

State Machine Diagrams for Each ECU

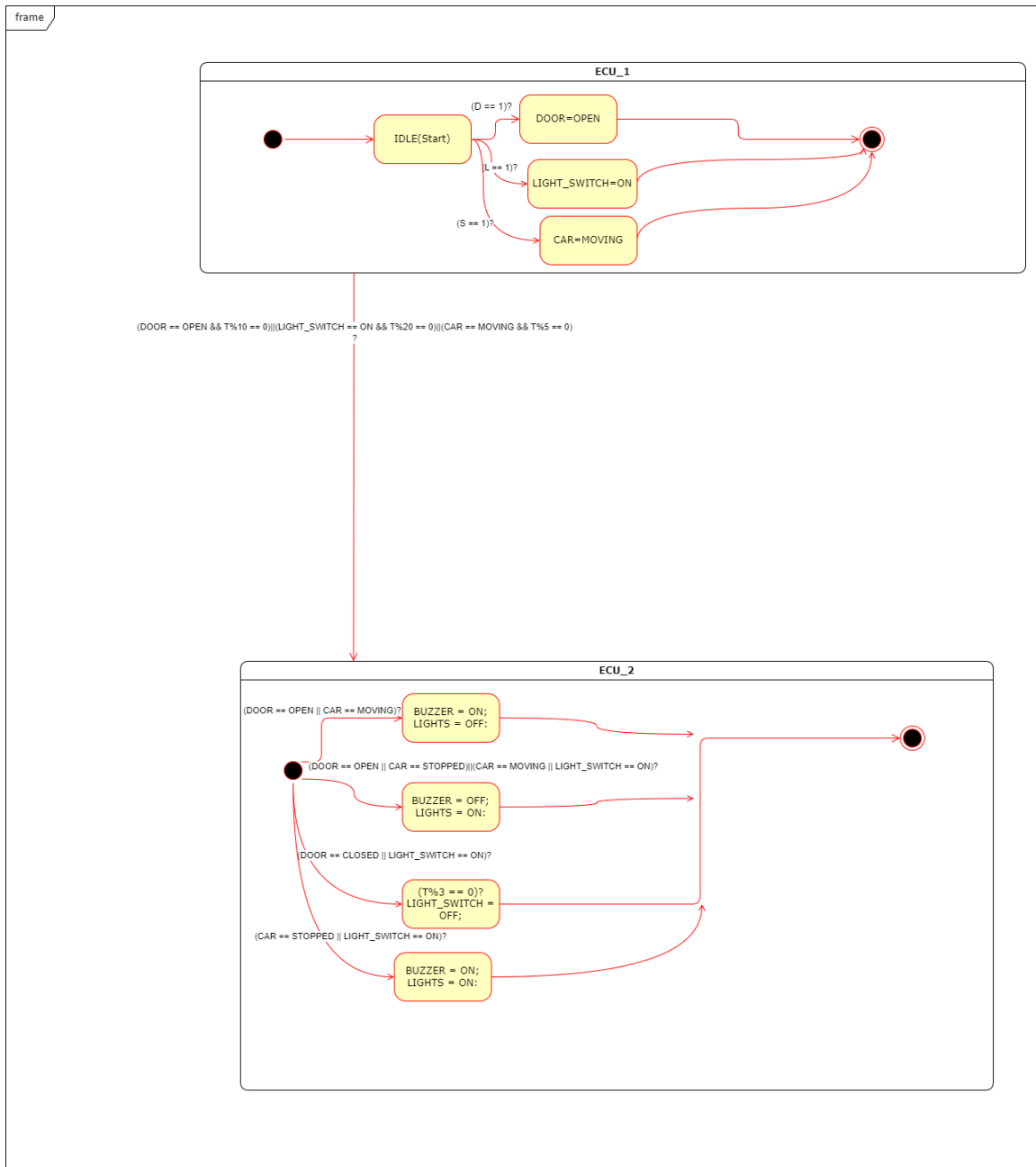


Figure (1) State machine for the whole System

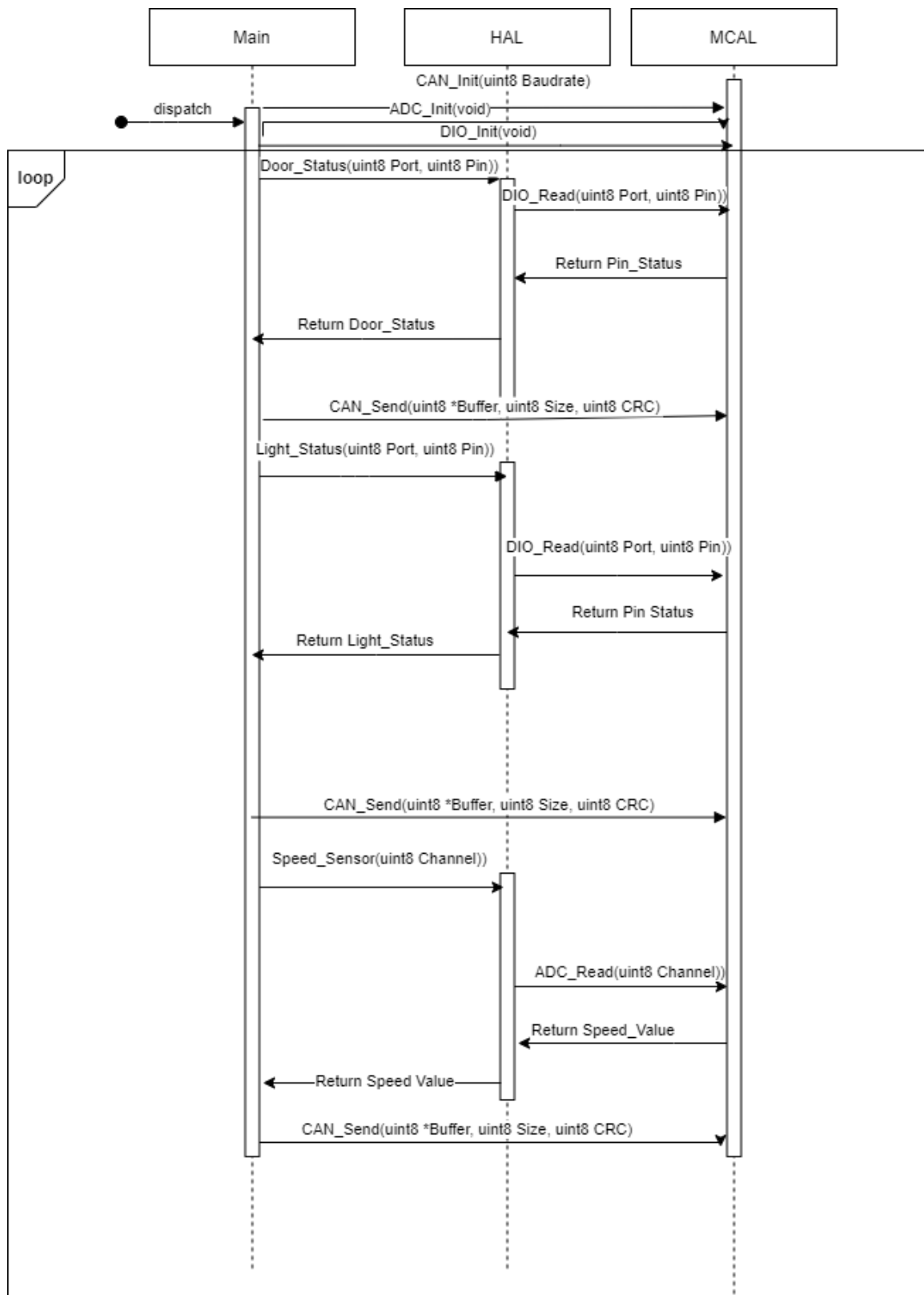


Figure (2) Sequence Diagram for ECU_1

Task (1)(P: 5, E: 1)

Task (2)(P: 5, E: 1)

Task (3)(P: 3, E: 1)

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

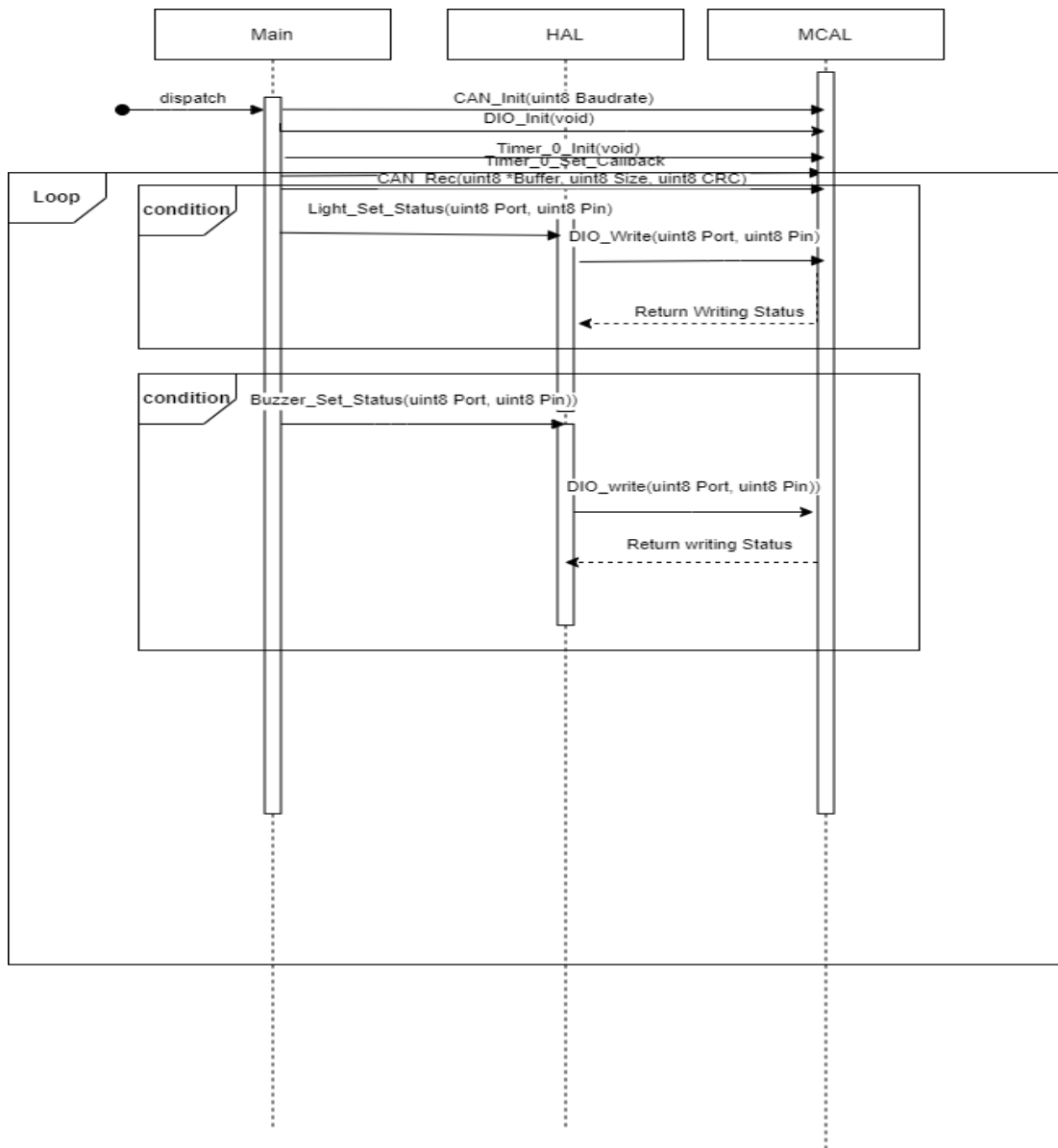


Figure (3) Sequence Diagram for ECU_2

Task (1)(P: 5, E: 2)

Task (2)(P: 5, E: 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 = $\frac{90}{1000000} = 0.000009 = 0.009\%$