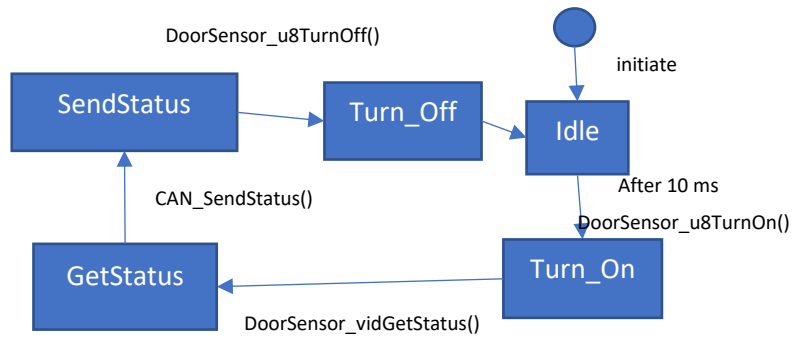


Dynamic design

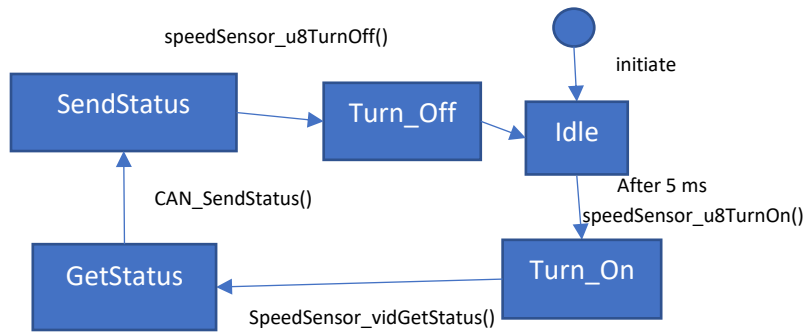
1- ECU1

a. State machine diagram of the components

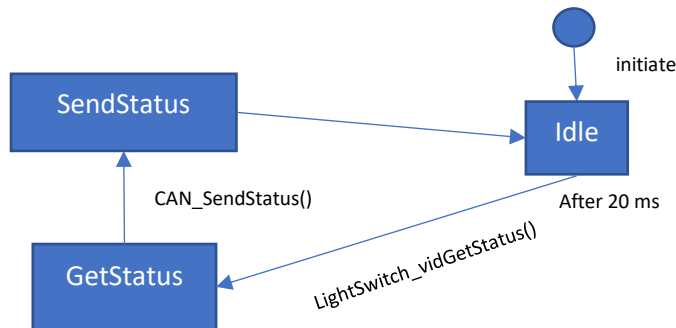
❖ Door



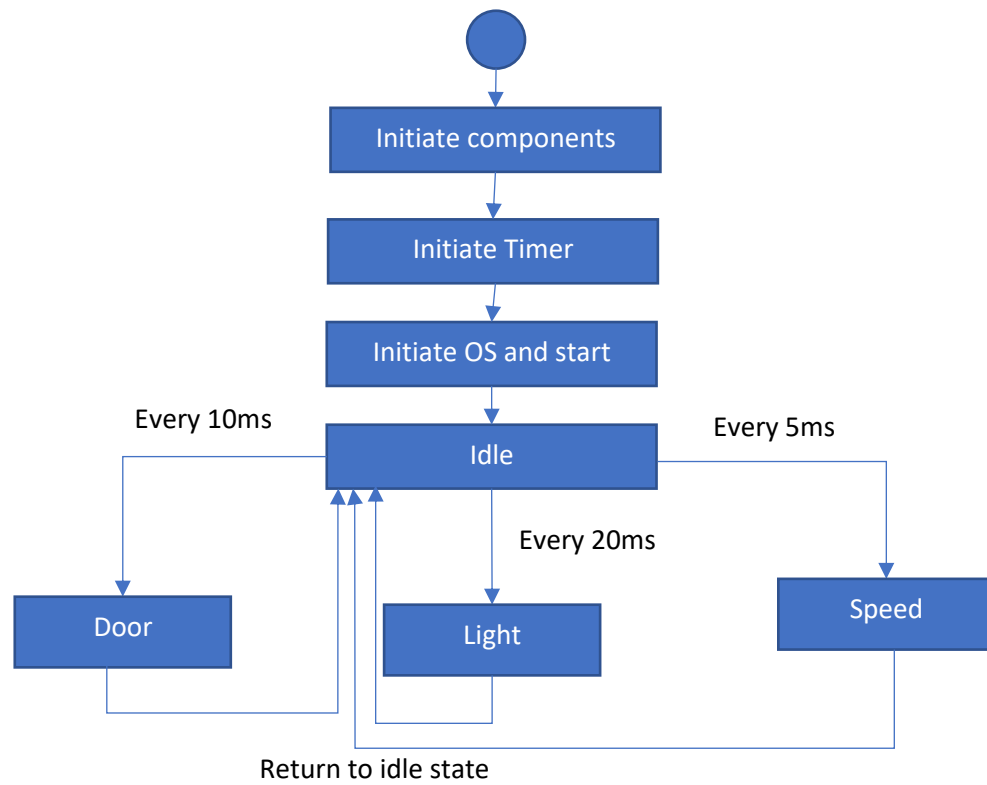
❖ Speed



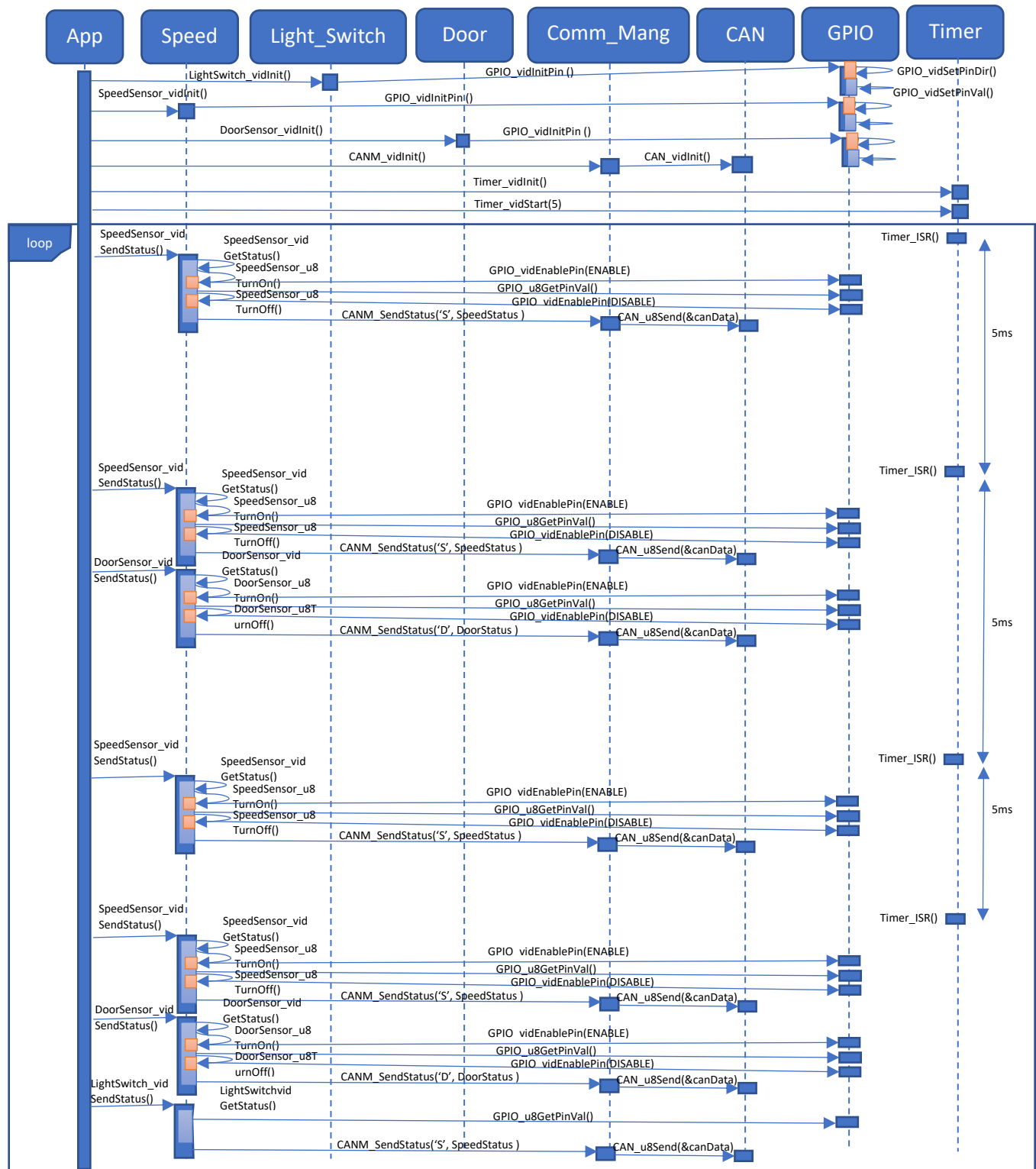
❖ Light



b. State machine diagram of the operation



c. Sequence diagram of the ECU



d. CPU load

execution time = $\sum \text{Execution time of tasks}$

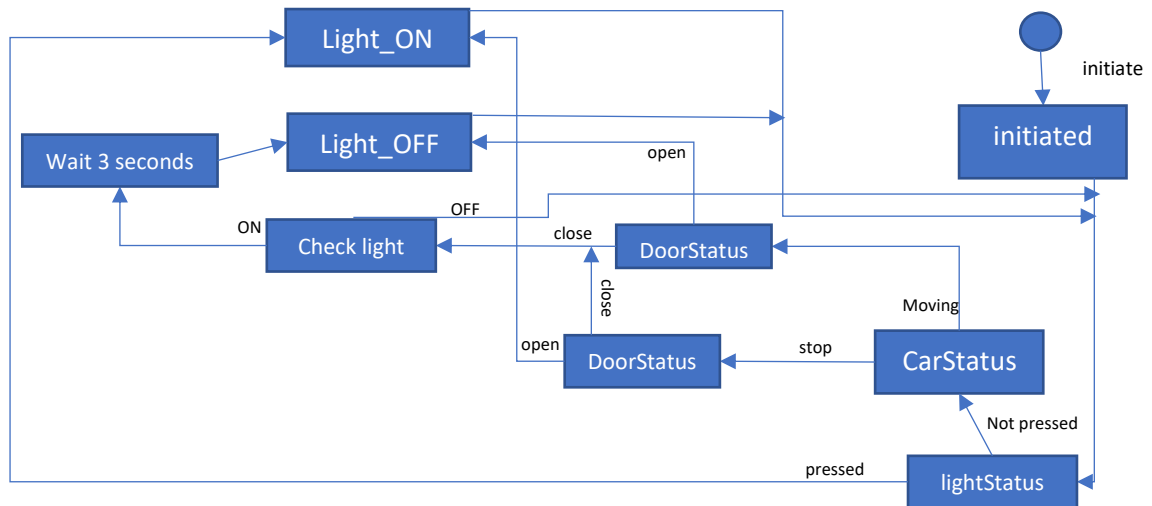
total time(Hyper-period time) = 20ms

$$\text{CPU load} = \frac{\text{execution time}}{\text{total time}} * 100\% = \frac{1}{20} * 100\% = 5\%$$

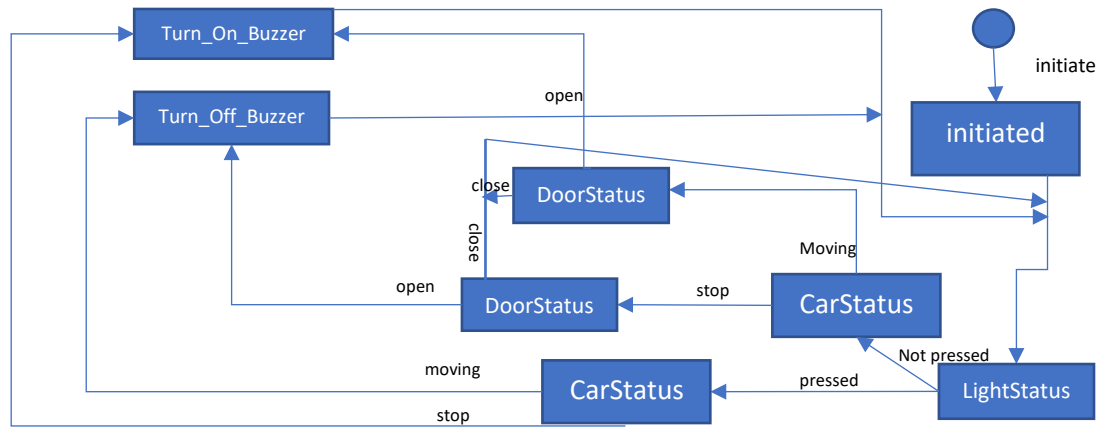
2- ECU2

a. State machine diagram of the components

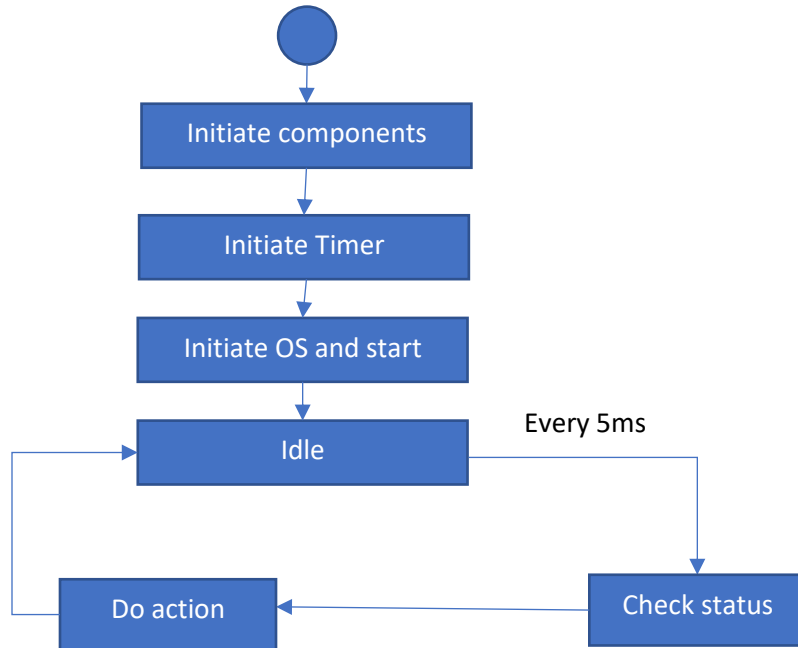
❖ Light



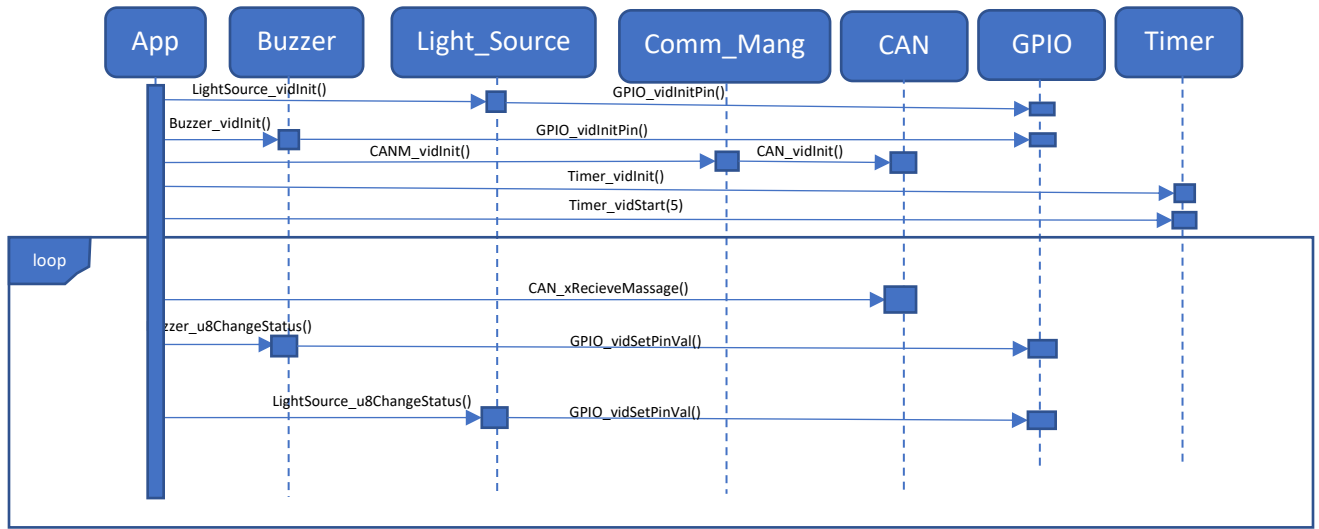
❖ Buzzer



b. State machine diagram of the operation



c. Sequence diagram of the ECU



d. CPU load

execution time = $\sum \text{Execution time of tasks}$

total time(Hyper-period time) = 5ms

$$\text{CPU load} = \frac{\text{execution time}}{\text{total time}} * 100\% = \frac{0.02}{5} * 100\% = 0.4\%$$

