Homework 9 – Chapter Z8 Task Scheduler

Outline Chapter Z7

Consider a system with two tasks, Task1 and Task2. Task1 has a period of 200 ms, and Task2 has a period of 300 ms. All tasks initially tick at time 0.

1. How many times will Task1 have ticked after 1000 ms?
2. How many times will Task2 have ticked after 1000 ms?
3. After time 0, when do both Task1 and Task2 next tick *at the same time*?
4. What is the largest value for timerPeriod that allows both tasks to tick at the desired rate?

```
1.  void TimerISR() {
2.      unsigned char i;
3.      for (i = 0; /* Question 1 */; i++) {
4.          if (/* Question 2 */) {
5.              tasks[i].state =
    tasks[i].TickFct(/* Question 3 */ );
6.              tasks[i].elapsedTime = 0;
7.          }
8.          tasks[i].elapsedTime += /* Question
    4 */;
9.      }
10. }
```

Illustration 1: Task Scheduler

Complete the questions on the task scheduler in Illustration 1.

5. Complete the task scheduler's loop condition.
6. Complete the task scheduler if statement.
7. Fill in the parameters of TickFct.
8. Increase elapsedTime by the appropriate amount.
9. What technique is used to call the TickFct in line 5?
10. Why is the scheduler moved into the TimerISR function?