Malaga University
Electronic Technology Department

ETS Telecommunications Engineering

Bachelor's Degree in Telecommunications Systems Engineering

microcontrollers

Course 2022/2023

Practice 6: Low consumption

(v1)

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1. DESCRIPTION

Practice **6** of the subject presents the basic concepts of **Low Consumption** of the microcontroller. It will be developed on the *LaunchPad* and BBP boards, using the 4 Sx pushbuttons and the 4 LEDx of the same (x=3..6). It must be taken into account that several buttons will never be pressed simultaneously, so it is not necessary to manage this situation.

Considerations:

• The system must operate in low consumption.

• The system must operate with the calibrated frequency at 1MHz.

• The management of the buttons will be carried out by

interruptions. • The pushbuttons will have a 32ms debounce, implemented through the *watchdog* with the signal SMCLK clock at 1MHz.

To implement this practice, the modules described below must be developed.

Q6.1

Description:

The following state diagram will be implemented:

Estados:

· **ESTADO A:** LEDs apagados
· **ESTADO B :** LED5 y LED3 encendidos
· **ESTADO C :** LED6 y LED4 encendidos

Eventos:

· **Sx↓:** se ha presionado el pulsador Sx
· **Sx↑:** se ha soltado el pulsador Sx

Acciones:

· **L:** se actualizan los LEDs encendidos/apagados