**Project (3)**

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**Automotive door control system design**

# ECU 1

State machine Diagram

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generatedSequence Diagram

# System HyperPeriod

|  |  |
| --- | --- |
| Task | Periodicity |
| Door state | 10 ms |
| Light switch state | 20 ms |
| Speed state | 5 ms |

# CPU load

|  |  |
| --- | --- |
| Task | Execution Time (during 1 hyperperiod) |
| Door state | 1 \* 2 ms |
| Light switch state | 1\*1 ms |
| Speed state | 1\* 4 ms |

# Assume Execution time: task1= task2= task3=1ms

CPU Load =

# CPU Load = \* 100 = 35%

# ECU 2

State machine Diagram

Diagram

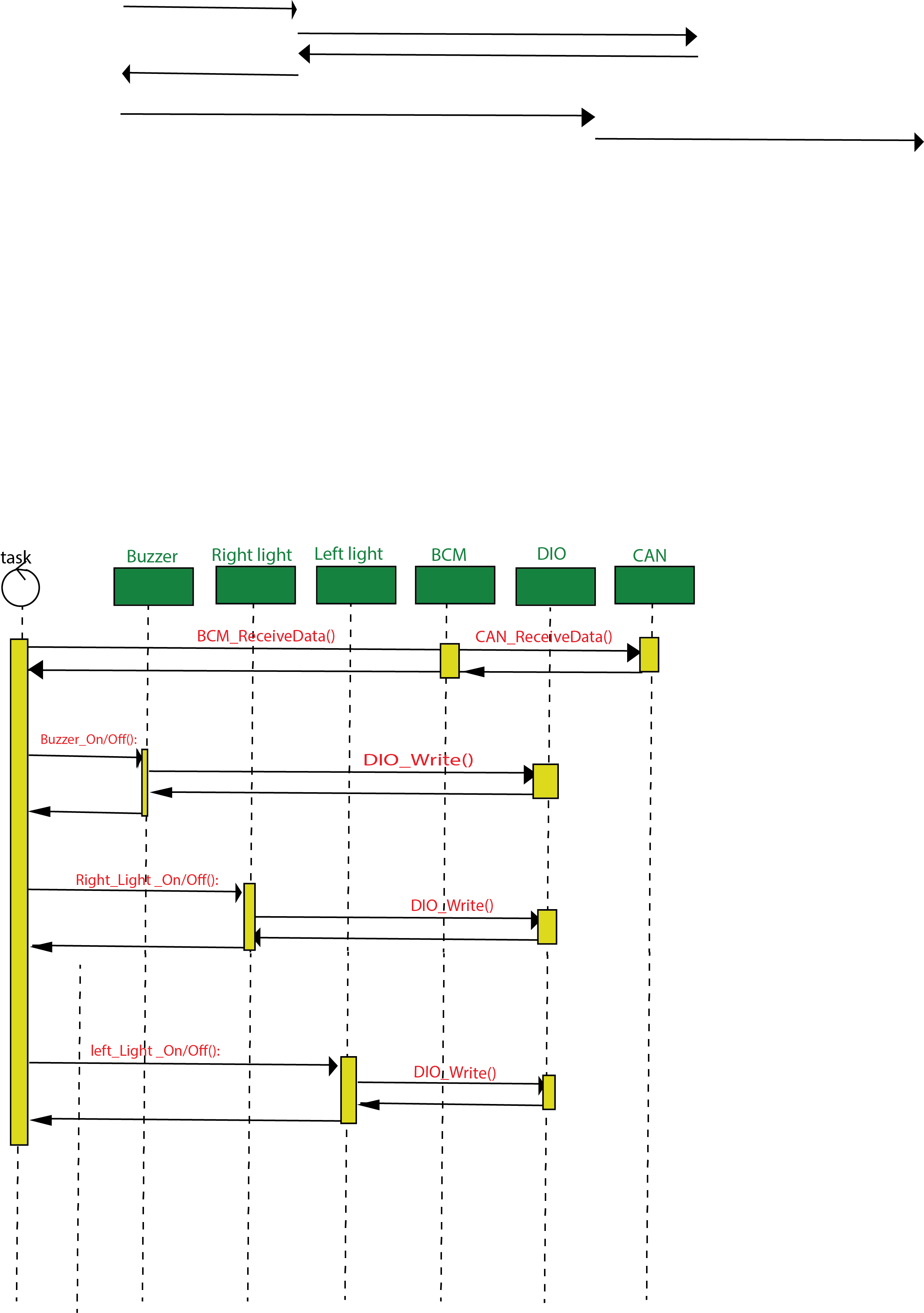
Description automatically generated

Diagram

Description automatically generated

Diagram

Description automatically generatedSequence Diagram



# CPU load

|  |  |
| --- | --- |
| Task | Execution Time (during 1 hyperperiod) |
| Buzzer Controller | 1 \* 1 ms |
| Left Light Controller | 1 \* 1 ms |
| Right Light Controller | 1 \* 1 ms |

# Assume Execution time: task1= task2= task3=1ms

CPU Load =

CPU Load = \* 100 = 15%