STM32 COURSE

SECTION 9

009 Timer Fast Counter Externar Trigger ETR

What will we learn?

In this video we will configure a Hardware Timer to be able to capture pulses and count them in such a way that the peripheral does it automatically, that is, now we are going to separate the clock signal from the timer (APB1 or APB2) to be able to feed its processing cycles through ETR (External Trigger), this feature of the Timers is very useful to be able to connect high frequency elements to be able to determine the number of pulses such as a Flowmeter or a Pulse Encoder, etc..

> *"We will use HAL Drivers, which will help us greatly to*
> *port and recycle code routines from one processor in*
> *one Family to another in another Family."*

DIAGRAM
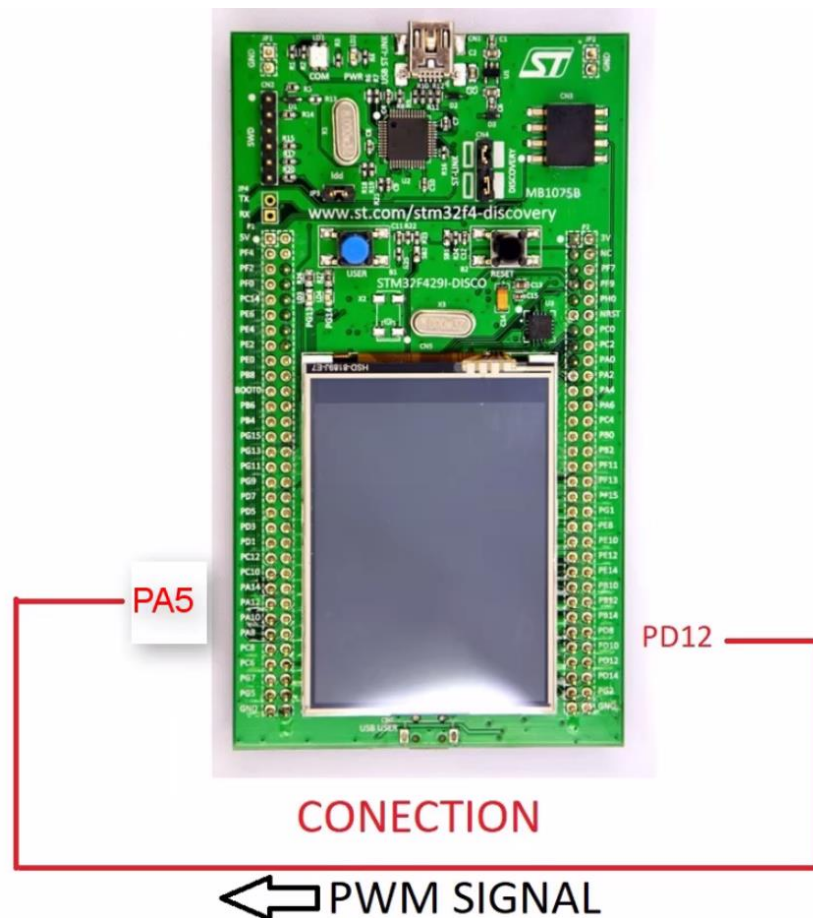
We are going to count the number of pulses that enter PA5 from GPIO PD12, each of these GPIOs are in the domain of different TIMERS.

EXTERNAL TRIP

To capture pulses by this method we can only use one Timer per input to capture pulses (ETR), the maximum frequency at which it can detect pulses depends on the maximum frequency that the timer can work (APB1 and APB2), not all timers have the option of being able to change the Source Clock, which is where the pulses come from for their operation.

UP TO HOW MUCH THE TIMER COUNTED

Our timer will count up to the value configured in the Period register, that is, up to 65535, after which if we have the interruption enabled we can have an interruption warning that the timer has overflowed the value of pulses (asynchronous pulses of variable dutty), normally the timer increases its value with the rising edge of the signal.