# Embedded Systems

## Assignment 3


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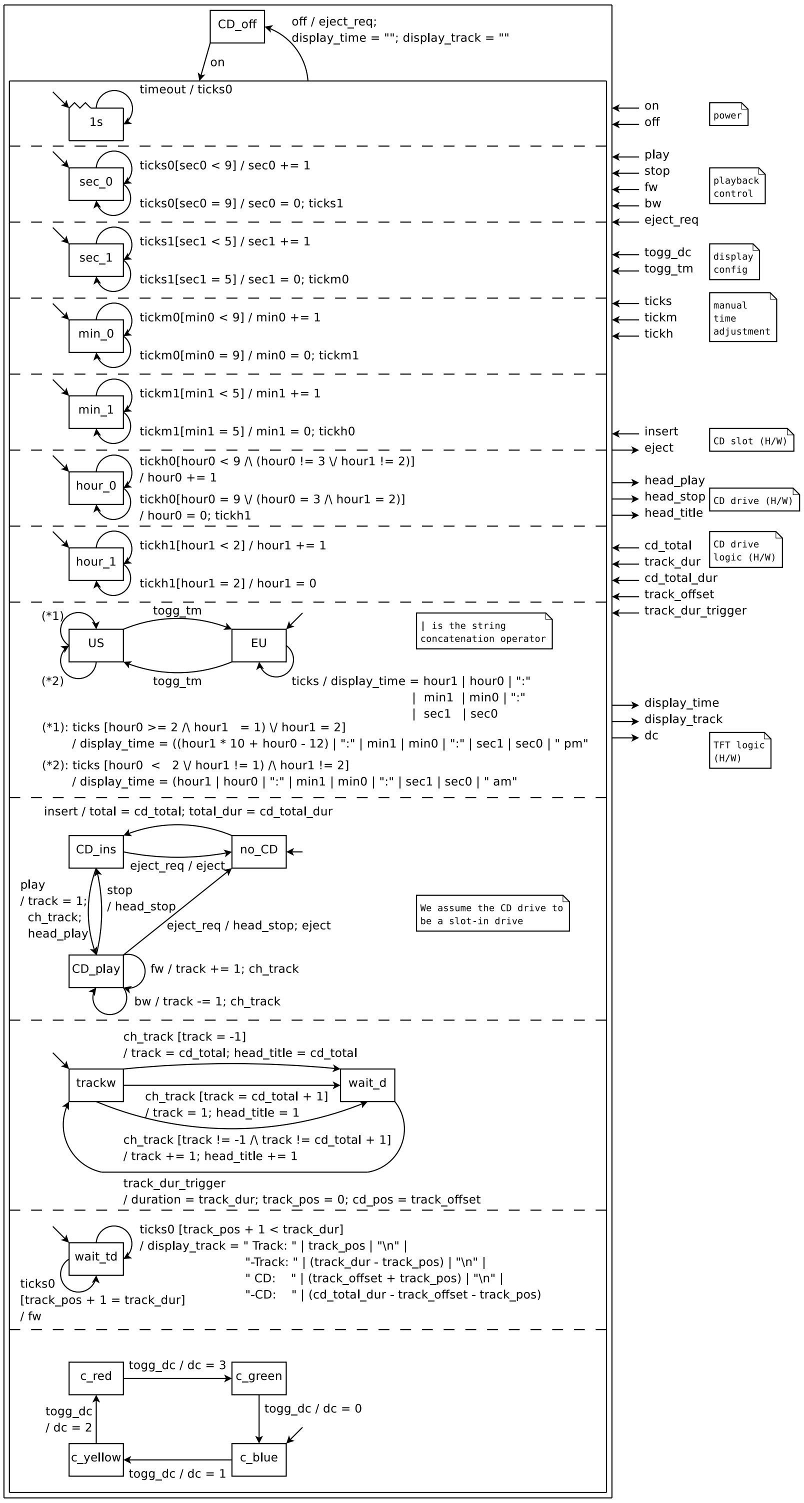
## 3.1 Statecharts



## 3.2 Statecharts

**a**. The next resulting superstep is S6.

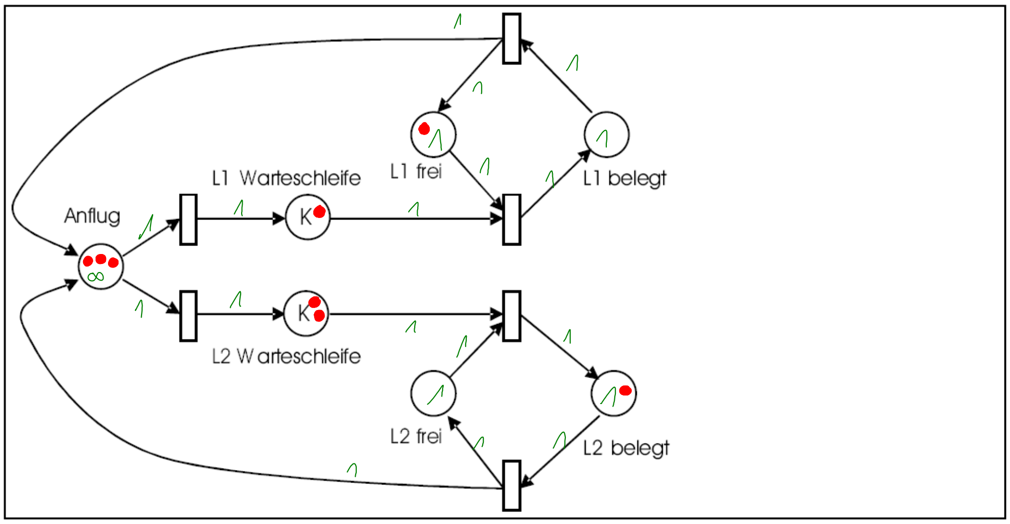
- We start in S1, S4, S7. The event EV is consumed. F is generated and X is set to 1. S1 moves to S2.
- S4 moves to S5, because F was generated. Y := 1 is done.
- S7 moves to S8, because the condition [X = 1] holds.
- S2 moves to S3, because the condition [Y = 1] holds. Z is set to 1.
- S5 moves to S6, because the condition [Z = 1] holds.

**b**. The transition between S8 and S9 does not fire, because you can only consume an internally generated event one time. Due to the fact that F is already consumed when taking the transition from S4 to S5, the transition between S8 and S9 cannot fire.

**c**. At the end of the superstep, the chart leaves the AND-superstate, because after F is generated, Y is set to 1, which leads to the fact that the transition between S2 and S3 fires. While firing, Z is set to 1 which allows the transition between S5 and S6 to fire.

## 3.3 Petri nets

**a.**




**b.**