

# Automotive Door Control System Design (Dynamic Design)

**Name** :Abdullah Mohamed Abdullah

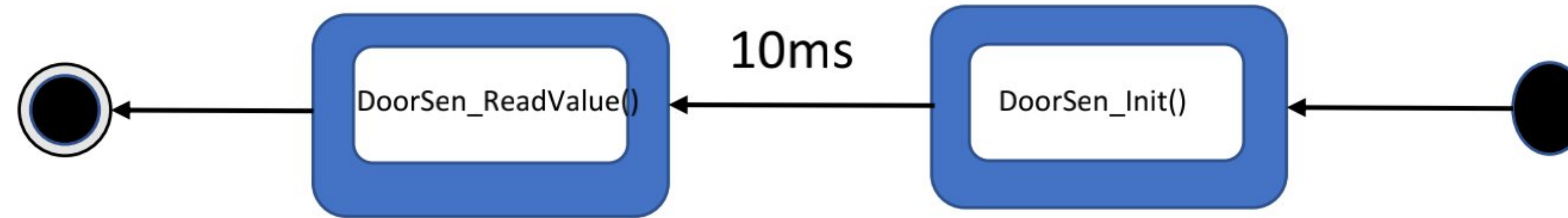
**Email** :[mhamad50513@gmail.com](mailto:mhamad50513@gmail.com)

# Dynamic Design

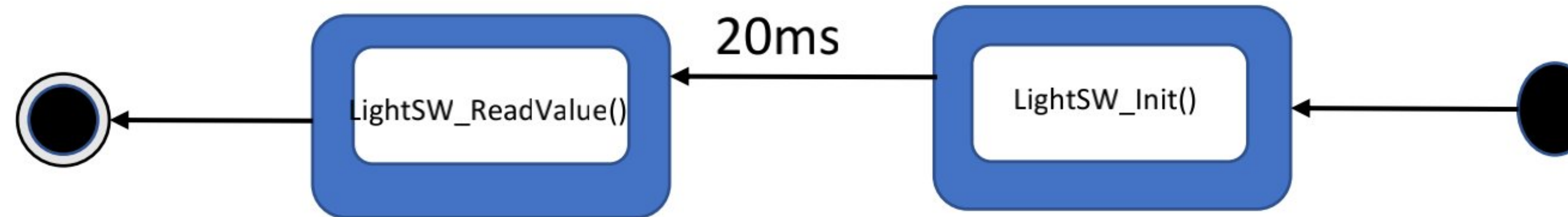
# ECU 1

## 1- State Machine Diagram for each ECU1 Component

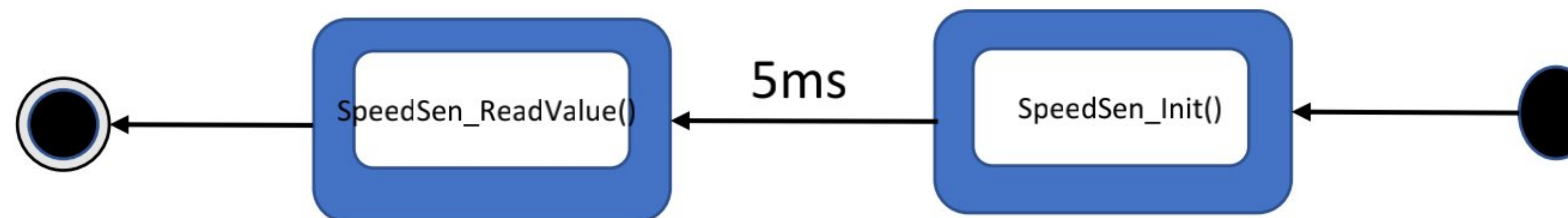
- Door Sensor



- Light Switch



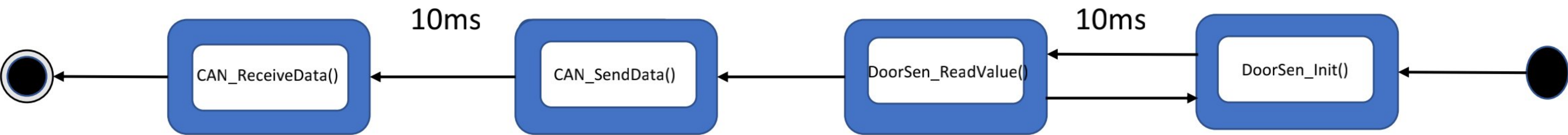
- Speed Sensor



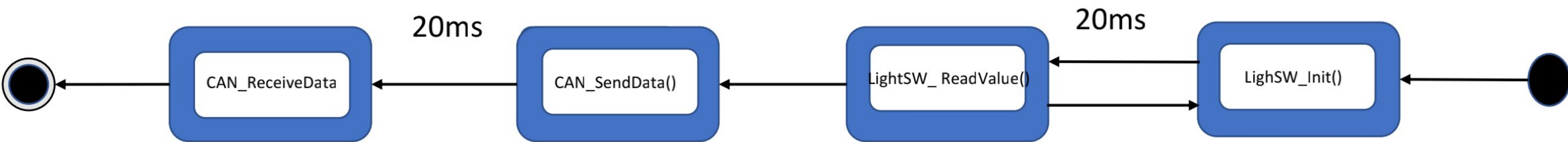


2- State Machine Diagram for ECU1 Operation

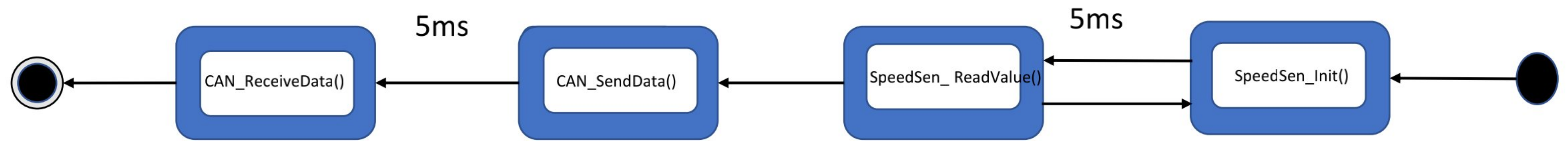
- Door Sensor



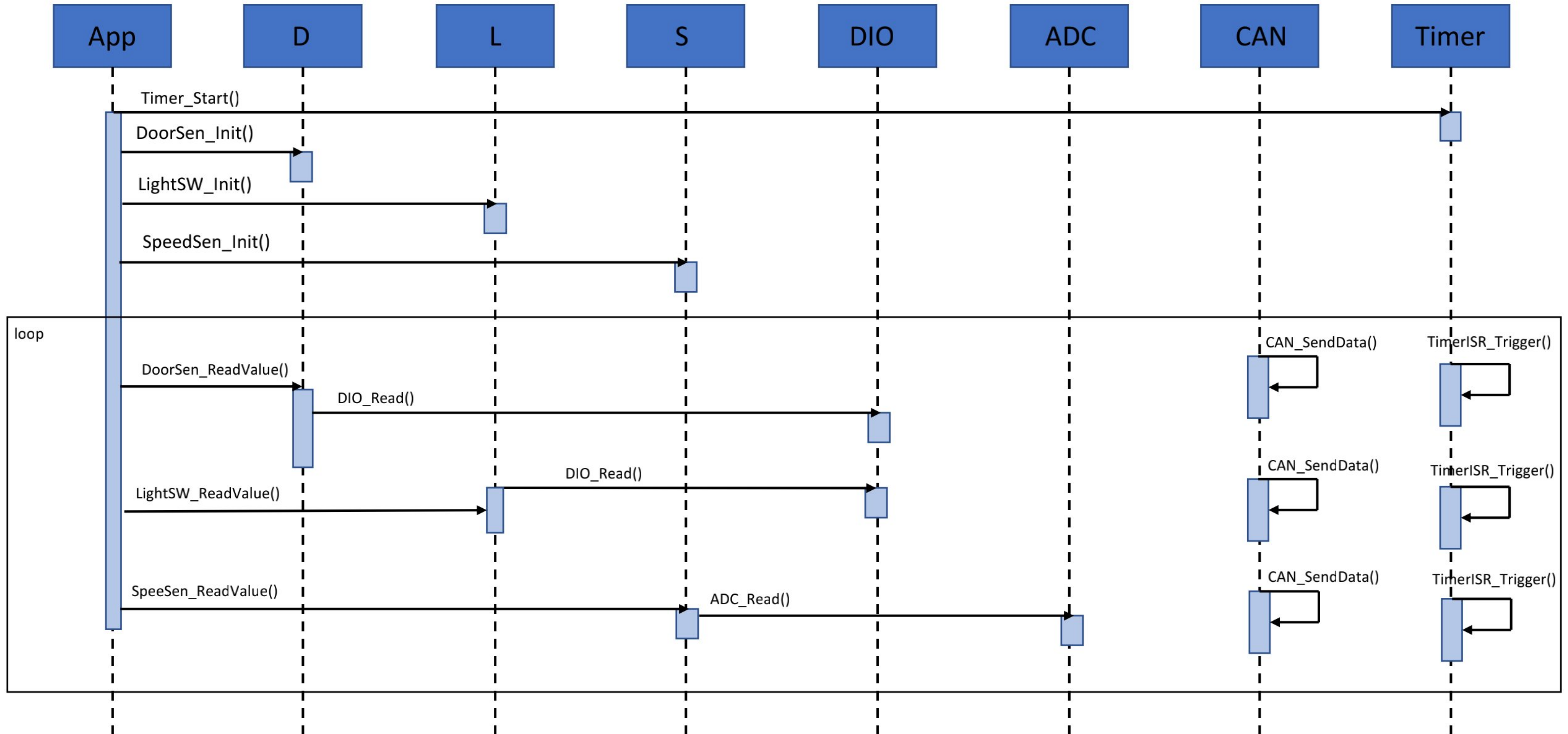
- Light Switch



- Speed Sensor



### 3- Sequence Diagram for CPU1



#### 4- CPU load for CPU1

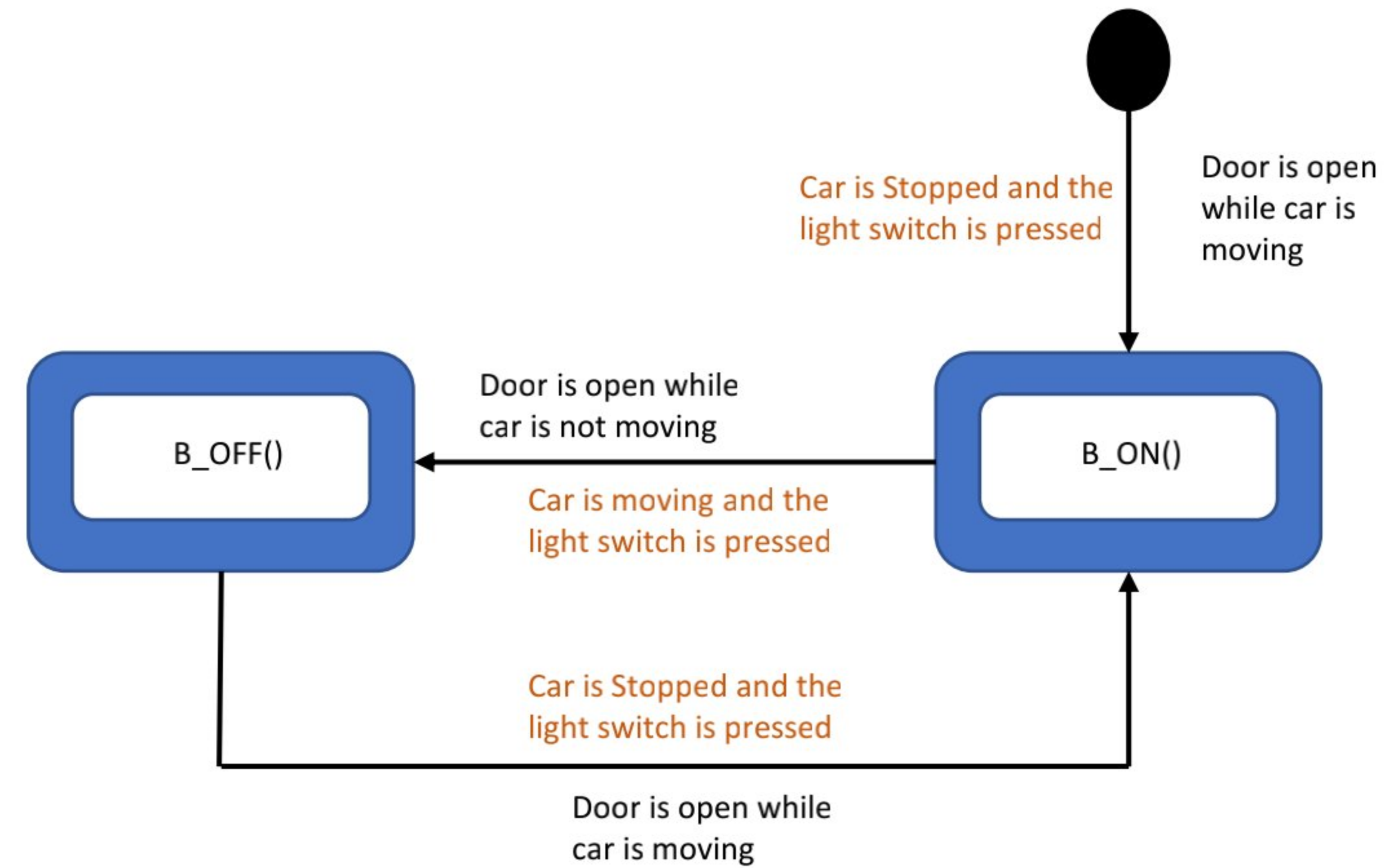
$$\begin{aligned}\text{CPU Utilization} &= 100 - \text{IDLE time} \\ &= 100 - 65 = 35\%\end{aligned}$$



## ECU 2

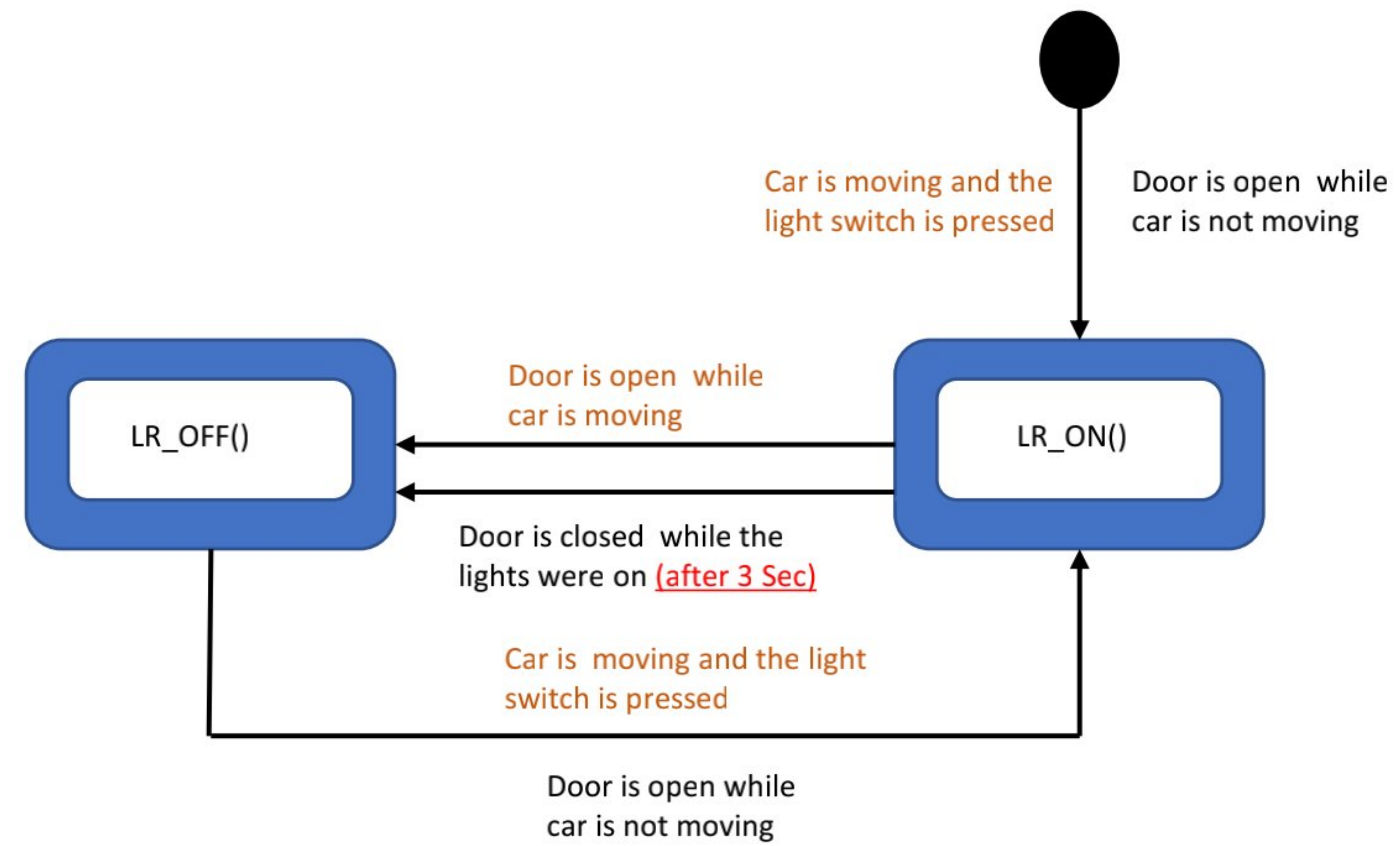
### 1- State Machine Diagram

- Buzzer(B)

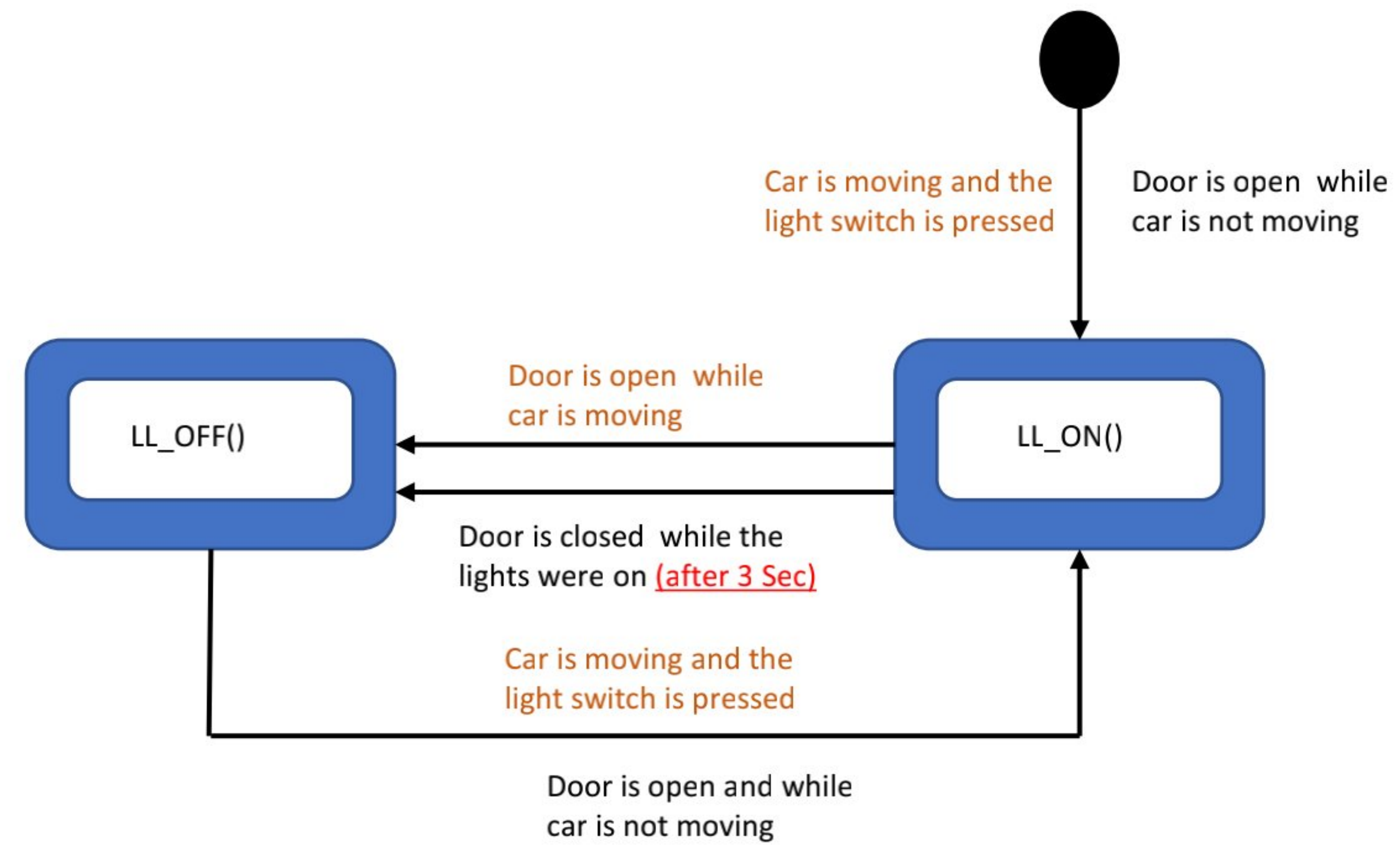




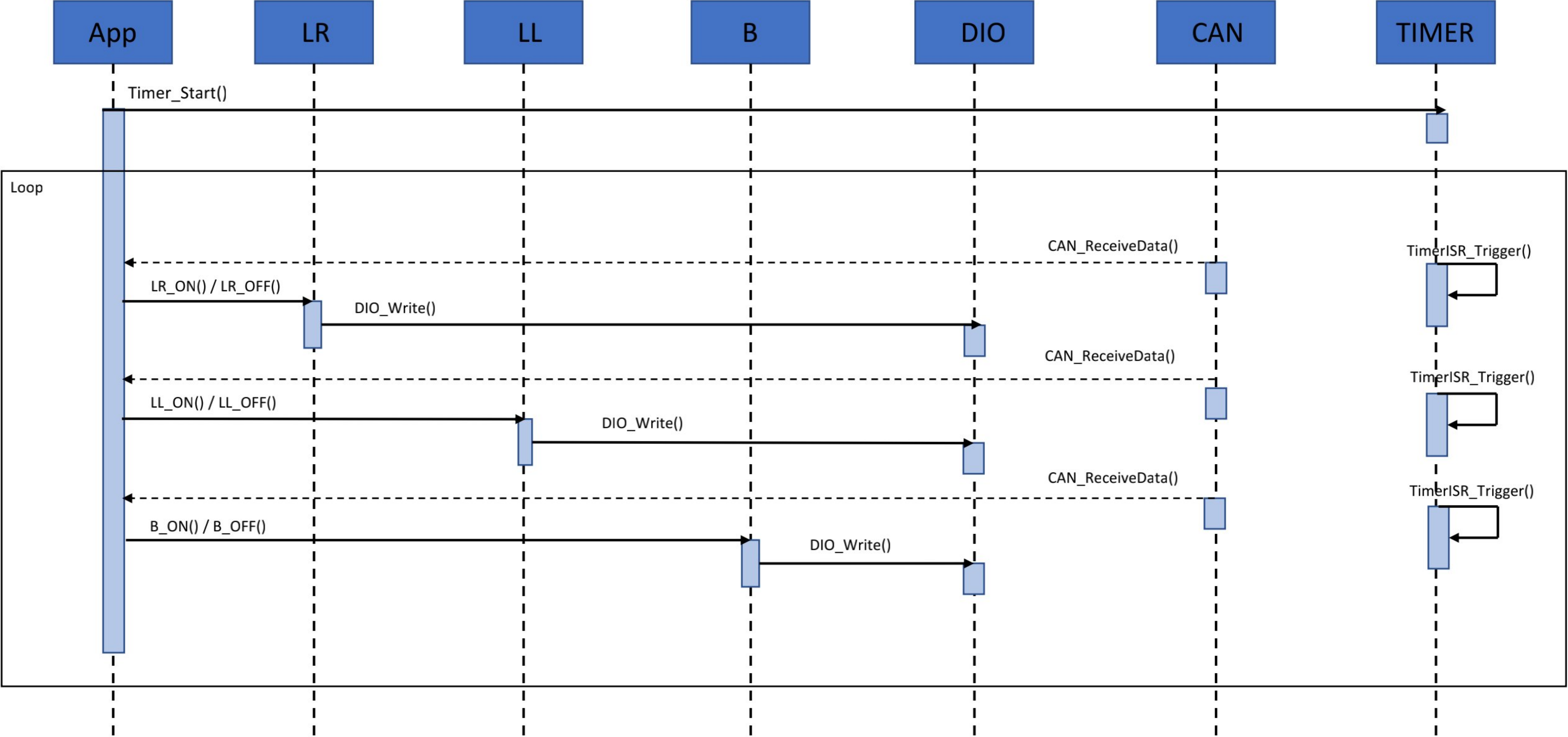
- Light Right (LR)



- Light Right (LL)



3- Sequence Diagram for CPU2





#### 4- CPU load for CPU2

$$\begin{aligned}\text{CPU Utilization} &= 100 - \text{IDLE time} \\ &= 100 - 65 = 35\%\end{aligned}$$