Laboration 2

Group 5: Xu Fei, Qiu Yinan
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1. Introduction

This report is mainly about the assignment of Lab2, which is required to write some application of AVR Butterfly. Source code with comments is in lab2.1.c, lab2.2.c, lab2.3.c and lab2.4.c files. All functions are tested and executable.

2. Answer the questions

Question 1: Experiment with different time intervals for the timer interrupts. What happens to the button response time when the timer period is high (1 second or above)? Why?

Answer 1: Because when timer period become higher and higher, the button should wait for the CPU when the other thread is working, it can't occupy immediately, because when the program switch the context, the interrupt is unavailable, so the button should wait, it become less sensitive.

Question 2: Why can't the sections of the kernel enclosed by DISABLE() and ENABLE() instead be protected by calls to the "proper" mutex operations you have just implemented?

Answer 2: They are different perceptions, the DISABLE() and ENABLE() is used to close and open the interrupt, and when we switch context the interrupt is unavailable, because if we didn't shield the interrupt when we switch, the whole of the thread executing will be destroyed. But the mutex operations is only used to make a synchronization mutual exclusion mechanism, it can't shield the interrupt, so we can't use it to instead of the DISABLE() and ENABLE().