Automotive Door Control System Design

(Dynamic Design)

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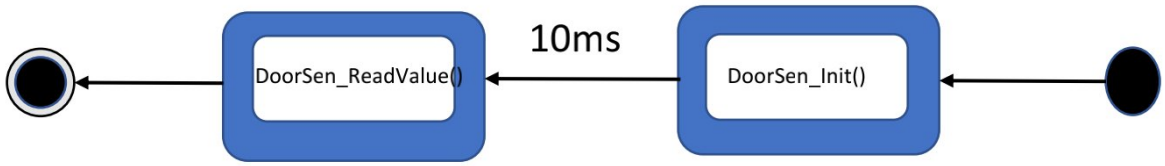
Dynamic Design

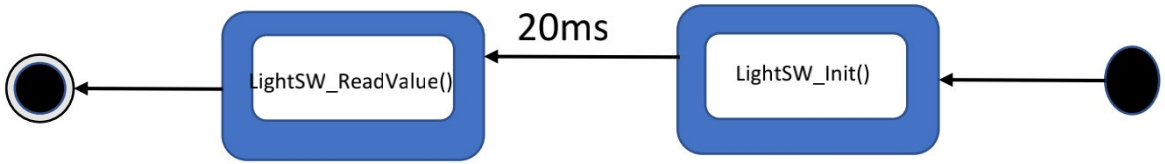
ECU 1

1- State Machine Diagram for each ECU1 Component

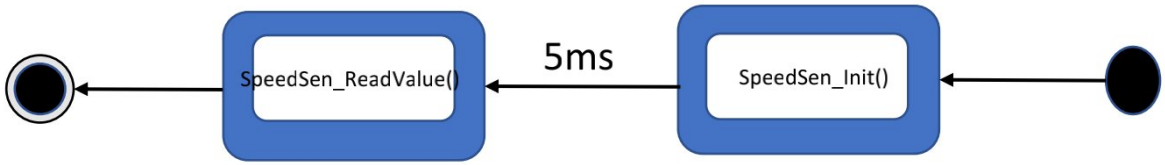
- Door Sensor



- Light Switch

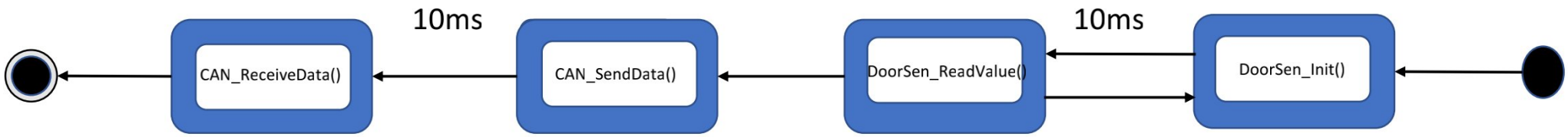


- Speed Sensor

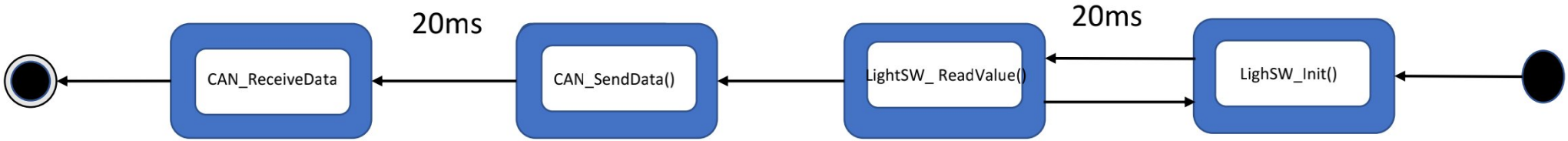


2- State Machine Diagram for ECU1 Operation

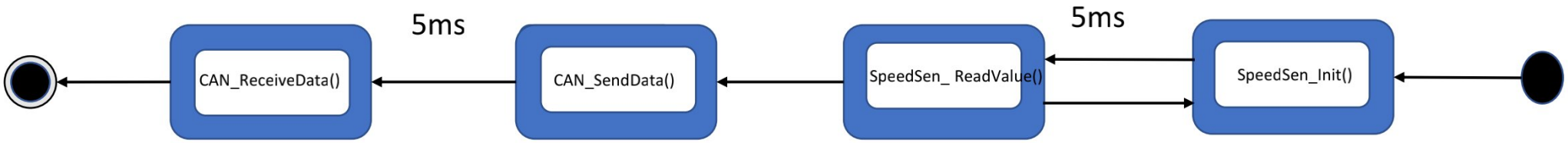
- Door Sensor



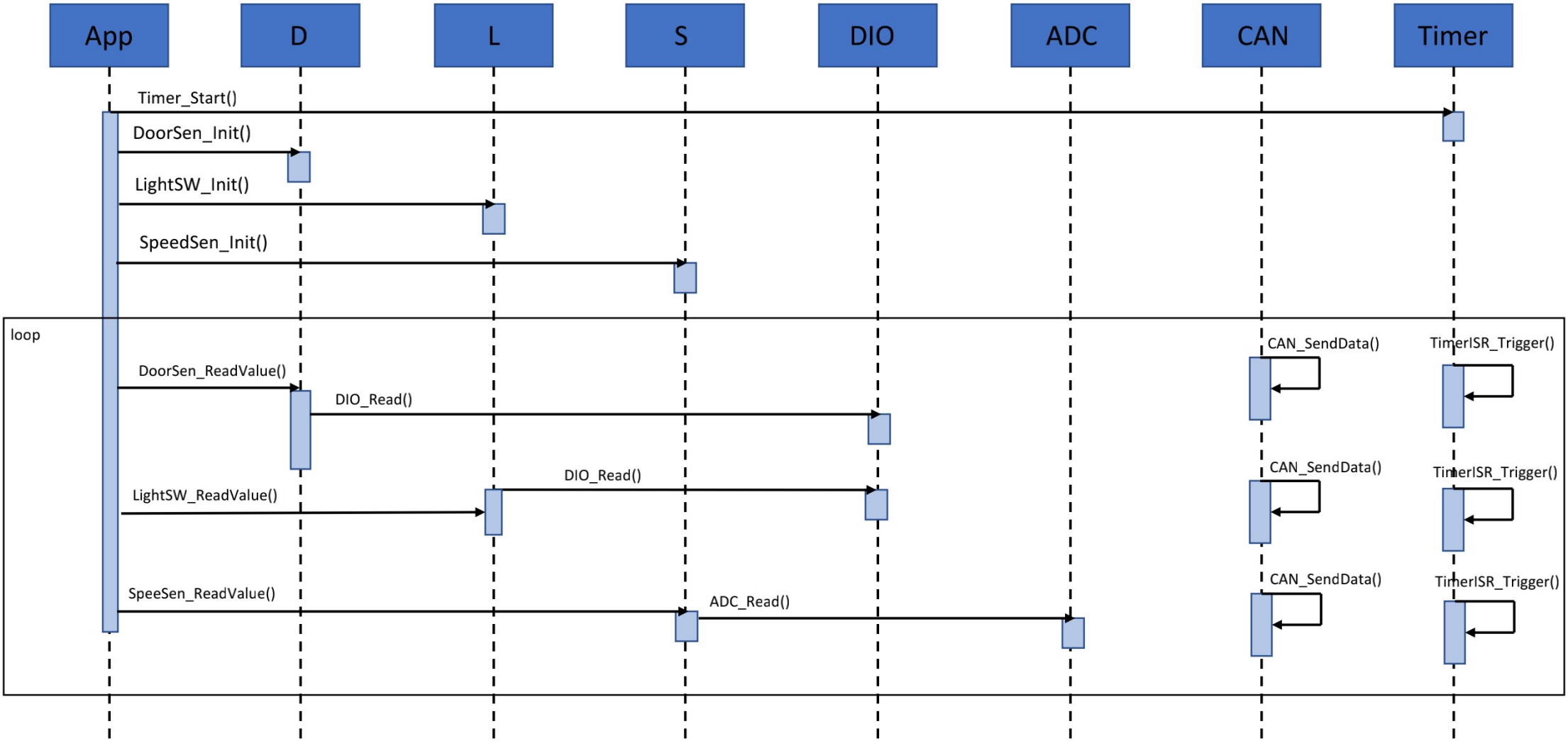
- Light Switch



- Speed Sensor



3- Sequence Diagram for CPU1



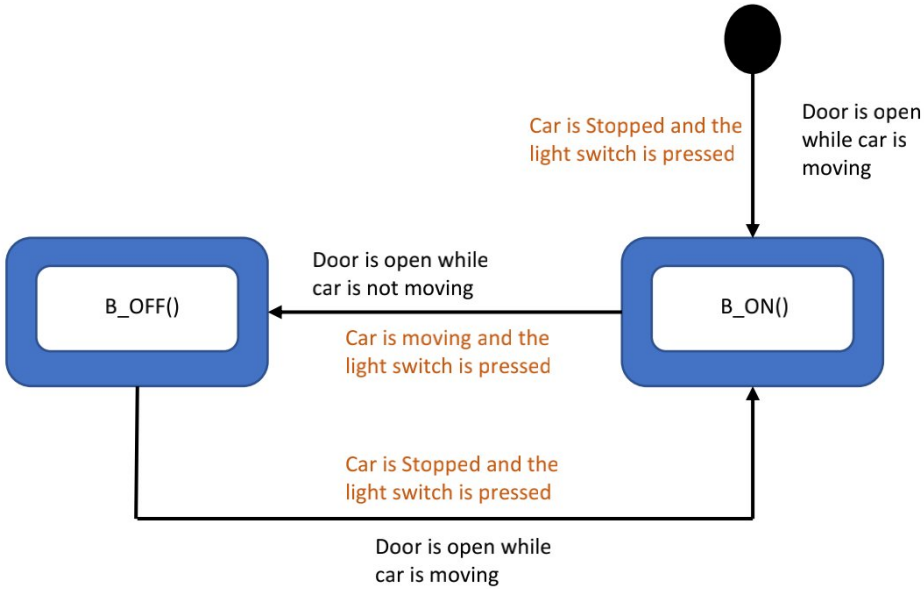
4- CPU load for CPU1

CPU Utilization = 100 − $IDLE\ time$
= 100 − 65 = 35%

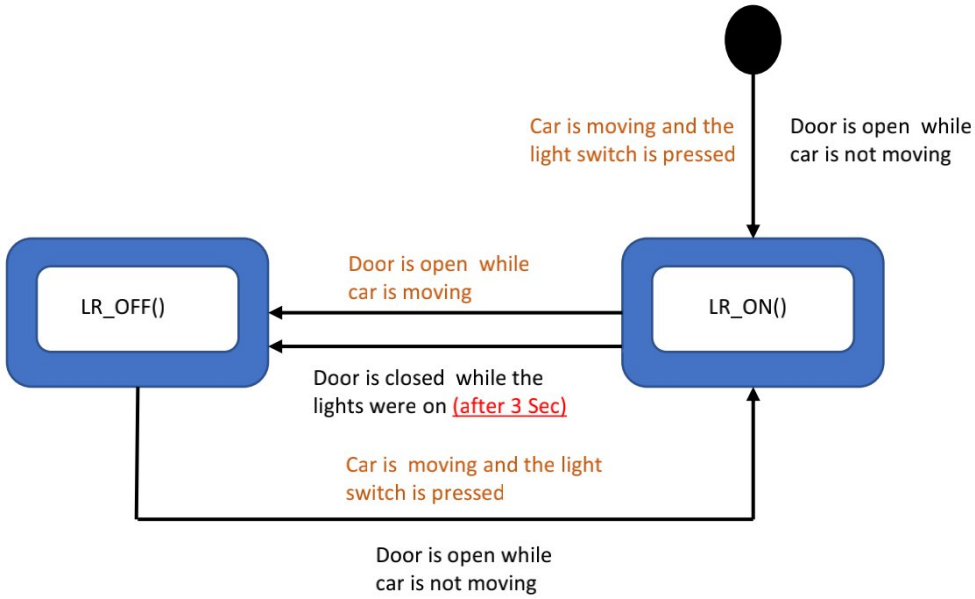
ECU 2

1- State Machine Diagram

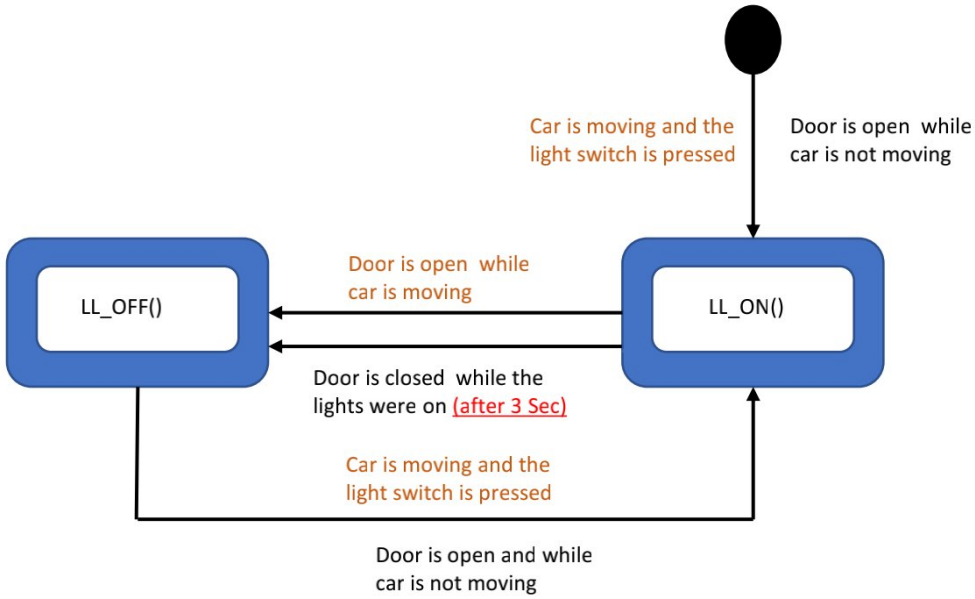
- Buzzer(B)



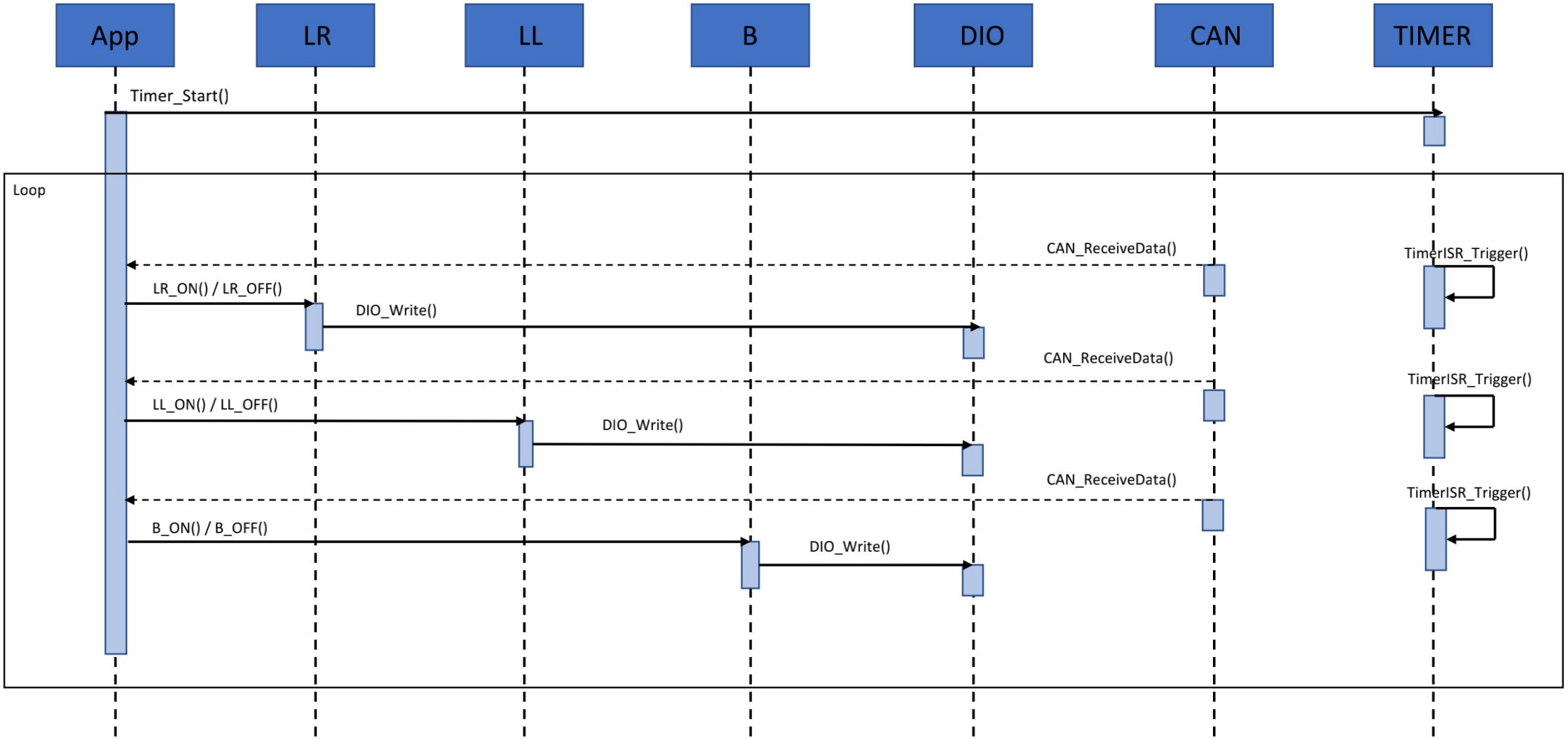
- Light Right (LR)



- Light Right (LL)



3- Sequence Diagram for CPU2



4- CPU load for CPU2

CPU Utilization = 100 − $IDLE\ time$
= 100 − 65 = 35%