

SP3\_3 Add an LCD display (design phase #2) → *Prog\_timer\_LCD*

I. Specifications

Enhance *Prog\_Timer* interfacing and LCD at PORTD to show ASCII messages.

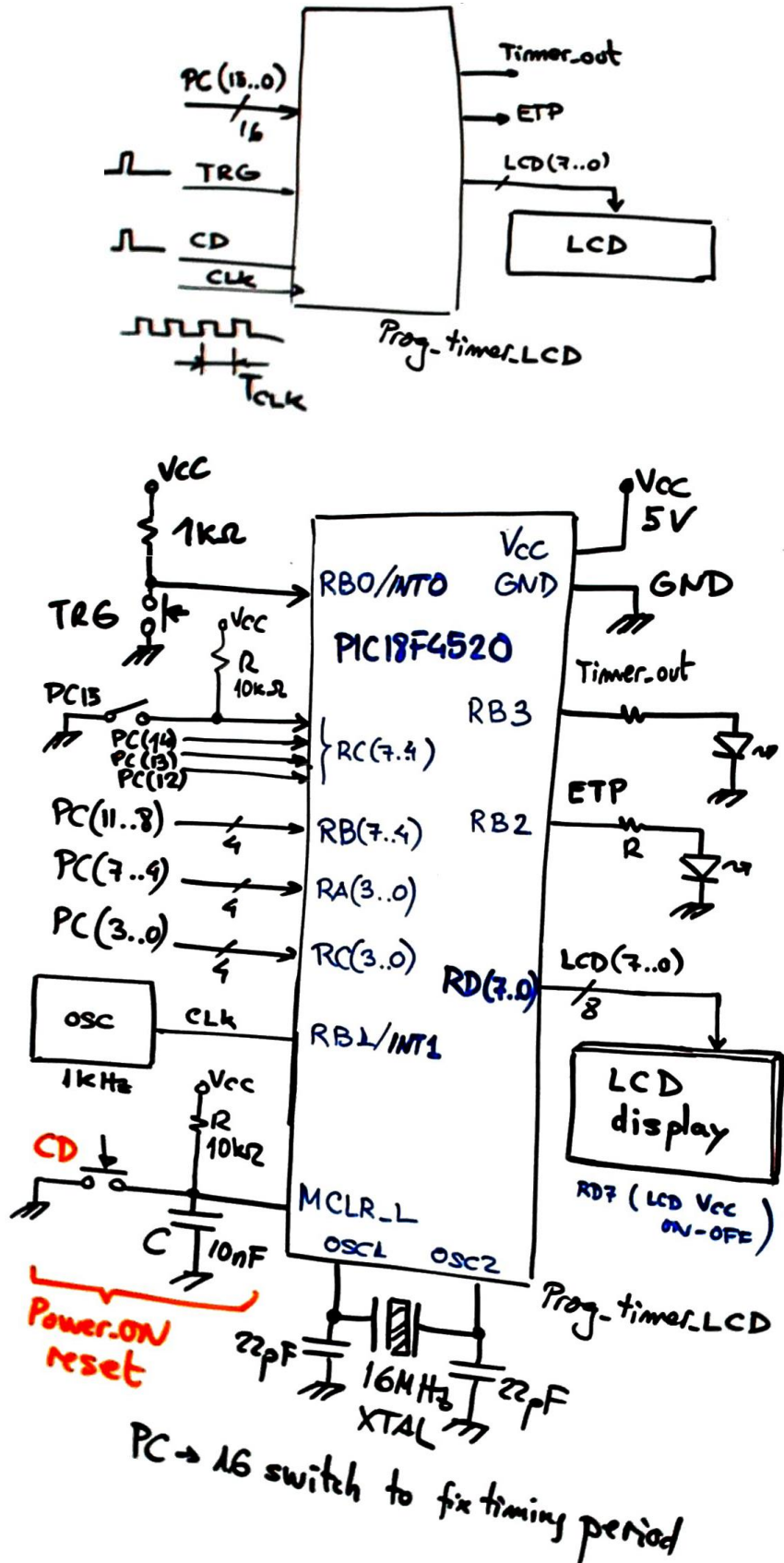


Fig. 1 Programmable timer *Prog\_timer\_LCD*.

## II. Planning.

Study LCD examples in P11. Add the LCD at the hardware schematic.

Study C libraries for interfacing an LCD device. Discuss what functions has to be modified to add the interface to the LCD and draw the flowcharts.

## III. Development, debugging

## IV. Test

Start a new MPLABX project *Prog\_Timer\_LCD\_prj*, compile and run and verify in Proteus that your circuit work as expected representing some messages on the screen.

## V. Questions

- How to represent numerical data in seconds on the display when counting up?
- What is the purpose of `var_LCD_flag`?