

Introduction to Simulink and Stateflow

Lab 1, ESDM

Objective

Introducing students to the Simulink environment and the Stateflow component.

Theoretical aspects

TBD

Exercises

1. Create a Parking Counter FSM according to the specifications below.

Steps:

- Create a new Simulink model
- Create a Stateflow Chart inside the model
- Design the FSM inside the chart
- Add some inputs and test the model

Model specifications

Inputs:

- up: boolean. Whenever a car is entering the area, **up** is TRUE.
- down: boolean. Whenever a car is leaving the area, **down** is TRUE.

Outputs & internal variable:

- count: integer $[0,10]$

Requirements:

- The output `count` shall indicate always the current number of cars in the parking area.
 - Upon initialization, `count` shall be initialized to 0.
2. Extend the model in the following way:
- The inputs `up` and `down` shall be considered upon transitioning from FALSE to TRUE (e.g. if `up` stays TRUE for 10 seconds, count it only once).
 - Introduce another input `count_init` which shall be used as the initialization value for `count`.

Final questions

1. TBD