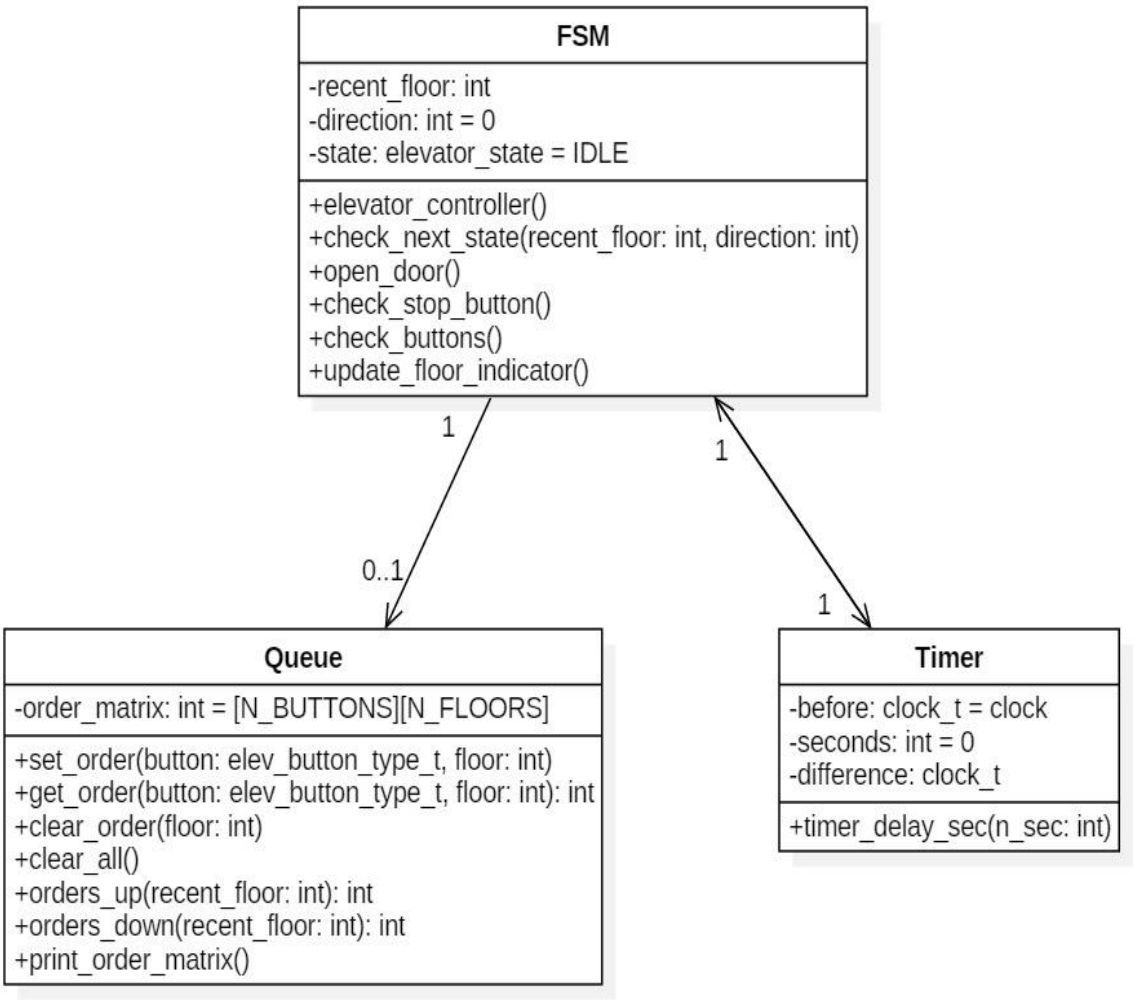
**CLASS DIAGRAM**

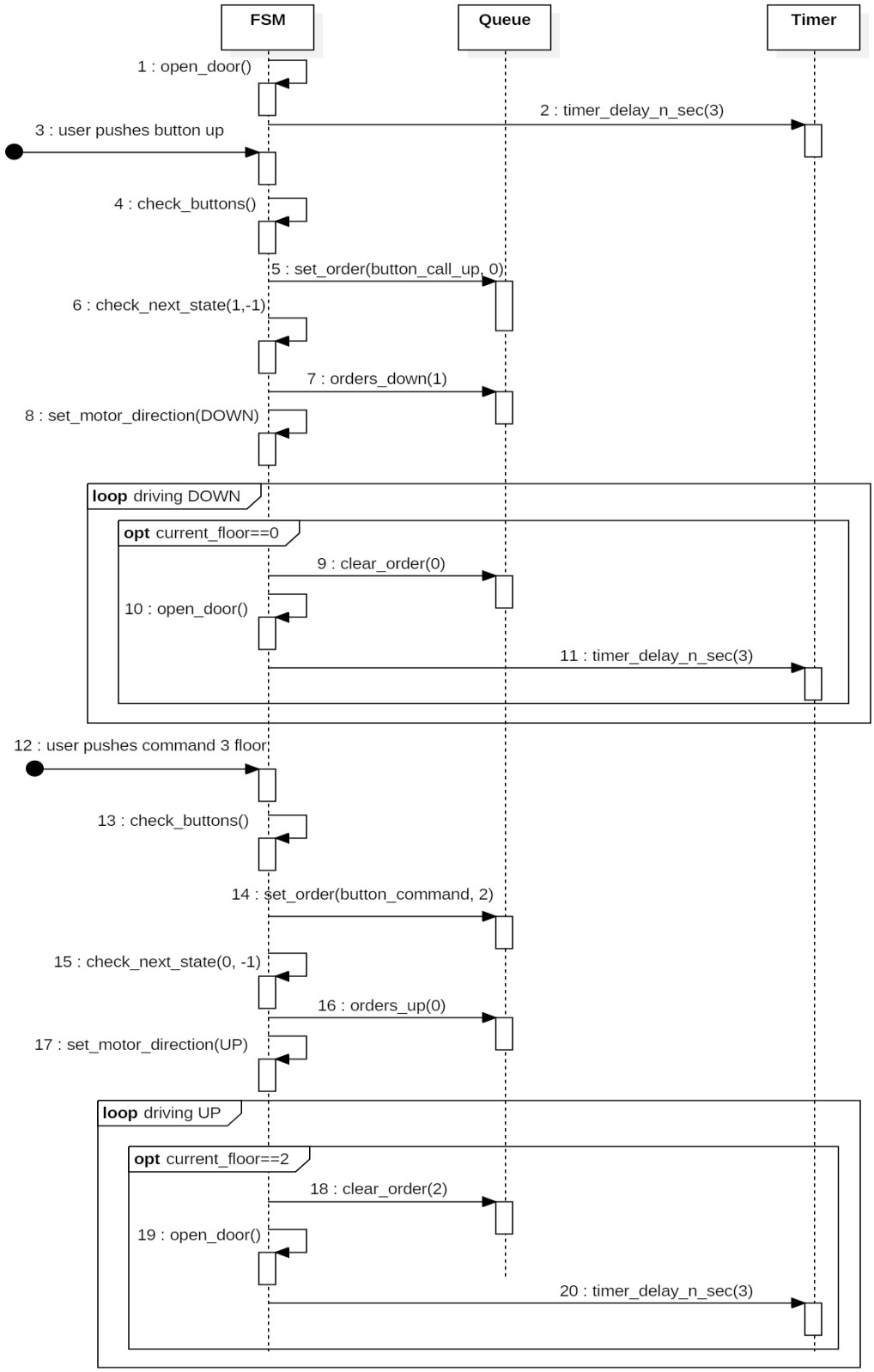


**Sequence main case:**

1. Elevator empty with open doors at 2. floor.
2. After 3 sec the door closes.
3. User pushes button UP at 1. floor.
4. FSM checks if a button has been pushed.
5. FSM orders the queue module to add the new order to the order matrix.
6. FSM checks which new state to go to.
7. Since floor requested is beneath current floor the state is set to DOWN.
8. Elevator starts moving down.
9. A loop checks if the current floor matches 1.floor, if so the order is cleared.
10. Door opens and starts the 3 sec timer.
11. After 3 sec the door closes.

12. User push the 3.floor command button.
13. FSM checks if a button has been pushed.
14. FSM orders the queue module to add the new order to the order matrix.
15. FSM checks which new state to go to.
16. Since floor requested is above current floor the state is set to UP.
17. Elevator starts moving UP.
18. A loop checks if the current floor matches 3.floor, if so the order is cleared.
19. Door opens and starts the 3 sec timer.
20. After 3 sec the door closes.

## SEQUENCE DIAGRAM



**User activates the emergency button**

Goal Level: Sea Level

Trigger:

1. User pushes emergency button:

Precondition:

1. User needs to be inside elevator.
2. Elevator must be initialized.

Main Success Scenario:

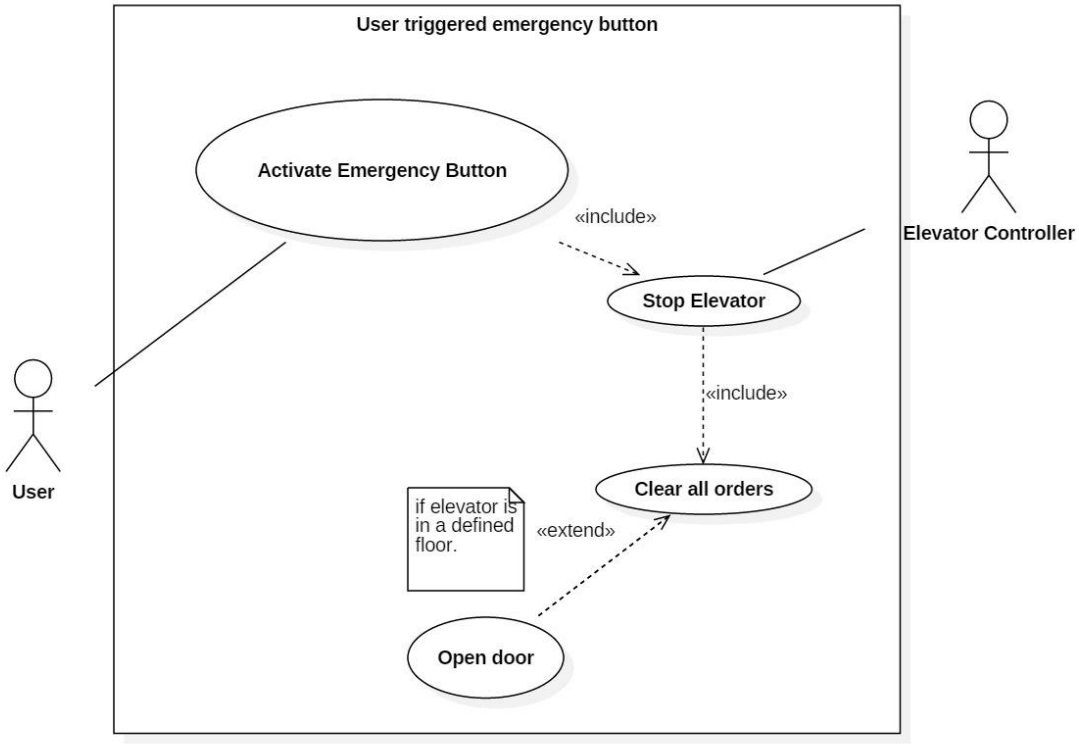
1. User pushes/triggers emergency button.
2. Emergency button illuminates.
3. Elevator stops immediately.
4. All buttons disabled.
5. Elevator order list is cleared.
6. Stop button released, buttons enabled.
7. Emergency button stops illuminating.

Extensions:

3a: Elevator stops at a defined floor.

    1. Floor light-diode activates.
    2. Door opens for 3 sec, door-open diode illuminates.
    3. Door closes.
    4. Door-open diode stops illuminating.

**USE CASE EMERGENCY**



**User requests direction [up,down] outside elevator.**

Goal level: Sea Level

Trigger:

1. User pushes direction button.

Preconditions:

1. Elevator is initialized.
2. Emergency button is not activated.

Main Success Scenario:

1. User pushes up or down button.
2. The order is added to the order list.
3. The pushed direction button illuminates.
4. Elevator sets direction towards the triggered buttons floor.
5. Floor light changes when passing floor sensors.
6. Elevator stops when the triggered floor sensor is activated.
7. The triggered direction button stops illuminating.
8. Elevator opens door.
9. Open-door diode illuminates.
10. User goes inside.
11. Elevator closes doors after 3 seconds.
12. Open-door button stops illuminating.

Extensions:

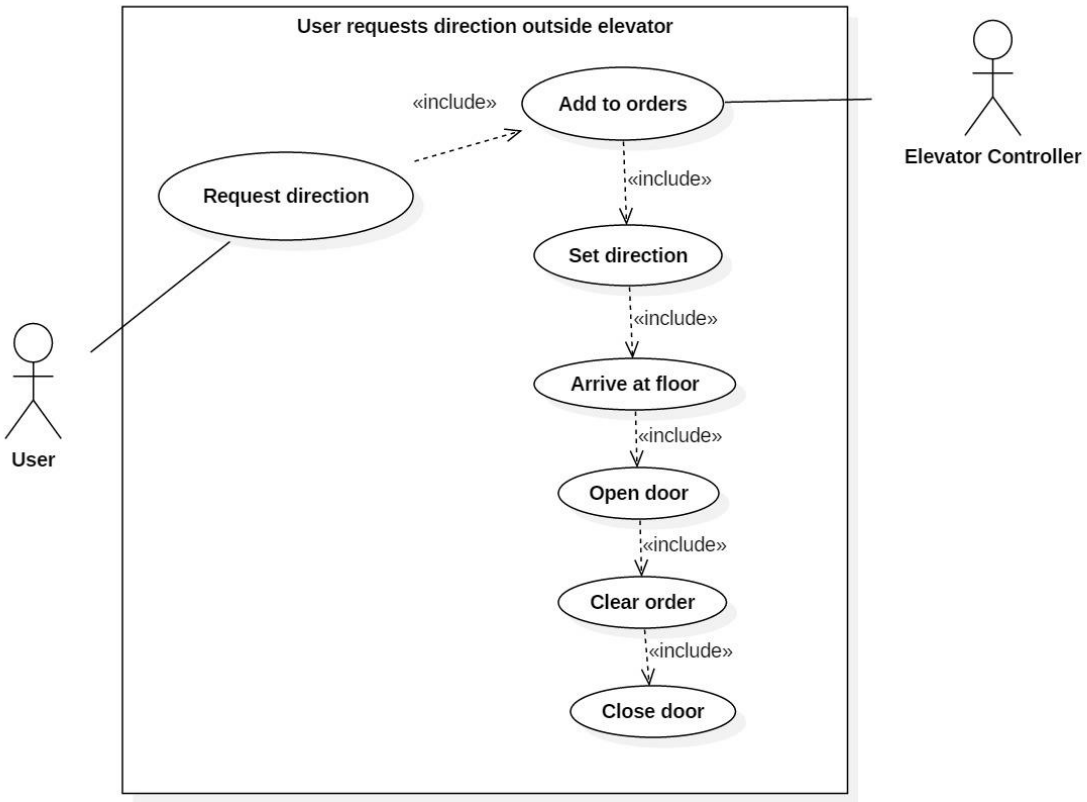
4a: Elevator is busy

1. Elevator picks up user if in the same direction as previosly.
2. Waits for other requests to finish.

5a: Elevator goes past the triggered floor if the elevators current direction does not match the requested direction.

1. Stops when it matches the same direction as desired by user.

**USE CASE DIRECTION**



**User wants to go to a floor**

Goal Level: Sea Level

Trigger:

1. User pushes a command button [1,4]:

Preconditions:

1. User is inside elevator.
2. Elevator is initialized.
3. Emergency button is not activated.

Main Success Scenario:

1. User triggers command button [1,4] to select which floor to go to.
2. The desired order is added to the order list.
3. The triggered command button illuminates.
4. Elevator sets direction towards the triggered floor.
5. Elevator moves towards the desired floor.
6. Floor light changes when passing floor sensor.
7. Elevator stops when the desired floor sensor is activated.
8. Order is cleared.
9. Command button stops illuminating.
10. Elevator opens door for 3 seconds.
11. User exits the elevator.
12. Elevator closes door.

Extensions:

1a: User pushed several buttons by an accident

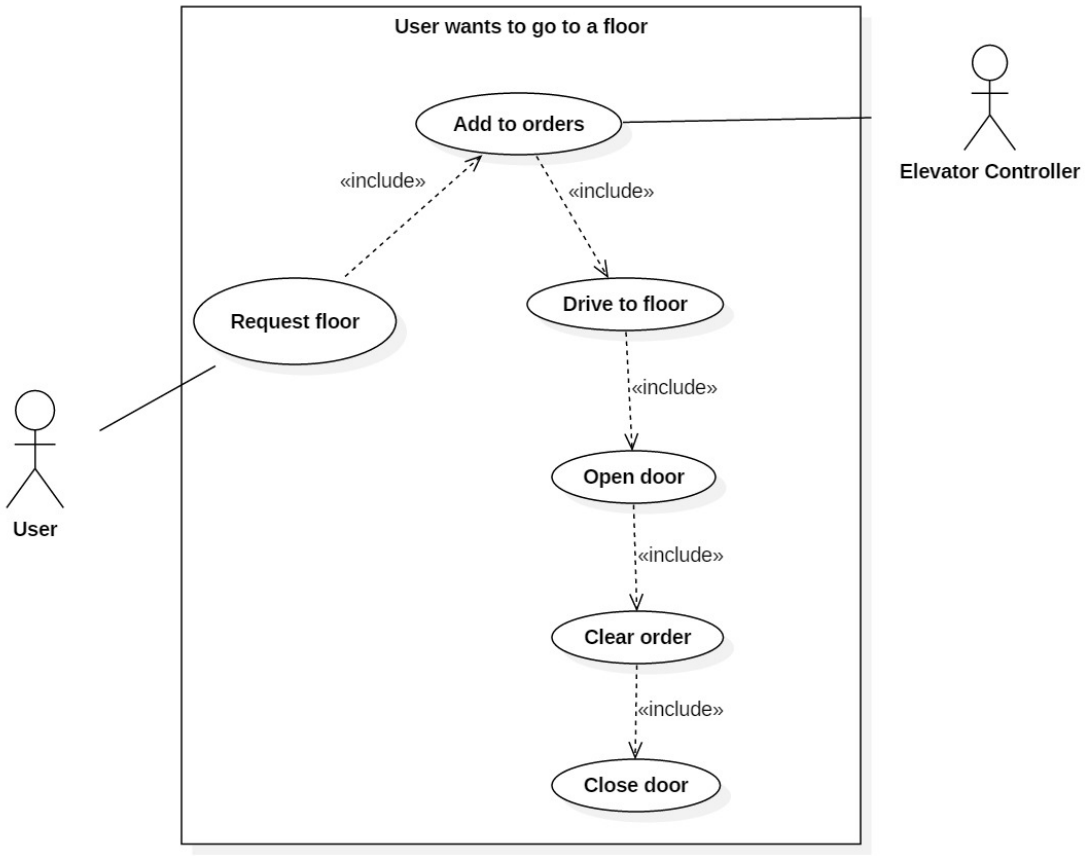
1. Stops at nearest floor in the direction the elevator is set at, then next and fourth until all floors have been visited.

4a: In case of queue

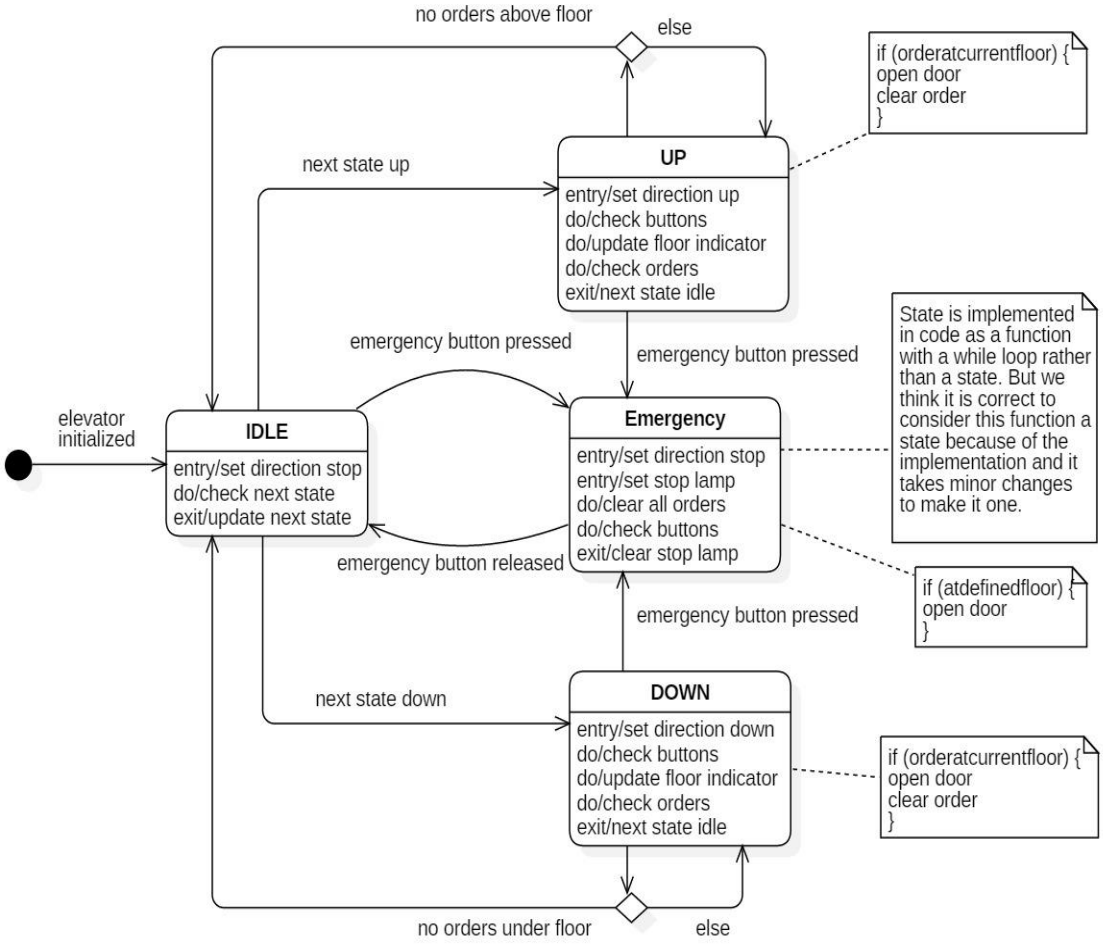
1. Elevator continues in the set direction as previously. Direction is changed when all floors have been visited down/up a direction.

2. Elevator stops at floors wanting to go the same direction.

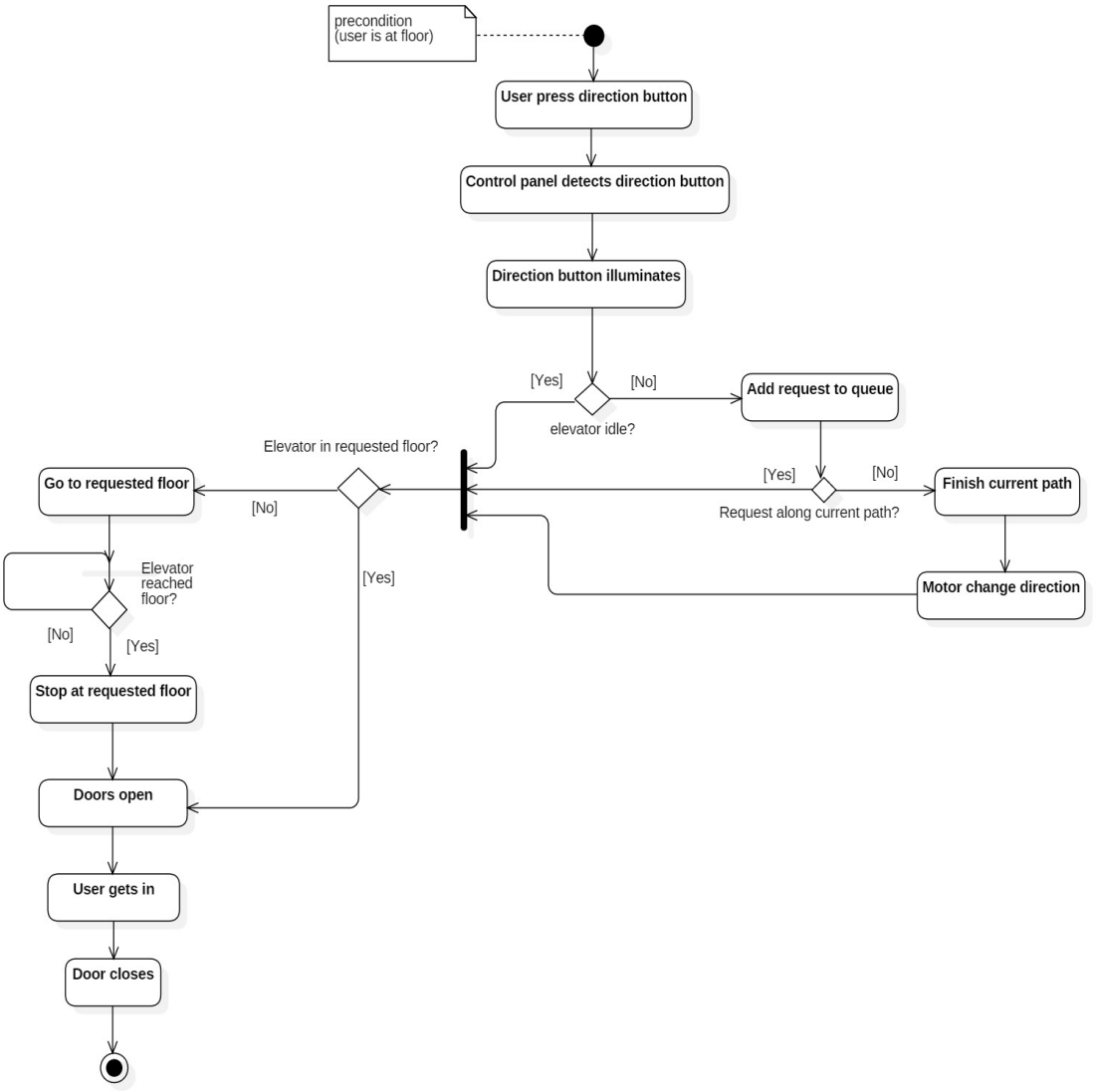
**USE CASE COMMAND**



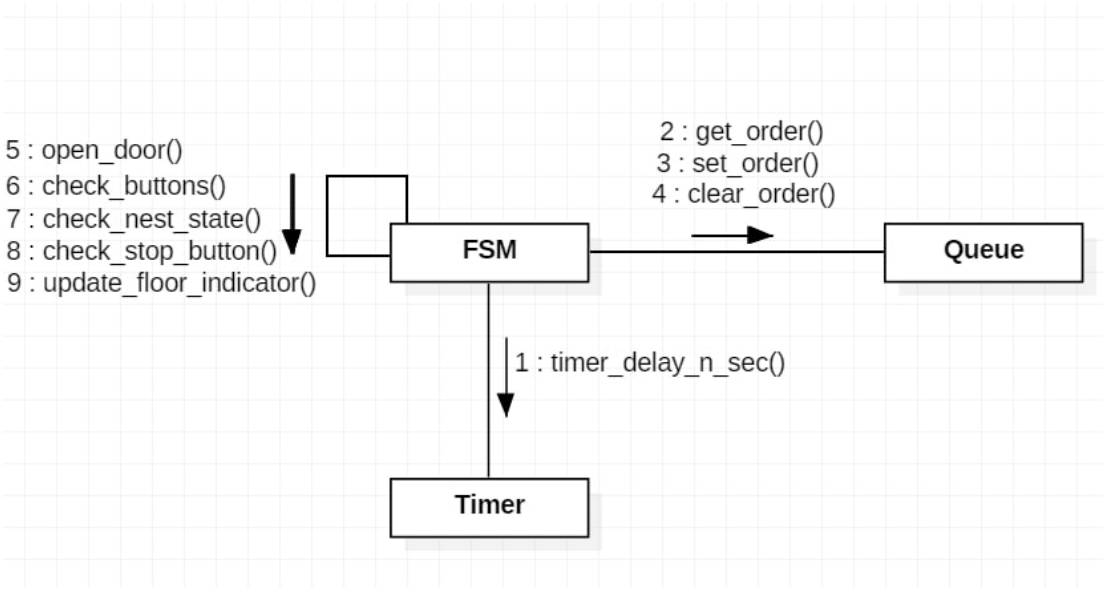
**STATE MACHINE DIAGRAM**



## ACTIVITY DIAGRAM



**COMMUNICATION DIAGRAM**



**TIMING DIAGRAM**