**Assignment-3**

**Timers are very good peripherals to gererate clock pulses of varying frequency.**

**Duty Cycle describes the “On Time” for a pulsed signal. We can report duty cycle in units of time, but usually as a percentage. Like Pulse Width and Repetition Frequency, a signal’s duty cycle is a calculated value; not directly measured. To calculate a signal’s duty cycle, we need to know the signal’s pulse width and repetition frequency. Use this equation for calculating a signal’s duty cycle as a percentage of the repetition frequency:**

**Duty Cycle = Pulse Width (sec) \* Repetition Frequency (Hz) \* 100**

**Challenge: Generate a duty cycle of 40% on Timer 1 (TIM1) and verify it with logic analyzer**.

**Code:**

HAL TIM PWM Init(&htim2);

while(1);

{

HAL TIM PWM Init(&htim2,tim\_channel1);

}

}

Graphical user interface, text, application, email

Description automatically generated