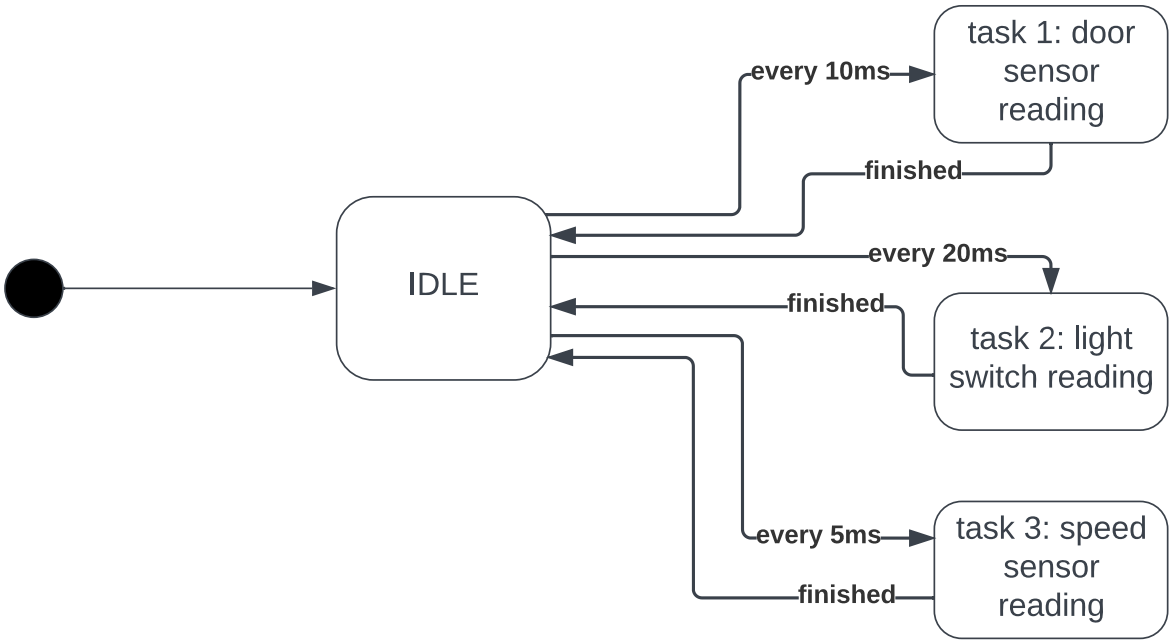
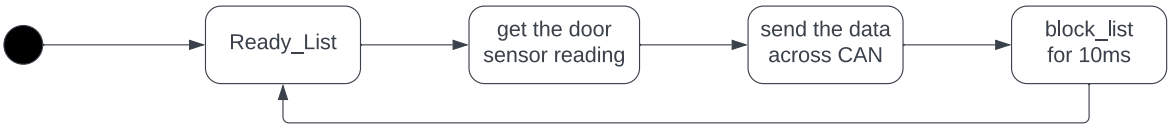
# Dynamic design

## ECU 1 state machine diagram:

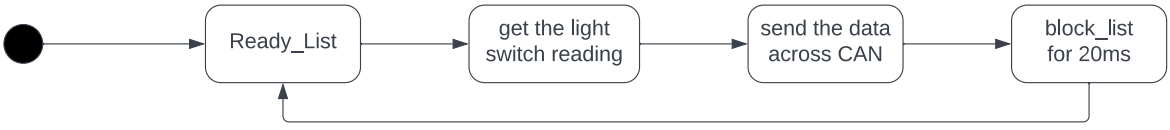



## State Machine Diagram For The ECU 1 Operation:

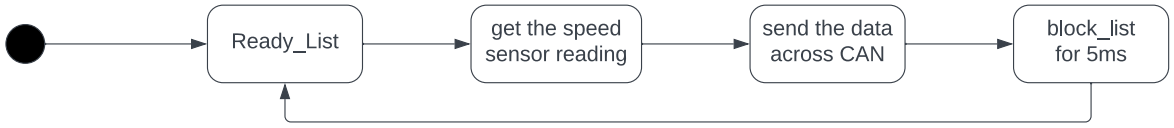
### Task 1: door sensor reading



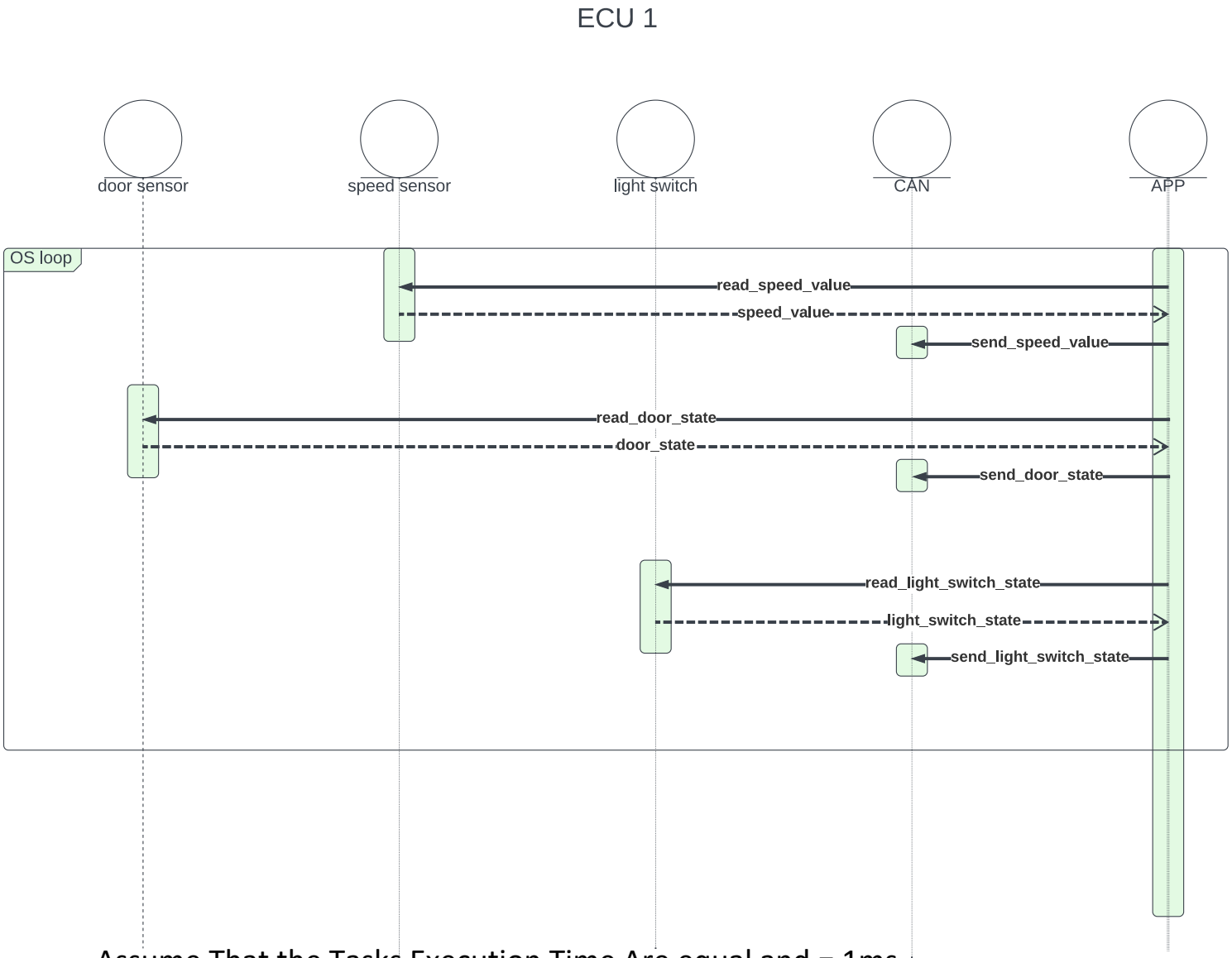

### Task 2: light switch reading



**Task 3: speed sensor reading**



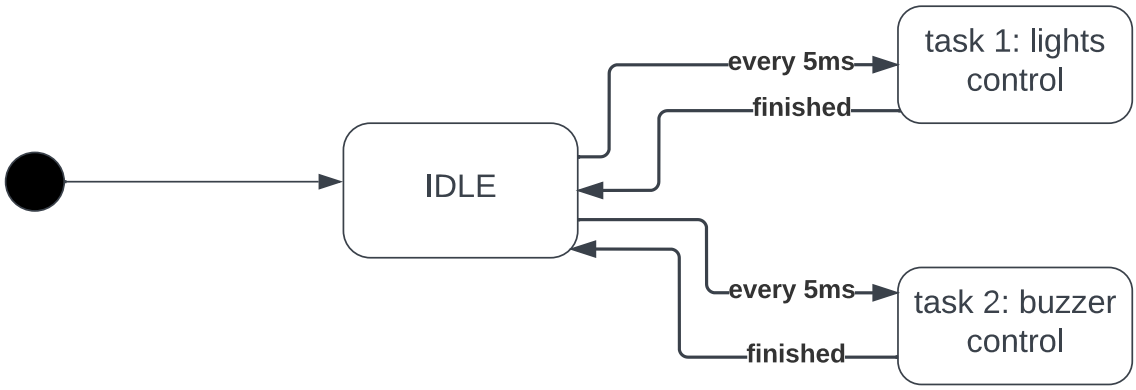

## The Sequence Diagram For The ECU 1:




Assume That the Tasks Execution Time Are equal and = 1ms

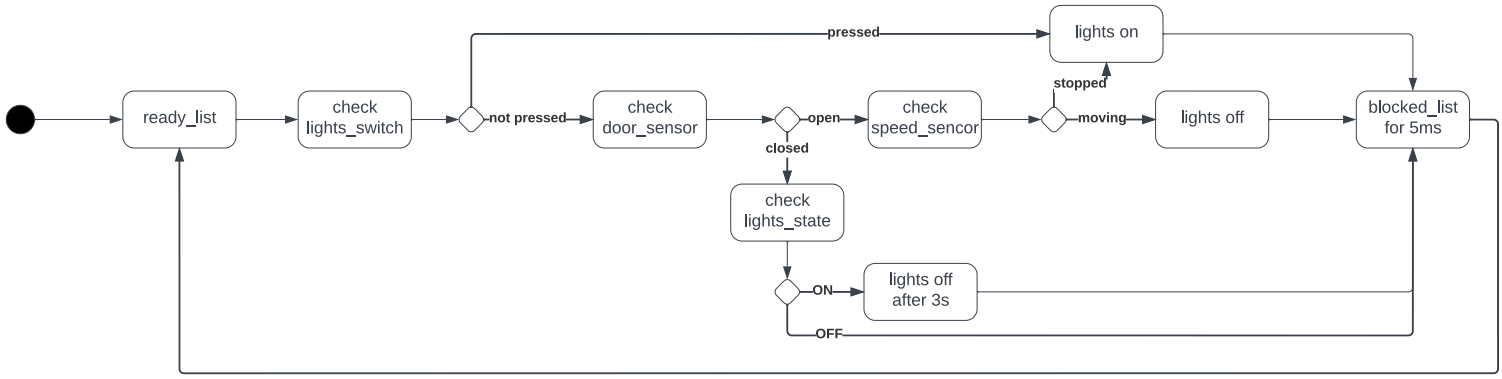
$$U = \frac{E_1 + E_2 + E_3}{H} = \frac{1 * 1 + 1 * 2 + 1 * 4}{20} * 100 = 35\%$$

## ECU 2 state machine diagram:

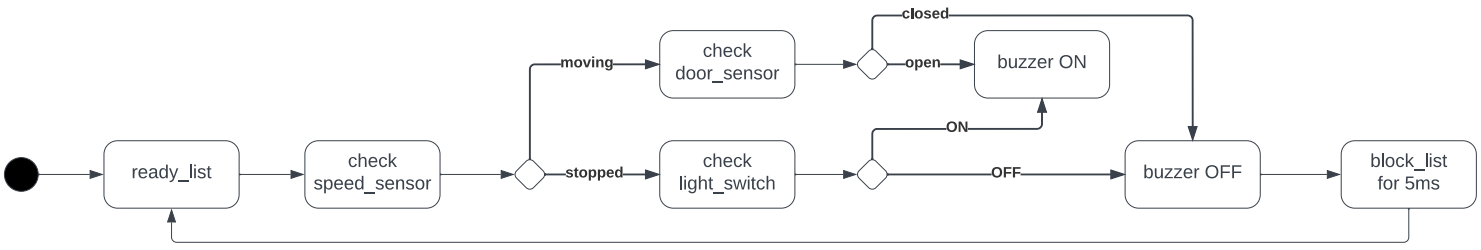



## State Machine Diagram For The ECU 2 Operation:

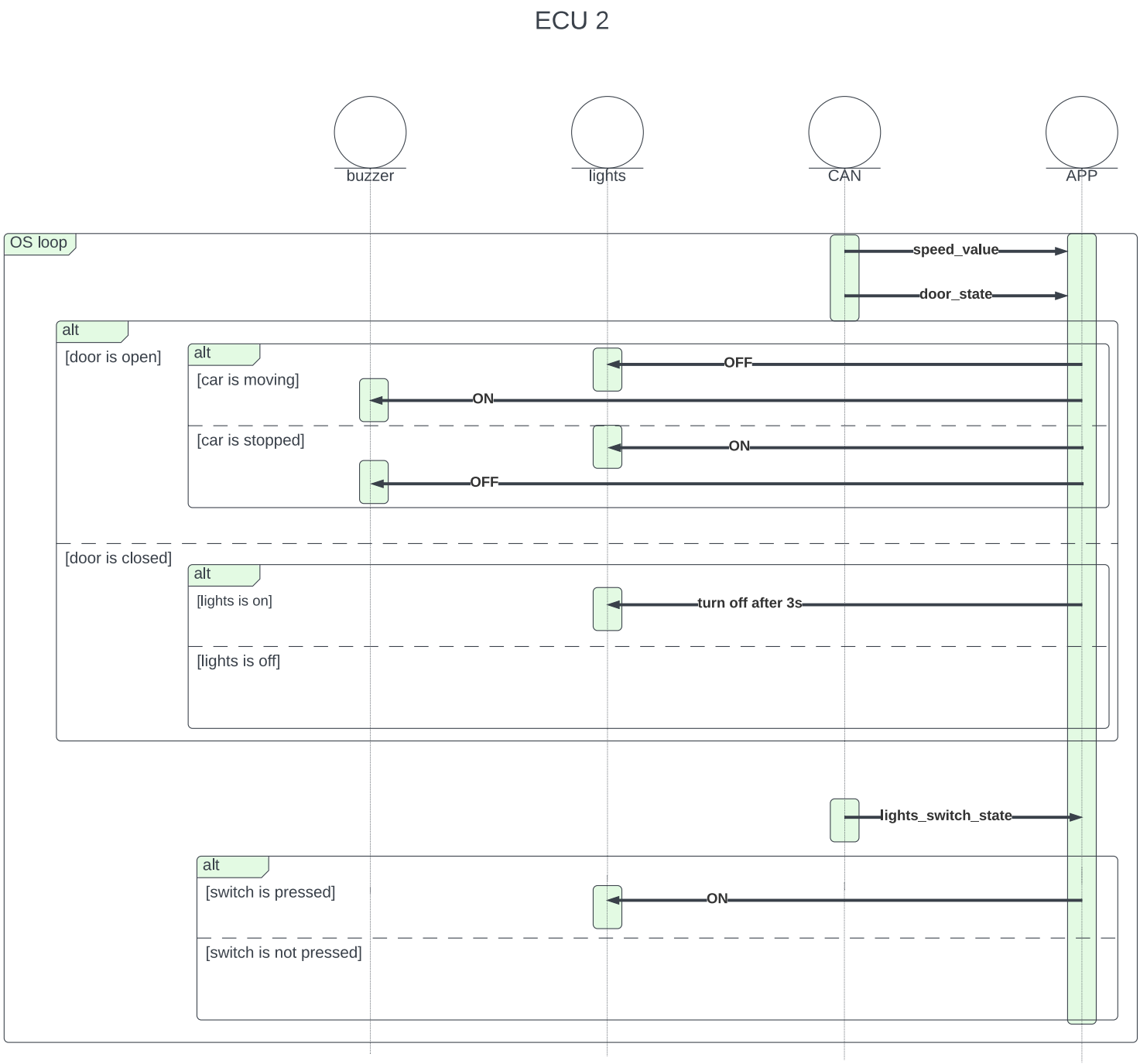
### Task 1: lights control




### Task 2: buzzer control



**The Sequence Diagram For The ECU 2:**




Assume That the Tasks Execution Time Are equal and = 1ms

$$U = \frac{E_1 + E_2}{H} = \frac{2}{5} * 100 = 40\%$$