USER MANUAL

Elevator System

Team 1
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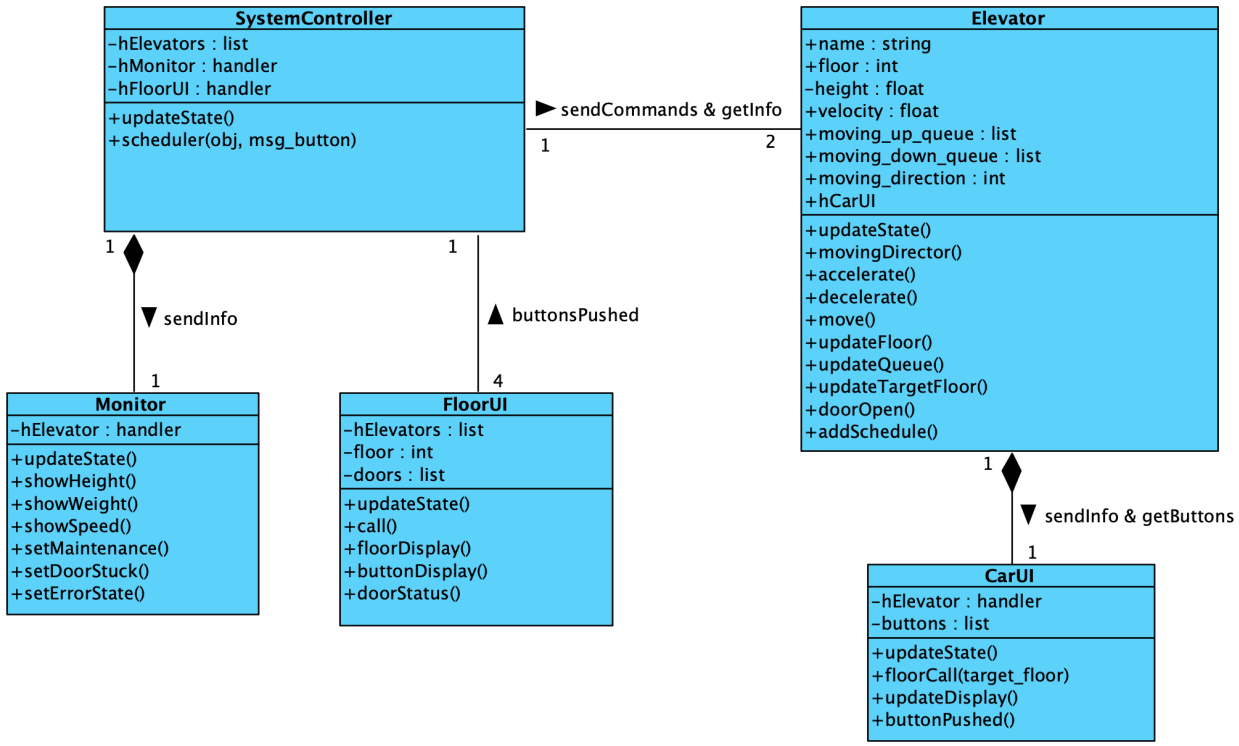
System Architecture

The elevator system is controlled by a *SystemController*, receiving button information from each *FloorUI* and *Elevator*, and sending information and commands to the *Monitor* and *Elevator*. Each Elevator has a CarUI, with which users can observe the elevator status and select floors to go. The architecture of the elevator system is shown below.



How to Run

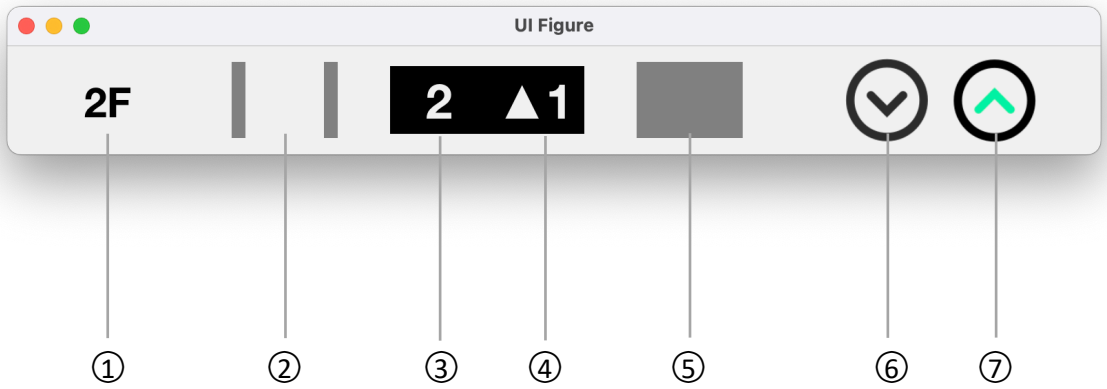
Run 'SystemController.m'.

User Manual

S1: FloorUI

FloorUI is the user interface placed in each floor, enabling passengers call elevators to come.

Since 4 there are 4 floors in the building, 4 UI Figures will be shown. Here we only select one of them.



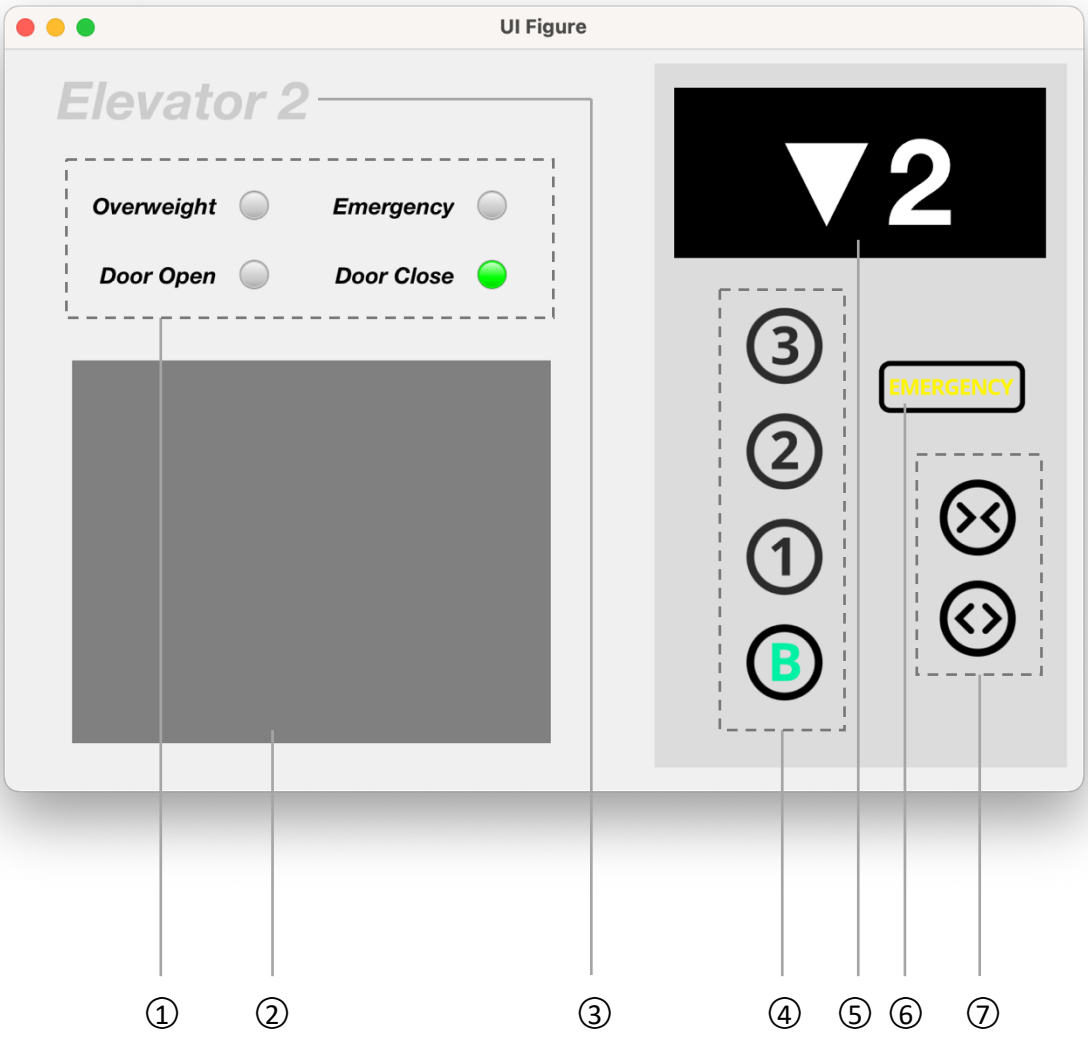
FloorUI Components

- ① **Floor Sign**. The floor number (BF/1F/2F/3F) is shown here.
- ② **Door #1**. The status of elevator #1's door is shown here. 3 status is designed:
    1. Open: the door is opened as it slides to two sides.
    2. Opening/Closing: the door is moving to two sides or to the center.
    3. Close: the door is closed as it slides to the center.
- ③ **Floor & Direction Display #1**. The real-time status of the elevator #1 can be seen here, including the moving direction and the floor it arrives at. If the elevator is still, the moving direction will not be shown.
- ④ **Floor & Direction Display #2**. The same as ③ Floor & Direction Display #1.
- ⑤ **Door #2**. The same as ② Door #1.
- ⑥ **Down Button**. User can call an elevator to go downward after pressing the button. As the button was pressed, the backlight of the button is turn on (the color turns into green). After the called elevator stopping and the door opening, the backlight is turn off (the color turns into black).
- ⑦ **Up Button**. User can call an elevator to go upward after pressing the button. As the button was pressed, the backlight of the button is turn on (the color turns into green). After the called elevator stopping and the door opening, the backlight is turn off (the color turns into black).

S2: CarUI

CarUI is the user interface inside the elevator's car, enabling passengers control the elevator to go to their destinations.

Since there are two elevators, 2 UI Figures will be shown. Here we only select one of them.



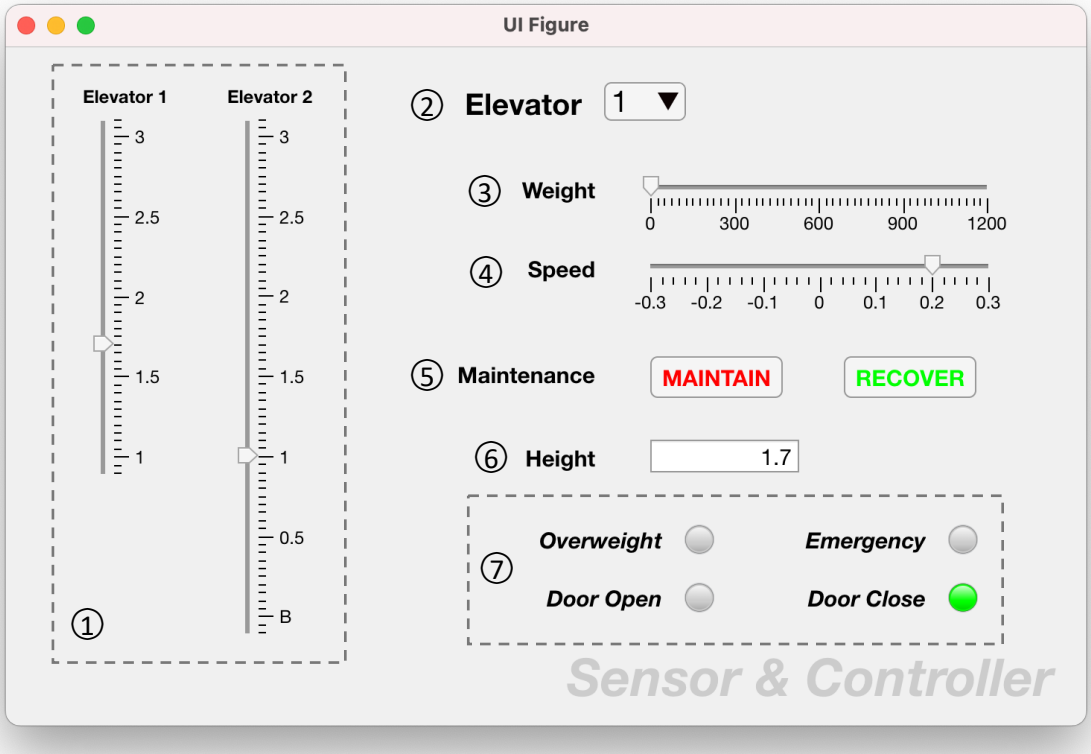
CarUI Components

- ① **Signal Lights**. 4 signal lights (Overweight/Emergency/Door Open/Door Close) are shown here.
    1. 'Overweight' will be lightened red when the elevator is overweight;
    2. 'Emergency' will be lightened red when EMERGENCY button is pressed;
    3. 'Door Open' will be lightened red when the door is opening;
    4. 'Door Open' will be lightened green when the door is open;
    5. 'Door Close' will be lightened red when the door is closing;
    6. 'Door Close' will be lightened green when the door is closed;

- ② **Door**. The status of elevator's door is shown here. 3 status is designed:
    1. Open: the door is opened as it slides to two sides.
    2. Opening/Closing: the door is moving to two sides or to the center.
    3. Close: the door is closed as it slides to the center.
- ③ **Elevator Sign**. The elevator number (Elevator 1/Elevator 2) is shown here.
- ④ **Floor Selection Buttons**. Users can select which floor to go by pressing the buttons. As the button was pressed, the backlight of the button is turn on (the color turns into green). After the corresponding floor is arrived, the backlight is turn off (the color turns into black).
- ⑤ **Floor & Direction Display**. The real-time moving status of the elevator can be seen here, including the moving direction and the floor it arrives at. If the elevator is still, the moving direction will not be shown.
- ⑥ **Emergency Button**. Users can make emergency call by pressing the button. As the button was pressed, the backlight of the button is turn on (the color turns into red). After the called elevator stopping and the door opening, the backlight is turn off (the color turns into yellow). The elevator will not move until the emergency status is canceled.
- ⑦ **Door Control Buttons**. Users can control the door open/close by pressing the buttons. As the button was pressed, the backlight of the button is turn on (the color turns into green). After the called elevator stopping and the door opening, the backlight is turn off (the color turns into black). If the 'door close' button is pressed, the door should be set to close or closing status; If the 'door open' button is pressed, the door should be set to open or opening status; If the elevator is moving, both two buttons should be invalid.

S3: Monitor

Monitor is a user interface offered to the maintenance staffs. Through this panel, all the status information of two elevators can be observed, and staffs can set the Maintenance mode.



Monitor Components

- ① **Elevator Positions**. Two slide bars show the real-time position of the two elevators.
- ② **Elevator Switch**. Users can switch between Elevator #1 and #2 in the menu.
- ③ **Elevator Weight**. The weight of elevator is shown here. For our software simulation condition, the Weight slide bar value is set by the user. If weight > 1000, the elevator will not move.
- ④ **Elevator Speed**. The speed of elevator is shown here. When the elevator goes up, the speed is positive; when the elevator goes down, the speed is negative.
- ⑤ **Maintenance Switch**. The staff can set up Maintenance mode by pressing the MAINTAIN button and finish the Maintenance mode by pressing RECOVER button. When the MAINTAIN button is pushed, its background color will turns into red.
- ⑥ **Elevator Height**. The real-time height of the elevator can be seen here.
- ⑦ **Signal Lights**. 4 signal lights (Overweight/Emergency/Door Open/Door Close) are shown here.

1. ‘Overweight’ will be lightened red when the elevator is overweight;
2. ‘Emergency’ will be lightened red when EMERGENCY button is pressed;
3. ‘Door Open’ will be lightened red when the door is opening;
4. ‘Door Open’ will be lightened green when the door is open;
5. ‘Door Close’ will be lightened red when the door is closing;
6. ‘Door Close’ will be lightened green when the door is closed;