LAB 3 REPORT

Signoff sheet:  
A paper with writing on it

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A white paper with writing on it

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PART1:

A screenshot of a computer

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Figure 1.1 Indicates the memory inspection using PAULMON2 monitor.

A screen shot of a graph

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Figure 1.2 Shows the maximum baud rate measured using oscilloscope (logically 57600) 62500.

PART2:

A screenshot of a computer program

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A screenshot of a computer program

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Figure 2.1 Collected from heap memory management program implementation.

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Figure 2.1 shows the value(69h) latched at the buffer due to virtual debug port execution trying to put value to address 0x7FFEh

PART3:

A screenshot of a computer

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Figure 3.1 Shows the initial 60% duty dycle PWM output from stm32 board

A screen shot of a graph

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Figure 3.2 shows the duty cycle of PWM output from 8051 board.

A screen shot of a graph

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Figure 3.3 shows the duty cycle of High speed output from 8051 board

**STM32 baud rate calculation:**  
 Baud rate value to be loaded to register USART\_BRR = Fpclk/expected number of data units

USART\_BRR= 16Mhz/9600 = 1667 in decimal

**Completed most of additional challenges like:**

1. Combined assembly and c code.
2. Implemented buffer for UART transmission in ARM code.
3. Heap memory allocation

**Answers:**

1. OS: Microsoft Windows 10 Home single language edition

Version: 10.0.19045 Build 19045

1. SDCC version 4.3.2
2. Code blocks 20.3
3. Putty, Flip
4. No problems faced.

Key learnings:

1. Learnt about what is Paulmon2 tool, how to use it and its functionality of memory inspection and execution of code by jumping to the program located space.
2. SDCC compiler, its syntax and how malloc and free works. 8051 PCA counters and its various functionalities
3. ARM architecture related UART, Timer registers and its interrupts.