Mihai Sirbu

Assignment 3- Comp 3004

March 14th, 2024

As the documents are plentiful and I doubt you wish to read a lot of extremely *interesting* design choices, I will keep this document to the essentials.

**GUI overview**

I think the GUI is self explanatory, but I just wanted to emphasize 1 point : The top section where it says “ Passenger 1 “ is NOT connected to the elevator view. This means that any passenger can take any elevator. It can be a little bit misleading since they are aligned, but they are separate entities.

**General coding overview**

I will only talk briefly and mention important parts.   
We have 3 classes, mainwindow, elevatorcontrolsystem and elevator.   
Any communication that happens from the elevator to the mainwindow and vice versa **MUST** pass through the elevatorcontrolsystem (ecs class) class, which is the reason I have a lot of extra slots and signals.   
The 2 main communication methods are :   
MainWindow signal -> ECS slot -> ECS signal -> Elevator

Elevator signal -> ECS slot -> ECS signal -> MainWindow  
The ecs class contains a pointer to an array of elevators, and thus it can manage the elevator instances directly.

The mainwindow only communicates with the ecs via signals and slots through the main method ( in main.cpp).

Finally, the elevator class uses a lot of timers for doors, so it might get a bit confusing to follow the coding logic. As an overall explanation, after a timer expires, a function called “onXtimerTimeout” gets called and continues the logic.

**Sequence Diagrams**

There are 7 sequence diagrams in total. 2 Success diagrams, and 5 safety feature diagrams. Each success diagram can be broken down into each passenger/elevator combination(and thus 3 individual pictures), effectively using all 3 passengers and elevators for the sequence diagrams. Below are the different scenarios encompassed by the success diagrams:

Success 1:  
Situation 1: Passenger 1 travels from floor 1 to floor 2.  
Situation 2: Passenger 2 travels from floor 2 to floor 3.  
Situation 3: Passenger 3 travels from floor 5 to floor 4.

All these 3 situations happen **simultaneously.**

Success 2:

Situation 1: Passenger 1 travels from floor 7 to floor 1.

Situation 2: Passenger 2 travels from floor 1 to floor 7.

Situation 3: Passenger 3 travels from floor 2 to floor 3.

All these 3 situations happen **simultaneously.**