State Machine Diagrams for Each ECU

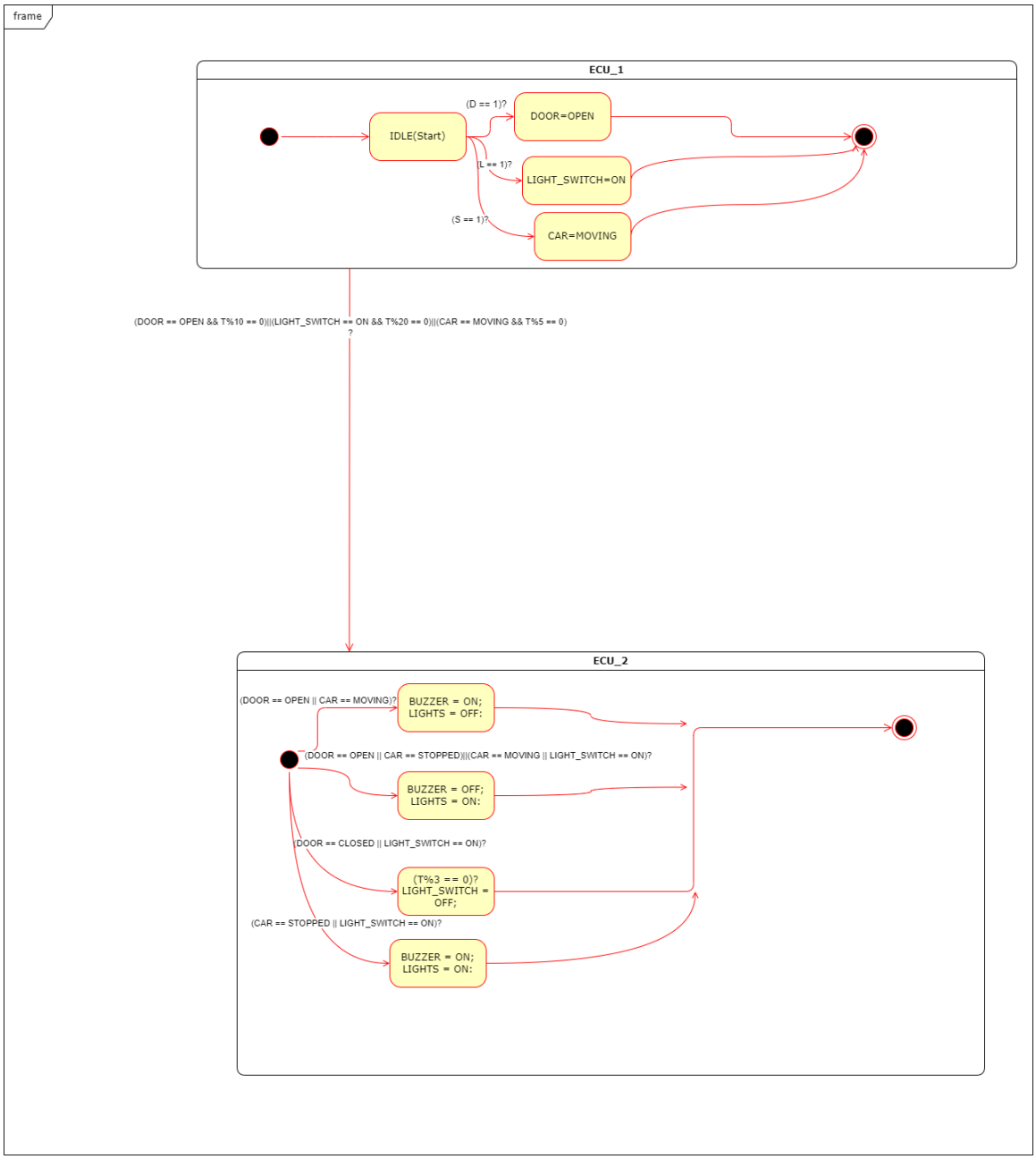

Figure (1) State machine for the whole System

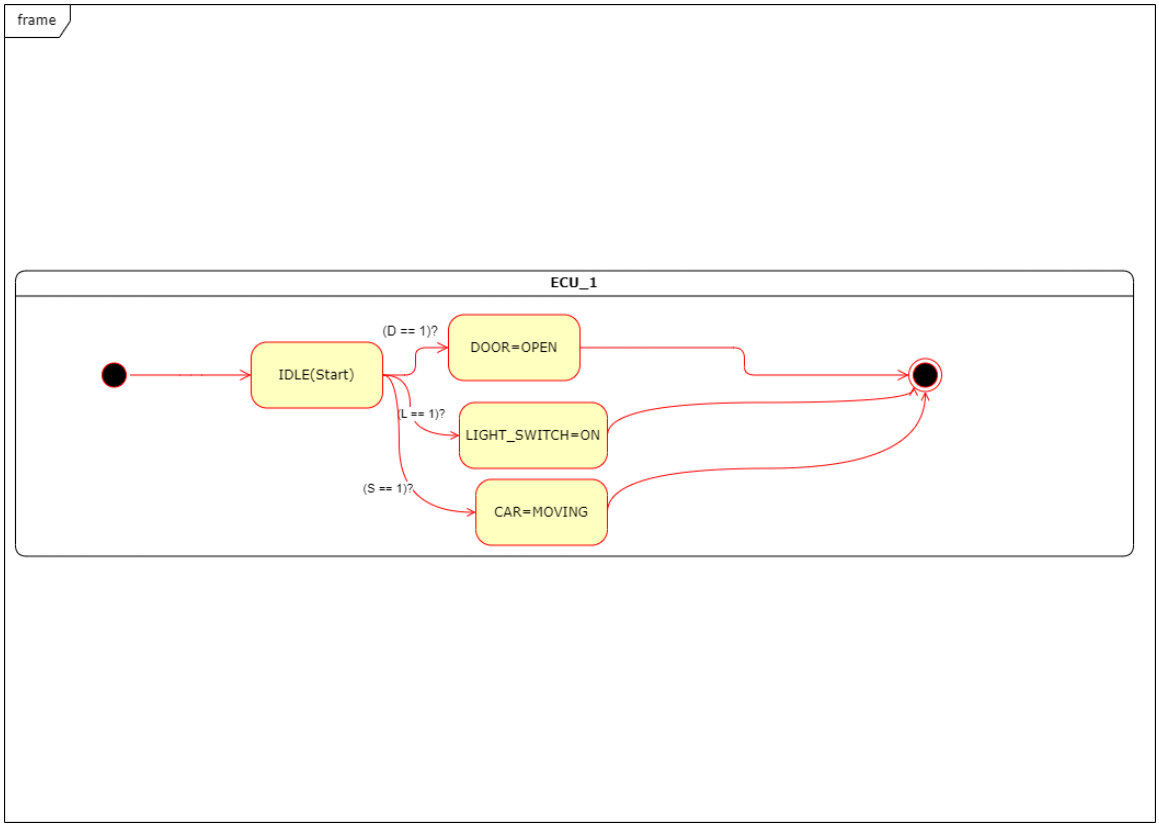

Figure (2) ECU_1 State machine

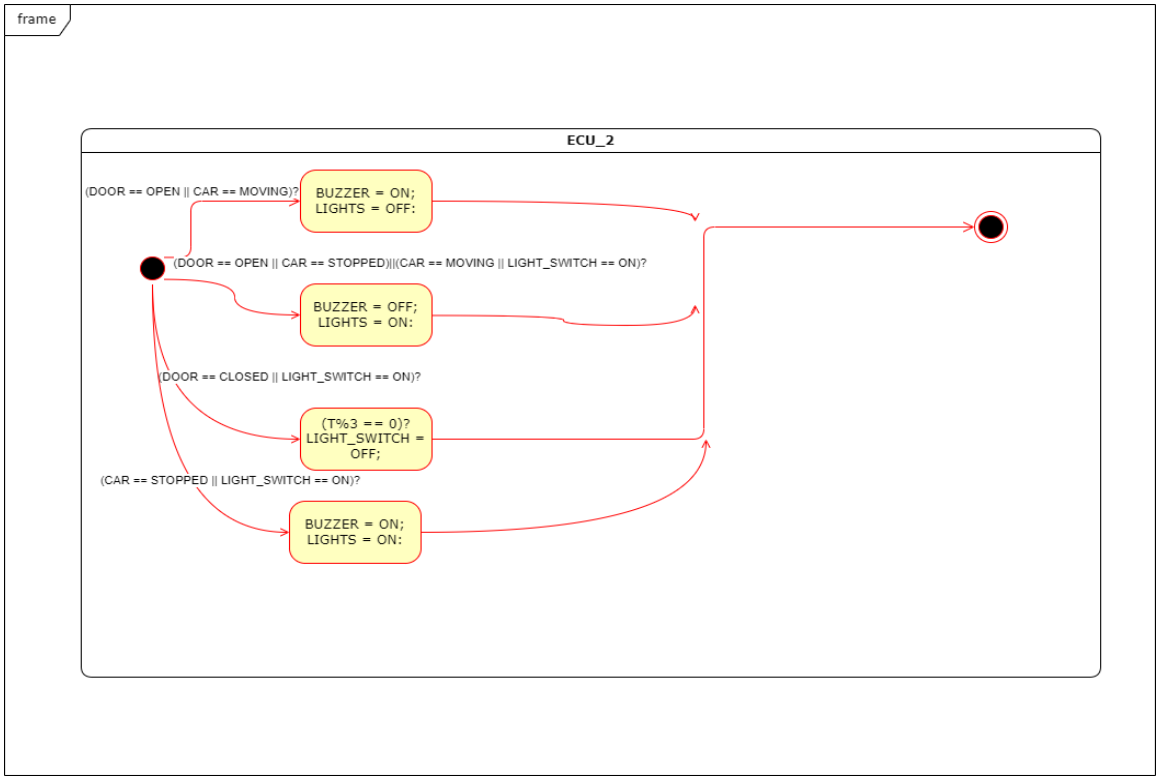

Figure (3) ECU_2 State Machine

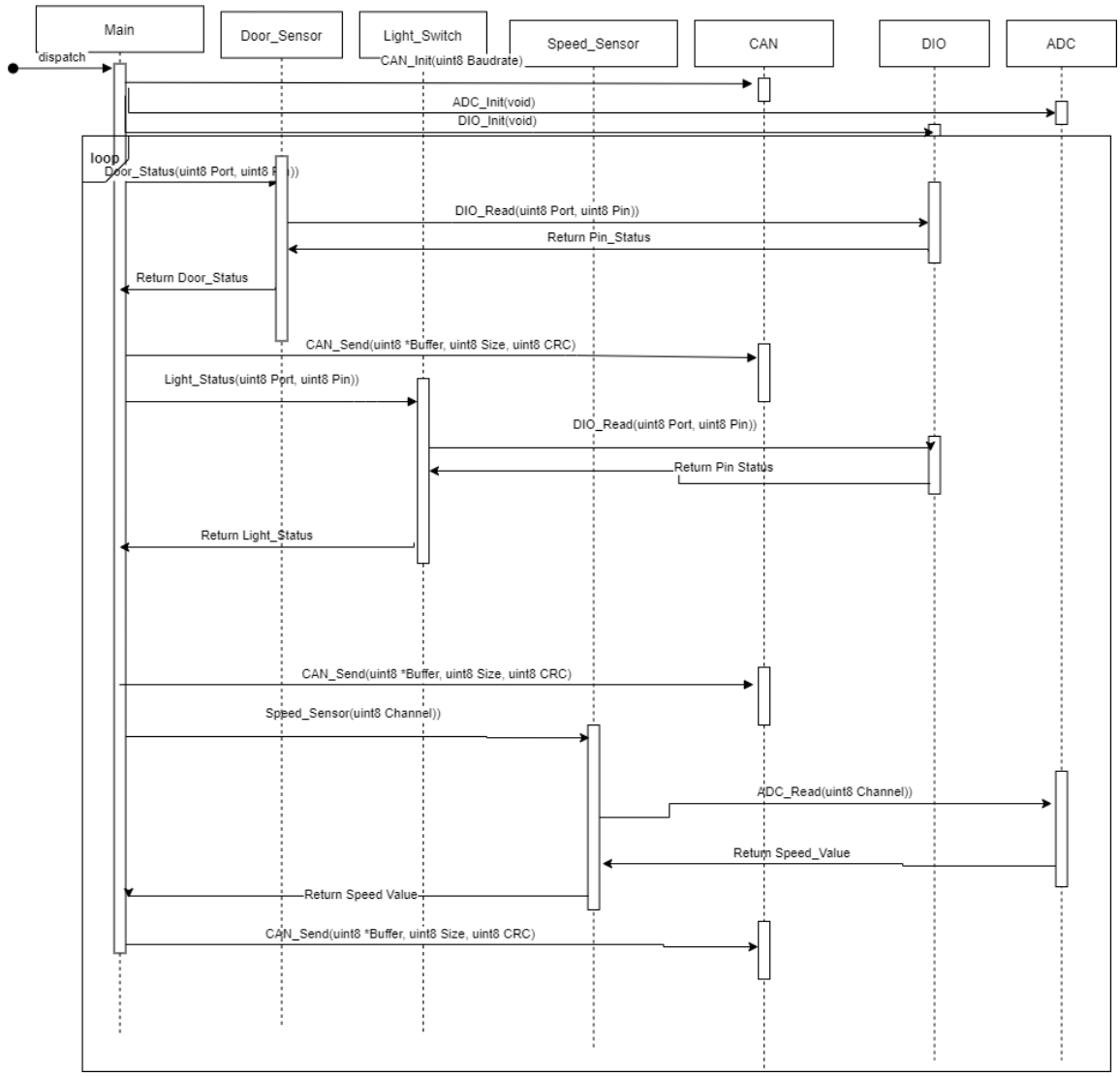

Figure (4) Sequence Diagram for ECU_1

$Task\ (1)(P\colon 5, E\colon 1)$

$Task\ (2)(P\colon 5, E\colon 1)$

$Task\ (3)(P\colon 3, E\colon 1)$

$$The\ CPU\ Load = \left(\frac{1}{5}\right) + \left(\frac{1}{5}\right) + \left(\frac{1}{3}\right) = \left(\frac{11}{15}\right) = 0.7333333 = 73.33333\%$$

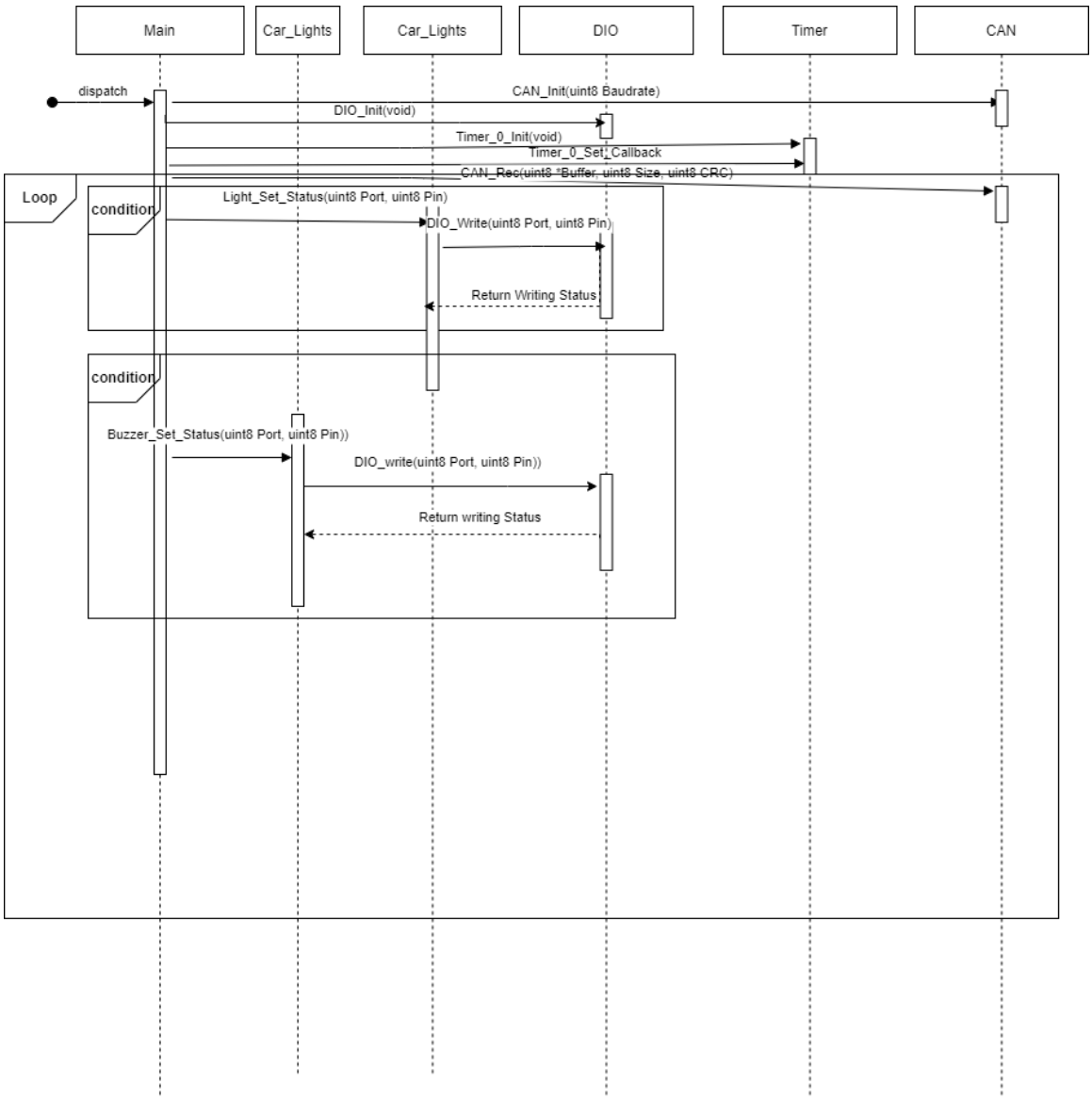

Figure (5) Sequence Diagram for ECU_2

$Task\ (1)(P\colon 5, E\colon 2)$

$Task\ (2)(P\colon 5, E\colon 1)$

$$The\ CPU\ load\ for\ ECU\_2 = \left(\frac{2}{5}\right) + \left(\frac{1}{5}\right) = 0.8 = 80\%$$

$$The\ highest\ Bus\ Load\ per\ 1\ Second = \frac{90}{1000000} = 0.000009 = 0.009\%$$