NAME:

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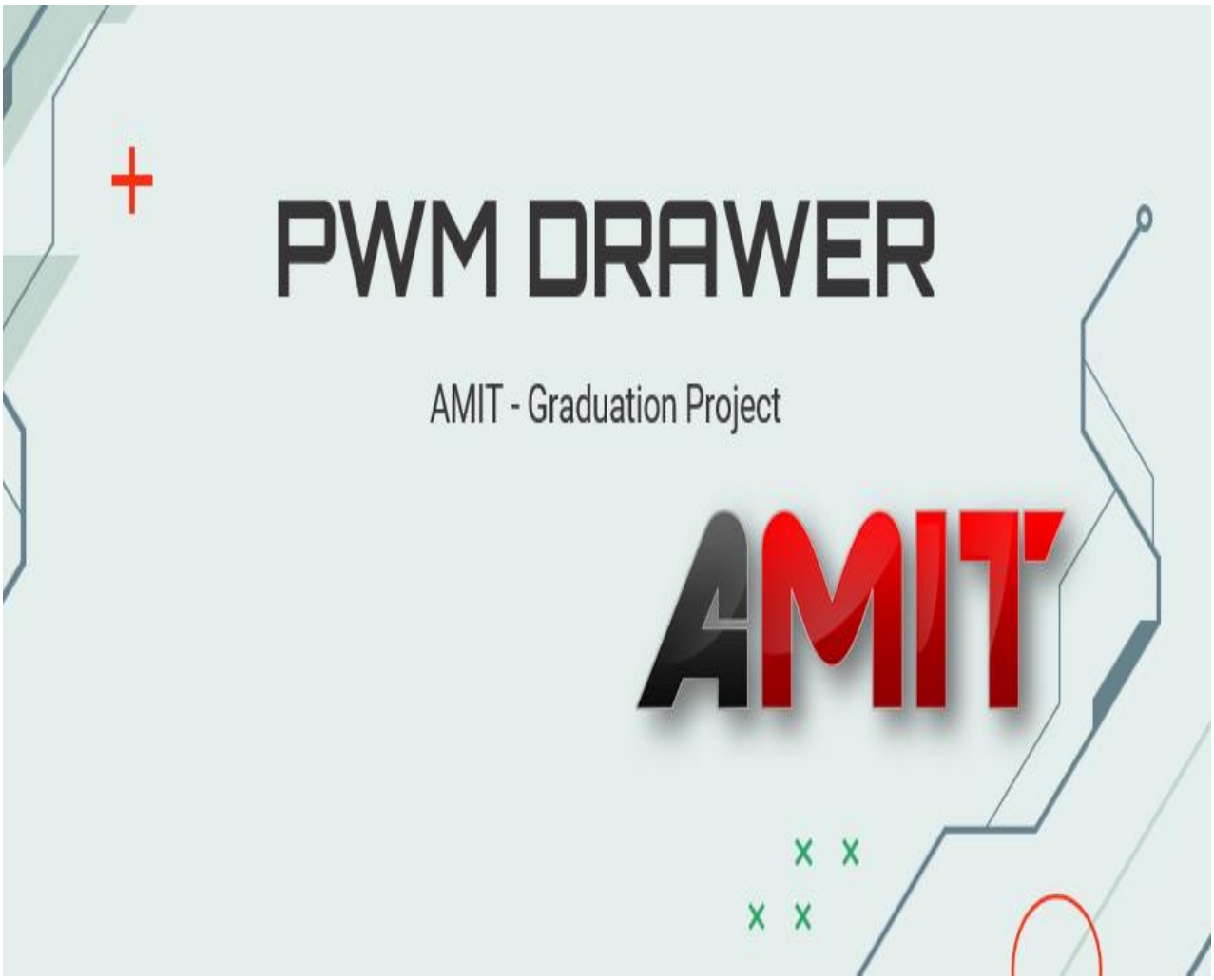
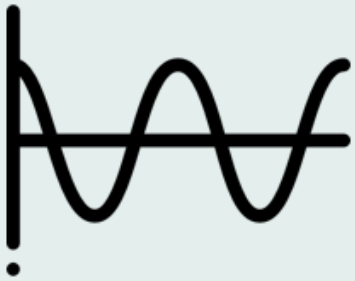


01 - INTRODUCTION

Pulse width modulation is an effective technique that is used to control semiconductor devices. Pulse width modulation or PWM is a commonly used control technique that generates analog signals from digital devices such as microcontrollers. The signal thus produced will have a train of pulses, and these pulses will be in the form of square waves. Thus, at any given time, the wave will either be high or low.



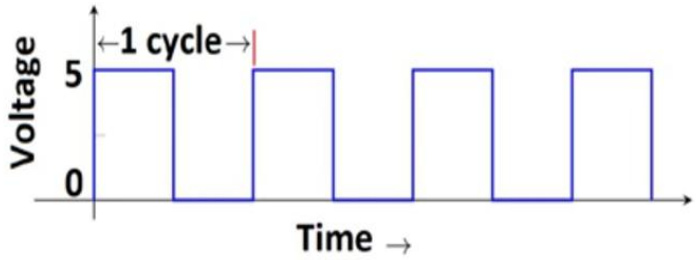
PWM funadamental elements

PWM signal consists of two funadamental elements:

- Frequency (Hz)
- Duty cycle

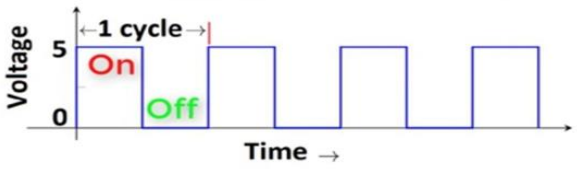
Frequency

- Freqency is represented through the total number of cycles per one second

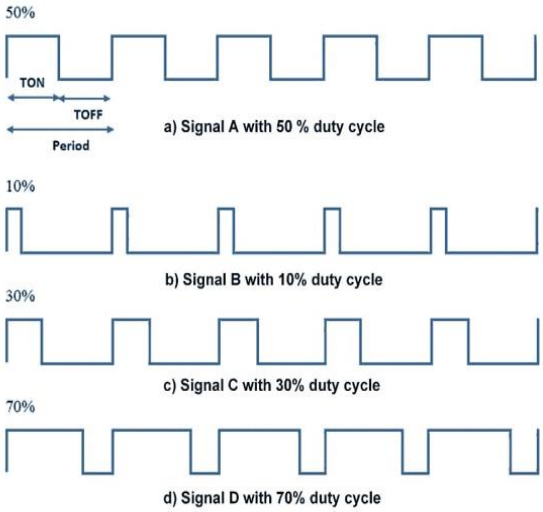


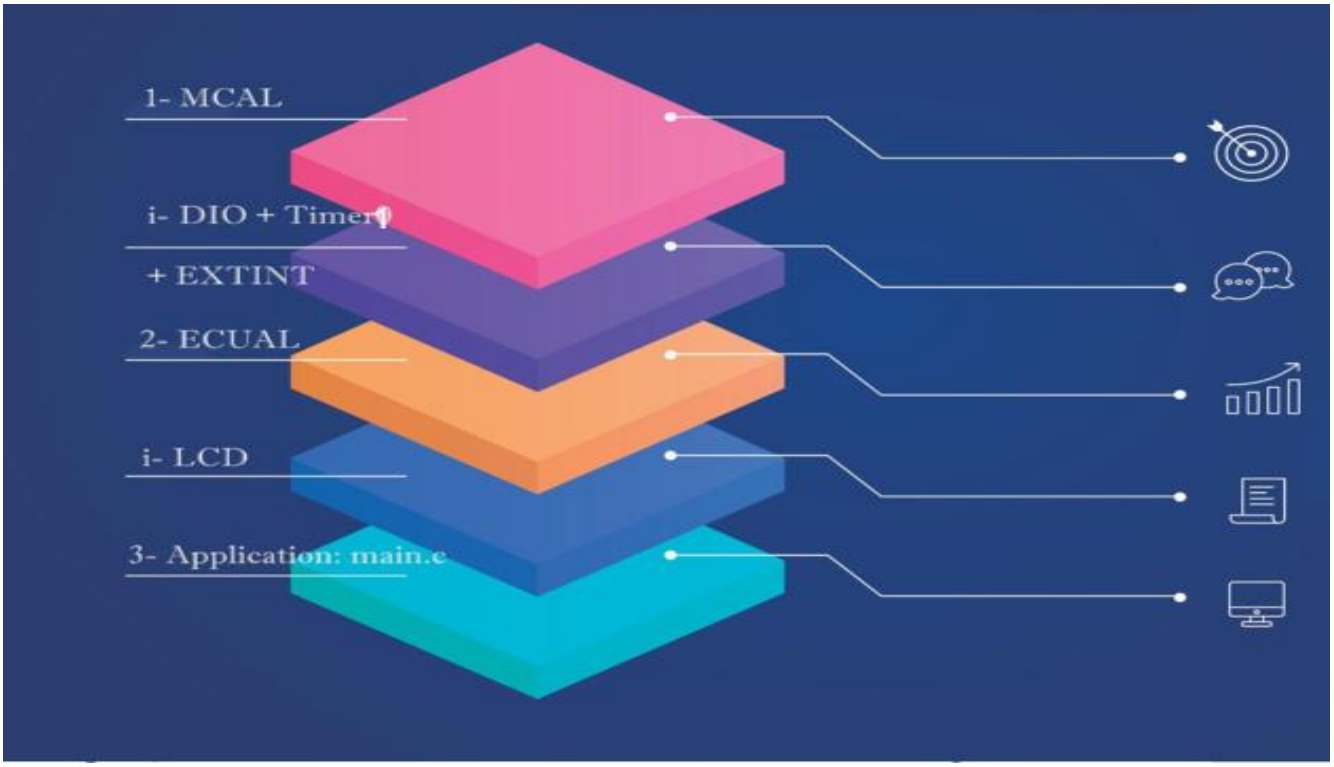
Duty cycle

- Duty cycle is defined with respect to percentage or as a number between 0 and 1
- Duty cycle = On time / 1 Cycle (On time + off time)

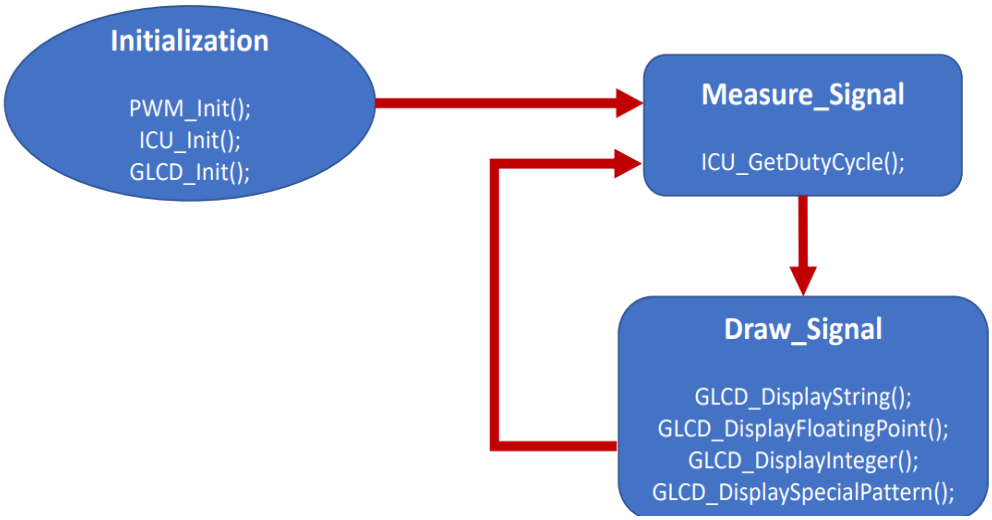


Duty cycle Example

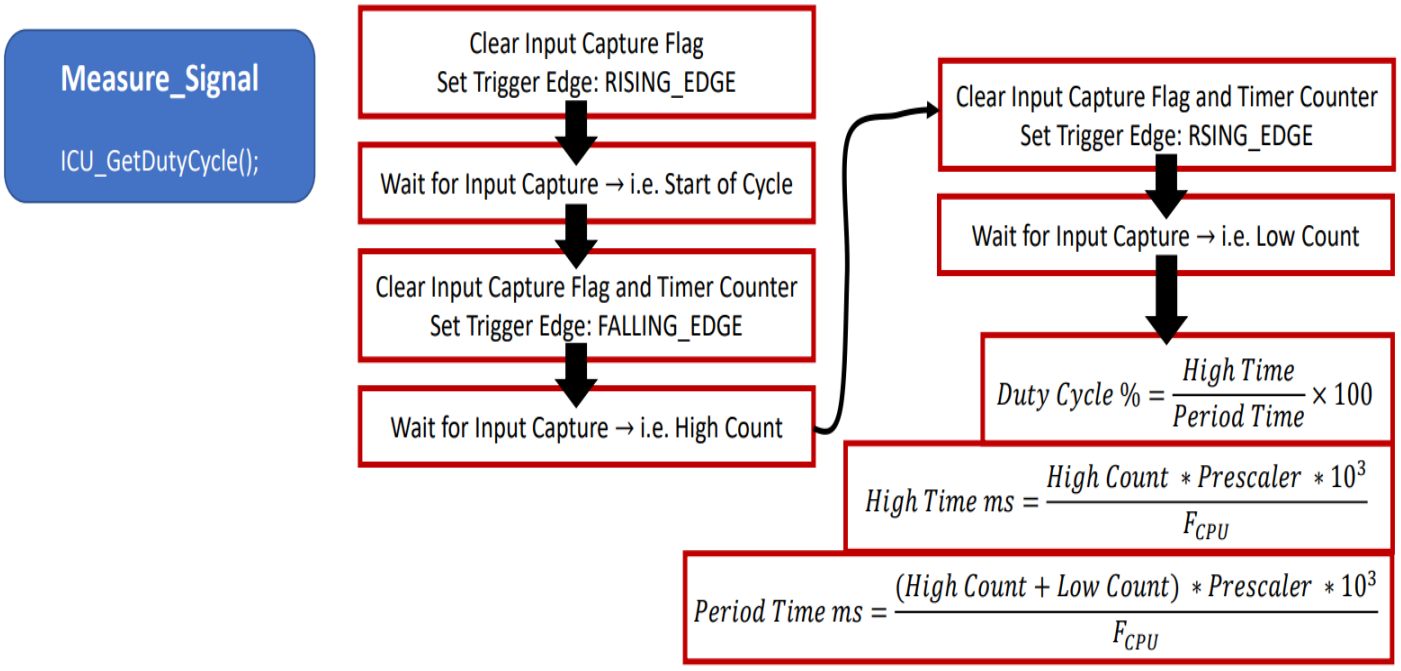




Flowchart



Flowchart Continued (1)



Flowchart Continued (2)

Draw_Signal

GLCD_DisplayString();
GLCD_DisplayFloatingPoint();
GLCD_DisplayInteger();
GLCD_DisplaySpecialPattern();

Choose a scale (milliseconds to pixel) as $\frac{Period\ Time}{5}$.

GLCD Line 0: Display Frequency Value in kHz.

GLCD Line 1: Display Duty Cycle Value in %.

GLCD Line 4: Display Period Time Value in milliseconds.

GLCD Line 5: Display Arrow on First Cycle Period Time.

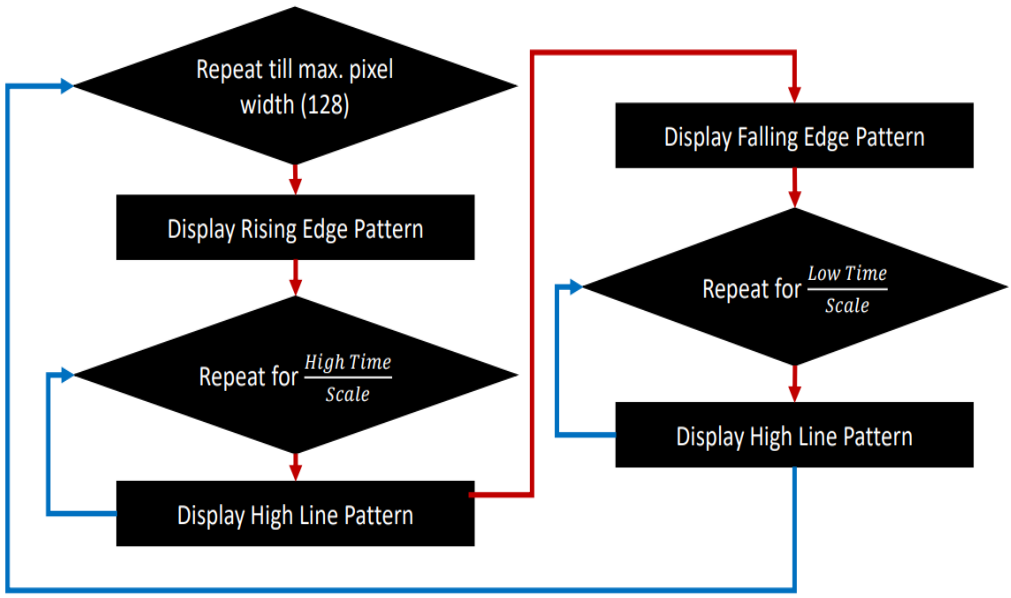
GLCD Line 6: Display the PWM signal shape.

Flowchart Continued (3)

Draw_Signal

GLCD_DisplayString();
GLCD_DisplayFloatingPoint();
GLCD_DisplayInteger();
GLCD_DisplaySpecialPattern();

GLCD Line 6: Display the PWM signal shape.



THANKS!

Do you have any questions?