

*Keyword: Microchip, MCU, sleep mode, PIC18F67J50, OLED display, SSD1355, mobile application.*

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* This is a project for debug and test out basic concept of software power On/Off
* which we use it everyday from our mobile phones.
* A long press and hold on a certain key will bring the device to switch it on or off.
* Sleep mode is used to save power during power off. A key is debounced by a state machine
* in the uiTask(). No complicated OLED display applied yet. A blinking LED is used as an indicator
* for a system running.
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* Hardware: PIC18 OLED EVK Rev1E
* Compiler: C18 v3.35 under MPLAB v8.30
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* How to use this program: Instead of using INT pin, one of the RB pins (RB4) has been
* chosen for interrupt on change wakeup. Because the keypad with joystick onboard has
* been wired as a matrix, we need to take RE6 pin low with RB4 as KEY7 for a single key action.
* Similar, tri-color LED's green component has been chosen as an indicator with RA5 as control gate
open/close.
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* Instead of using software delay by common DelayMs(), a tick timer approach adopted in this example.
* This ensures a responsive system. Most often by using DelayMs(), the MCU will be held up
* in an infinite loop. With Tick timer approach, it is possible to assign two global timer t1 and t2
* for key scan-&-debounce as well as LED blinking.

* Once the board programmed with bootloader, reset it either from HID bootloader application
* or reset key onboard. Try press and hold KEY7 for 2 sec or more for testing.
* One of the difficult parts is to keep this program robust. It is just to find out, please mess it around
* with erratic key presses and let's see if the device will hang up.
* An extremely fast keypress without hanging up the device will prove the robustness!
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* Once we are happy with a blinking LED, similar program with the OLED could be created then.
* It would be easy to modify this for PWR|PLAY key on/off, too.
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* Result of measurement:
* At sleep mode, current drawn ~ 20uA at battery = 4V
* At running mode, current drawn = 4.5mA to 7.9mA with LED blinking
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* Date: 22nd Oct 2010
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