Elevator Control System

USE CASE 1: Request an elevator
Primary Actor: Passenger
Precondition: - Press the up or down button on any floor
Postconditions: - Get in / get out of the elevator smoothly and safely.
Main success scenario: 1. Passenger presses up or down button 2. Control System illuminates the pressed up or down button 3. Elevator arrives at the required floor. 4. Control System turn off the illumination light of the pressed up or down button. 5. Elevator rings a bell as notification of arrival. 6. Elevator opens door for 10 seconds 7. Elevator rings a bell after step 6 timing as a notification of closing doors 8. Elevator closes doors 9. Elevator moves to another floor. 10. Passenger presses one of the floor buttons in car's control panel 11. Elevator changes floor number on display every time it passes one floor 12. Passenger could press door close or door open buttons (inside the elevator-control panel) to override the default period for opening the door. 13. Control System stops the elevator at a certain floor if this floor button is pressed. 14.
Extensions: 1.a electricity is off.

USE CASE 2: press Help button
Primary Actor: - Passenger - control system
Precondition: - Passenger presses the Help button inside the elevator's car.
Postconditions: - The help situation is resolved successfully in standard time.
Main success scenario: 1. Passenger presses the help button in control panel. 2. Control system connects the passenger to building safety service via voice connection 3. Control system calls 911 if no respond either from building safety service or the passenger within 5 seconds.
Extensions: 2.a. voice system is malfunctioned. 2.a.1 Control system must detect this malfunction and place a call to 911 immediately.

USE CASE 3: interrupt door closing
Primary Actor: unidentified object, control system
Precondition: - An unidentified object is interrupting door closing
Postconditions: - The light sensor is free from interruption and Door closes
Main success scenario: 1. An object interrupts the light sensor attached to elevator's door. 2. Control system stops the door from closing 3. Control system opens the door. 4. Control system sounds a warning if this occurs repeatedly over a short period of time. 5. Control system displays a warning message to elevator's display.
Extensions: 5.1. Elevator's sound system is malfunctioning

USE CASE 4: Receive fire alarm signal
Primary Actor: fire incident , control system
Precondition: - Fire sensor detects a possible fire incident
Postconditions: - Move to a safe floor, and passengers leave safely.
Main success scenario: 1- Control system receives a Fire alarm signal 2- Control system verify the source of the signal a. Control system commands all elevators to move to safe floor if signal from the building b. Control system commands elevator to move to safe floor if signal from a certain elevator. 3- Control system presents an audio and text message to passengers to inform them of an emergency. 4- Control system asks passengers to disembark once the safe floor is reached.
Extensions: 1.a control system is on fire.

USE CASE 5: Receive Overload alarm signal
Primary Actor: Passengers, control system
Precondition: - Overload weight is reached due to exceeding the carrying capacity.
Postconditions: - The extra weight is eliminated
Main success scenario: 1. Control system receives Overload alarm signal from an elevator. 2. Control system prevent the elevator from moving. 3. Control system presents an audio and a text message to passengers asking for the load to be reduced
Extensions:

USE CASE 6: Receive a Power out alarm signal
Primary Actor: Control system, Power generator
Precondition: - Power out alarm signal is received
Postconditions: - Move to a safe floor, and passengers leave safely.
Main success scenario: 1. Control system presents an audio and text message to passengers to inform them of the power outage. 2. Control system moves all elevator to a safe floor. 3. Control system asks passengers to disembark once the safe floor is reached.
Extensions: 1.a The battery backup power is not sufficient to do the case.