main logic function

```
/* USER CODE BEGIN WHILE */
while (1)
{
    /* USER CODE END WHILE */
    expr=HAL_GPIO_ReadPin(Sensor_Read_GPIO_Port, Sensor_Read_Pin);
    switch(expr)
    {
        case 1:
            HAL_GPIO_WritePin(Blue_Led_GPIO_Port, Blue_Led_Pin, 1);
            break;

        default:
            HAL_GPIO_WritePin(Blue_Led_GPIO_Port, Blue_Led_Pin, 0);
            break;
    }
    /* USER CODE BEGIN 3 */
    HAL_SPI_Transmit(&hspi1, &expr, 1, 100);
}
/* USER CODE END 3 */
}
```

### 2.2 GIT link:

<https://github.com/99003189/EmbeddedC>