

## Exercise Sheet 6 (Practice)

(10 Points)

**Please note:** Solutions to the theory assignment must be submitted (individually or in pairs) until 22.11.2019 at 10:00 AM (mailbox in OH16, ground floor, in front of room E16). Submitting solutions via mail is *not* possible. Discussion: 25.-29.11.2019.

### 1 Preparation (3 Points)

**Please note: The solution to this assignment must be submitted!**

Previous to the exercise session, read chapter 9 of the OSEK manual and chapter 3.2.6 of the OIL specifications. Answer the following questions:

- a.) Which objects does an alarm need for the system creation?
- b.) What is the difference between ALARMTIME and CYCLETIME?
- c.) Which actions can be performed, when an alarm expires?

### 2 Alarm Management in OSEK (7 Points)

Use the credentials you received at the beginning of the exercise session for logging in. Down In the CI-Lab, log in using the credentials you received. Open the folder containing the material for the current exercise session (if in doubt, ask your tutor). In the folder `ev3osek/example/PeriodicRealtimeScheduling`, the file `scheduling.oil` is located, in which the following three tasks with a runtime of 2 seconds each are defined:

- Task  $\tau_1$ : The LED flashes in green.
- Task  $\tau_2$ : The LED flashes in orange.
- Task  $\tau_3$  : The LED flashes in red.

For the task priorities, it holds:  $\tau_1 > \tau_2 > \tau_3$ .

Analyze the `.oil` file and find out why the schedule given below is not executed. Modify the file so that it is executed correctly. Please note that the LED flashes in red while EV3OSEK boots. However, the program starts when it flashes in green.

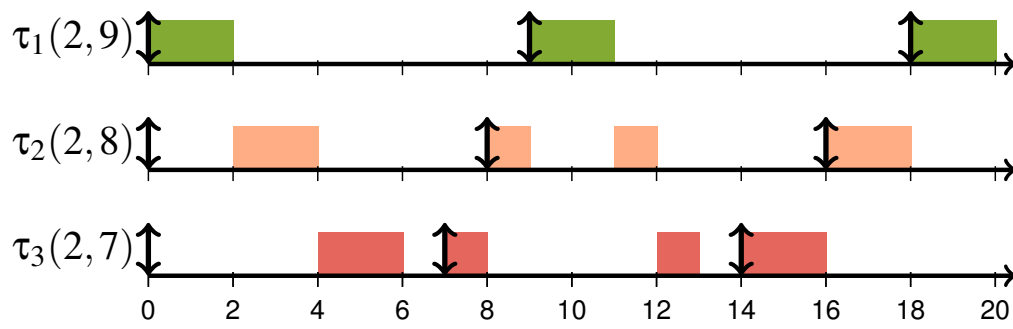


Abbildung 1: Expected Schedule.