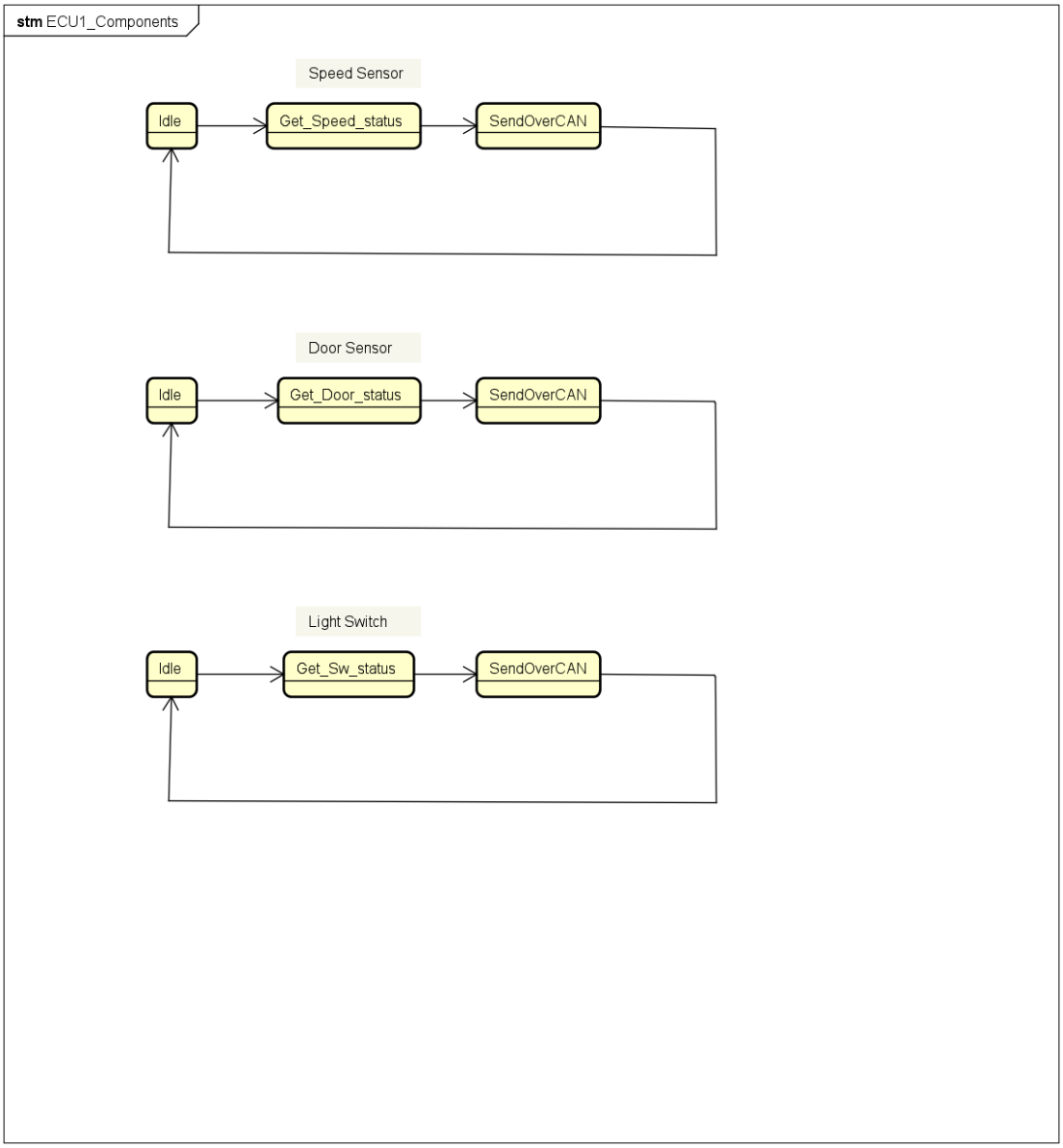
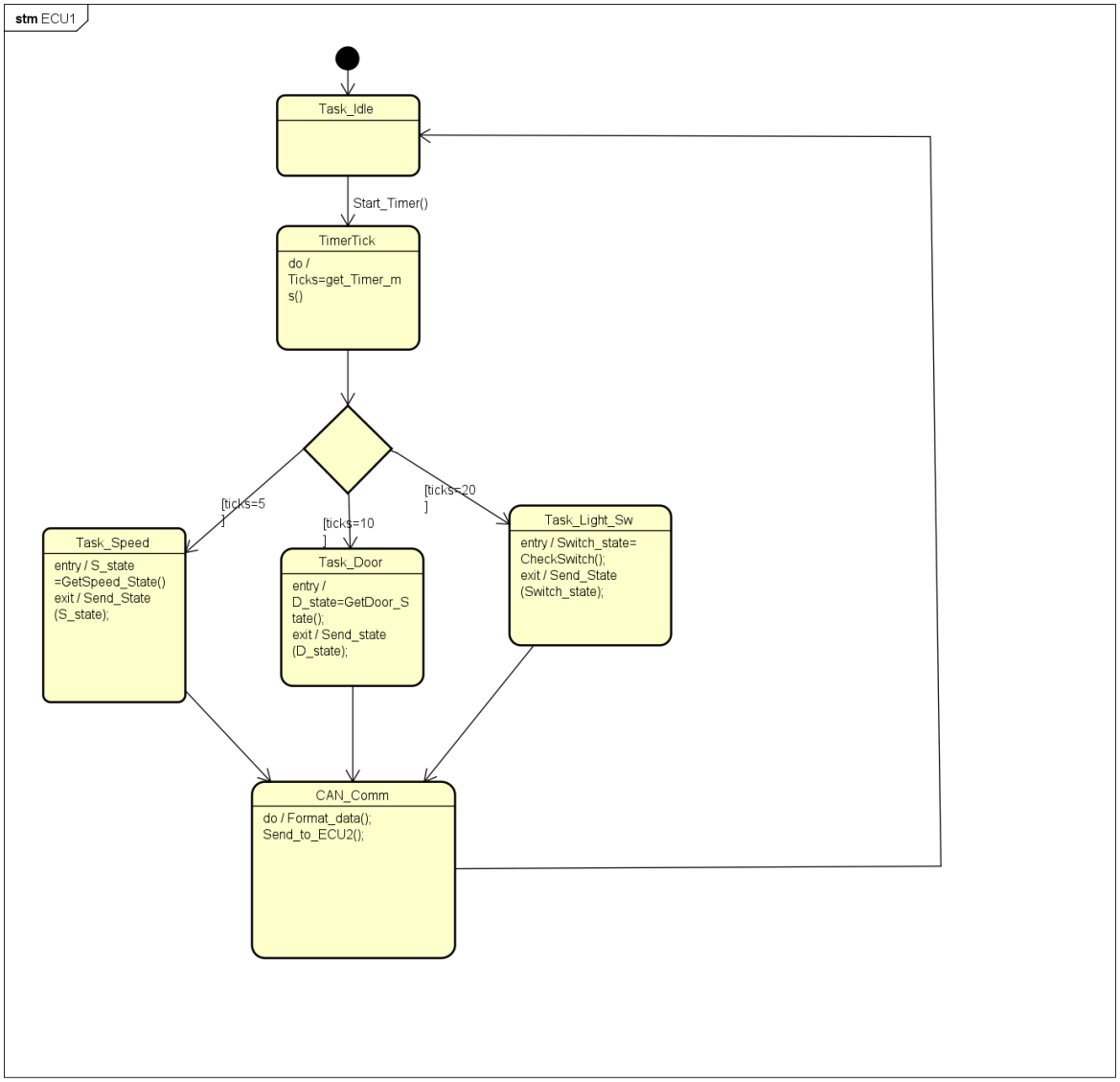
Dynamic Design for ECU1

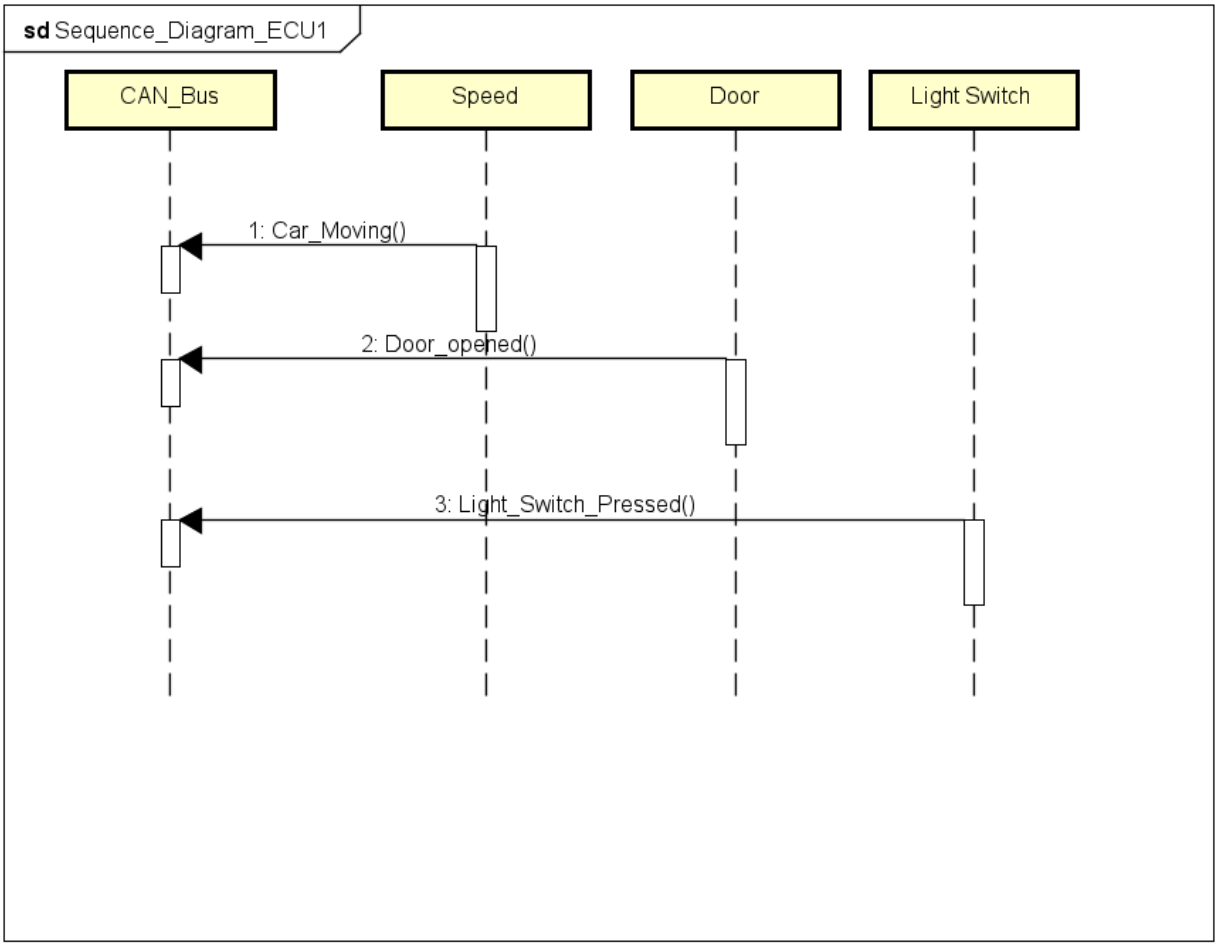
1- Draw a state machine diagram for each ECU components.



2- Draw a state machine diagram for the ECU operation.



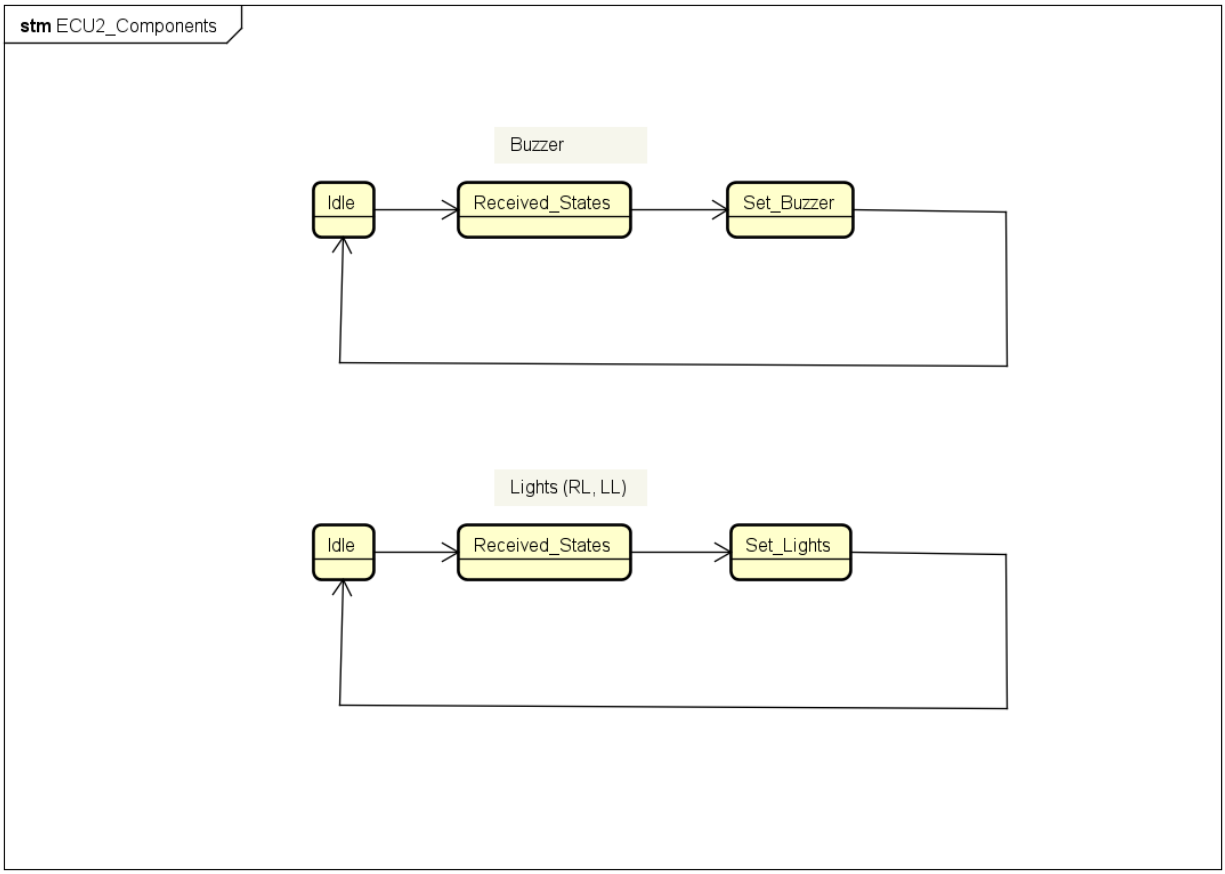
3- Draw the sequence diagram for the ECU.



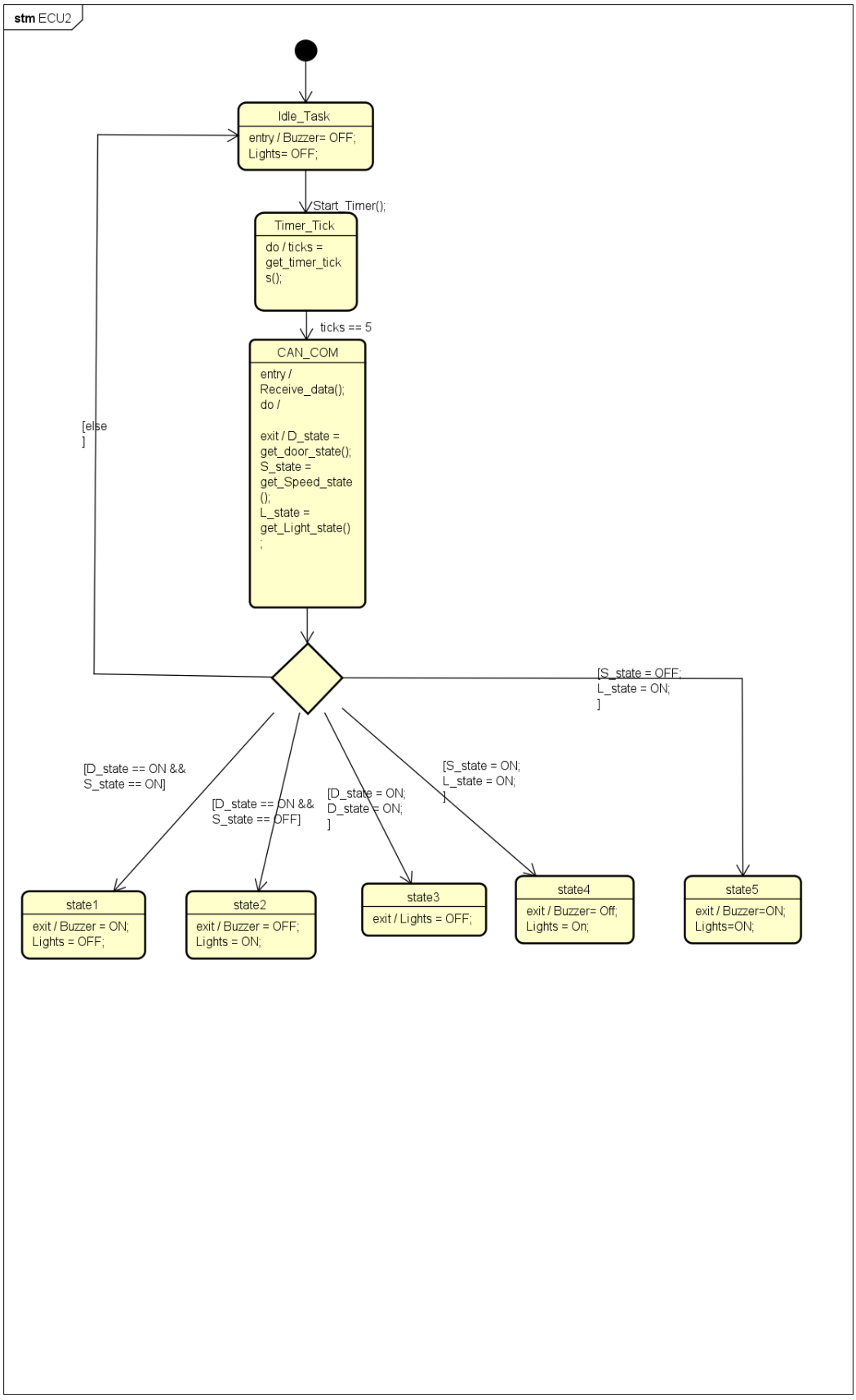
4- CPU Load = (1/5)+ (1/10) + (1/20) = 0.35 = 35%

Dynamic Design for ECU2

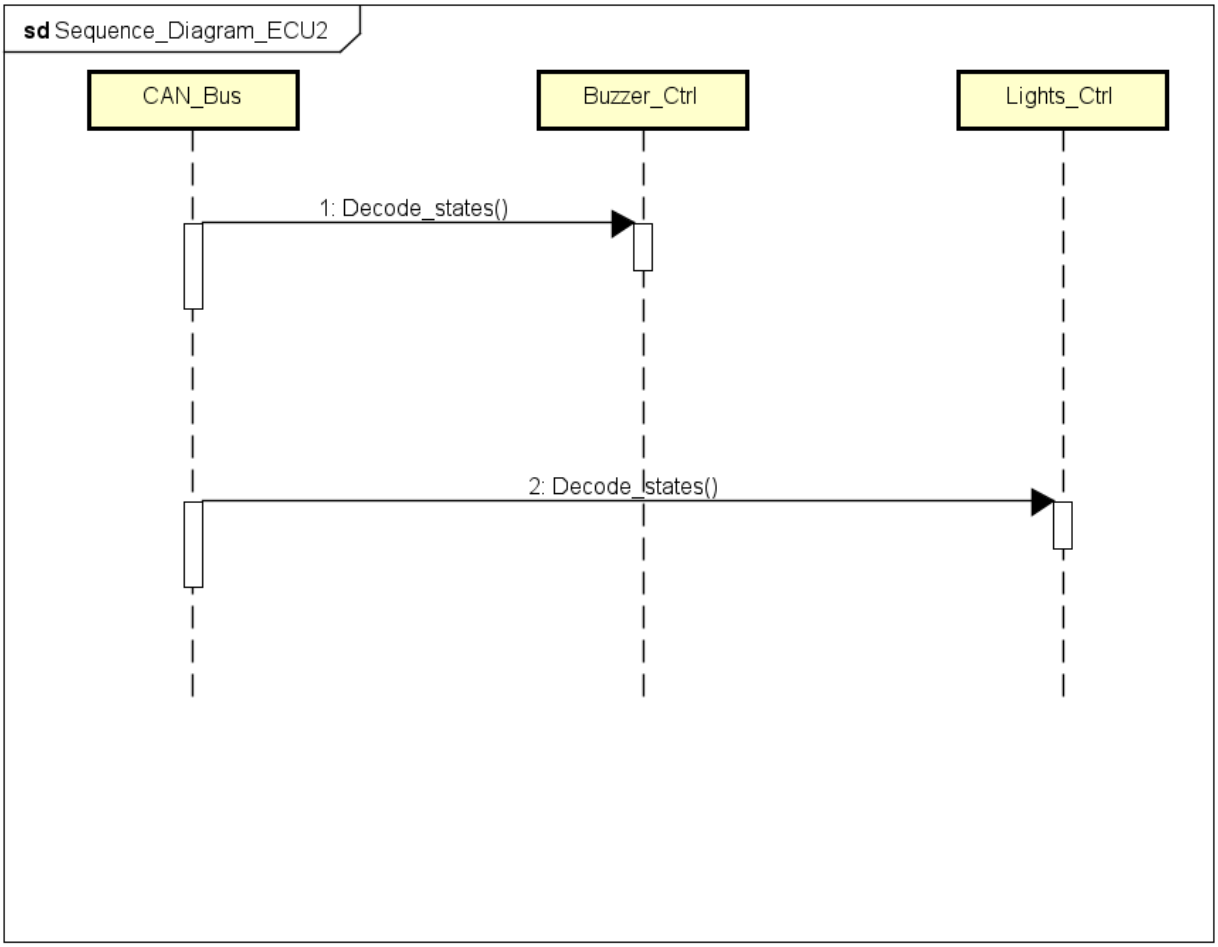
1- Draw a state machine diagram for each ECU components.



2- Draw a state machine diagram for the ECU operation.


stm ECU2
Idle_Task
entry / Buzzer= OFF;
Lights= OFF;
/Start_Timer();
Timer_Tick
do / ticks =
get_timer_tick
s();
ticks == 5
CAN_COM
entry /
Receive_data();
do /
exit / D_state =
get_door_state();
S_state =
get_Speed_state
();
L_state =
get_Light_state()
;
[else
]
[S_state = OFF;
L_state = ON;
]
[D_state == ON &&
S_state == ON]
[D_state == ON &&
S_state == OFF]
[D_state = ON;
D_state = ON;
]
[S_state = ON;
L_state = ON;
]
state1
exit / Buzzer = ON;
Lights = OFF;
state2
exit / Buzzer = OFF;
Lights = ON;
state3
exit / Lights = OFF;
state4
exit / Buzzer= Off;
Lights = On;
state5
exit / Buzzer=ON;
Lights=ON;

3- Draw the sequence diagram for the ECU.



4- CPU Load = (1/5)+ (1/5)= 0.4 = 40%