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Exercises for
Embedded Systems
Wintersemester 18/19

Exercise Sheet 7 (Practice)

(10 Points)

Please note: Solutions must be submitted (individually or in pairs) until 03.12.2018 at 10:00 AM (post box in OH16, ground floor, in front of room E16). Submitting solutions via mail is *not* possible. Discussion: 05.-07.12.2018.

1 Preparation (3 Points)

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

Previous to the exercise session, read chapter 7 and 13.5 in the OSEK manual. Please answer the following questions:

- a.) Name the unique identification characteristics of an event.
- b.) Which system services can only be executed by the task that owns the event?
- c.) Why can only an extended task own an event?

2 OSEK Events (7 Points)

In the CI-Lab, choose the virtual machine `es` and log on. Under `media/nfs/es`, the folders `ev3osek` and `07` are located. Copy the folder `ev3osek` to your home directory and the content of the folder `07` into the folder `example`, which is located in `ev3osek`. Switch to the folder `../example/AdvancedCollisionDetect` and open the file `adv_collision.c` is located.

Complete the `.c` file so that the robot turns while an obstacle is in front of it. For this purpose, use the event `DistanceEvent` which is owned by the task `Motors`. The task `CheckDistance` has priority 2 and is executed twice per second. The task `Motors` has priority 1 and is also executed twice per second. Both tasks can be active only once. Please note that the LED flashes in green if the robot makes a turn.