

Designing Process

Problem Statement:

- elevator system to be installed with m floors.
- consider all the parts of the elevator : door, floor, lights, walls, motors, brakes, etc.
- figure the logic required to move the elevator
- clarify functionality of the elevator and its buttons
- come up with scheduling algorithms that satisfies given criteria

Initial Elevator Specifics:

- Set of buttons: 1 button for each floor(m floors)
must illuminate when pressed
illumination canceled after floor is visited
- floor(general): 2 buttons
(1 for up, 1 for down)
- floor(non-general):
 - If top floor, 1 button for going down
 - Else if bottom floor, 1 button for going up
- button processing:
buttons are canceled when elevator visits floor and is either traveling in direction requested

or visiting floor with no requests

If both floor request buttons are on, only 1 should be canceled

- elevator processing:

If no requests → remain at current dest and await requests

Requests for the elevators from must be fulfilled and given equal priority

Requests from within the elevator are to be fulfilled sequentially in the direction of travel

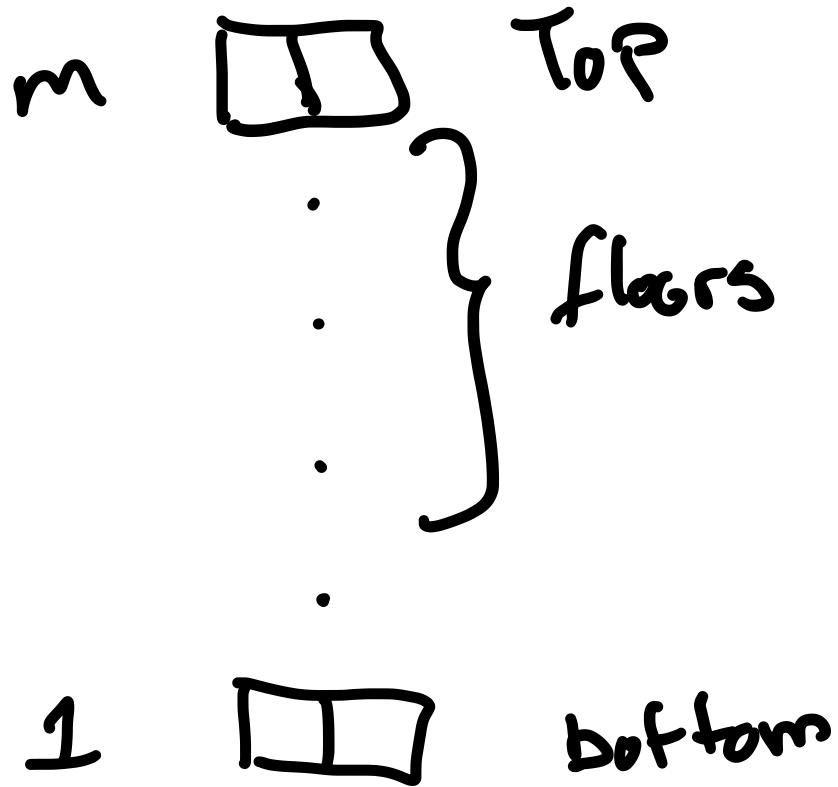
additional:

- each floor needs a signal light that turns on when elevator is on that floor and gives direction of where the elevator is going
- inside the elevator, a single display is present to indicate the current floor on which the elevator is located

△ For this design, there will be 1 elevator per floor

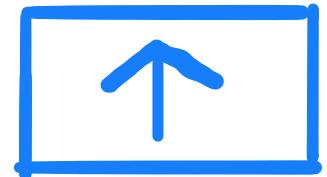
Elevator Setup

Floor plan



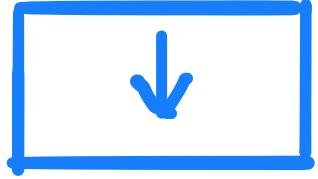
Bottom Floor:

signal light display
(only 1 light) →
for going up



One button that
can illuminate (for up)

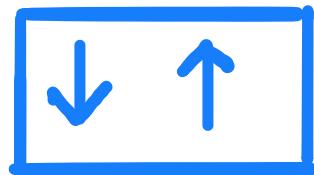
TOP FLOOR:
signal light display
(only 1 light →
for going down)



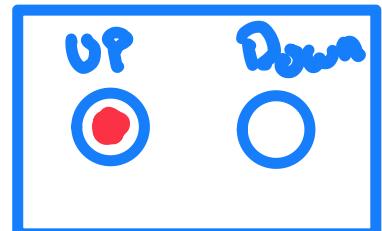
One button that
can illuminate (for down)

General Floor:

signal light display
(Two arrows for
up and down) →



Two buttons that →
can illuminate

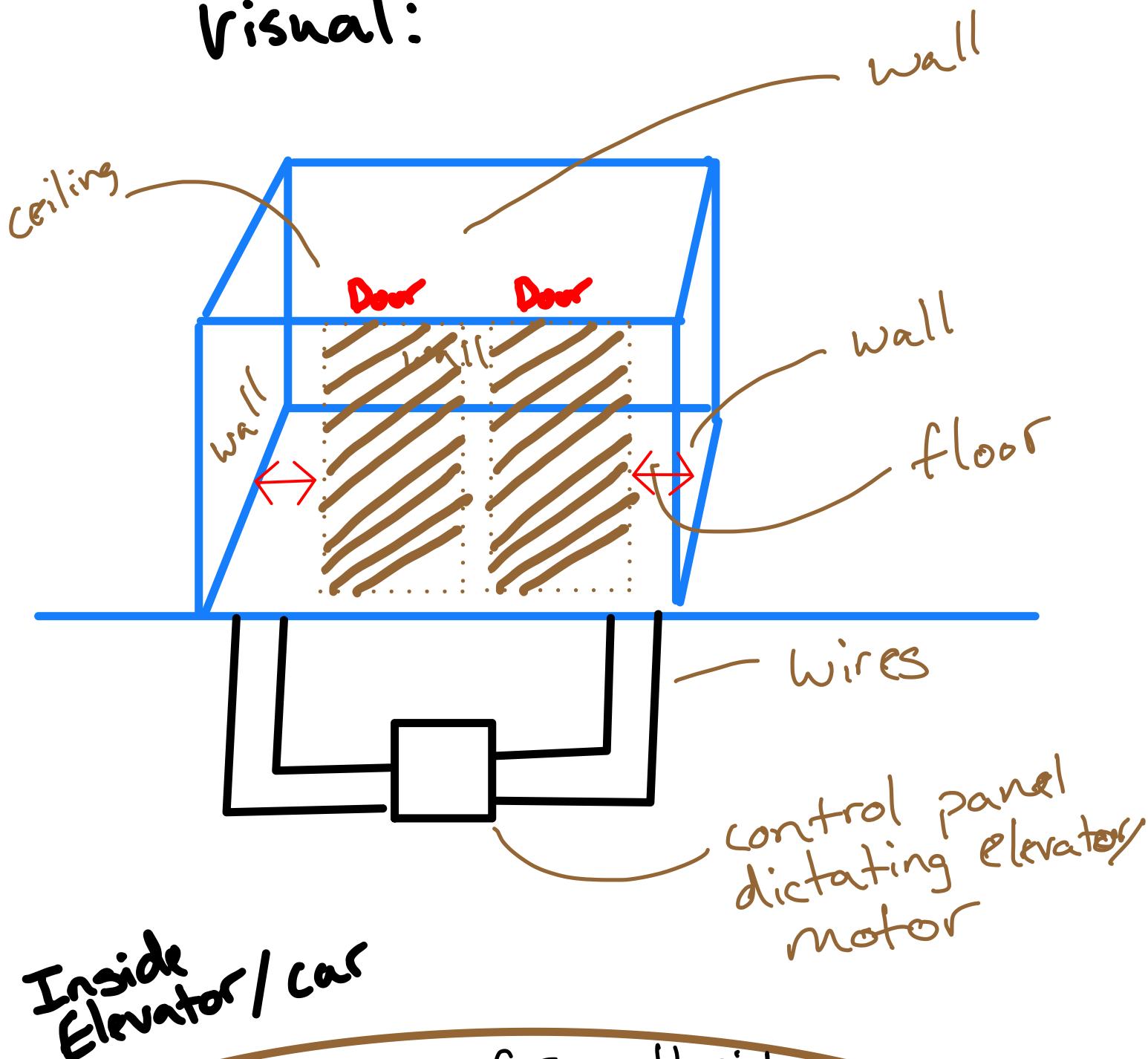


light on

Elevator Visual Design:

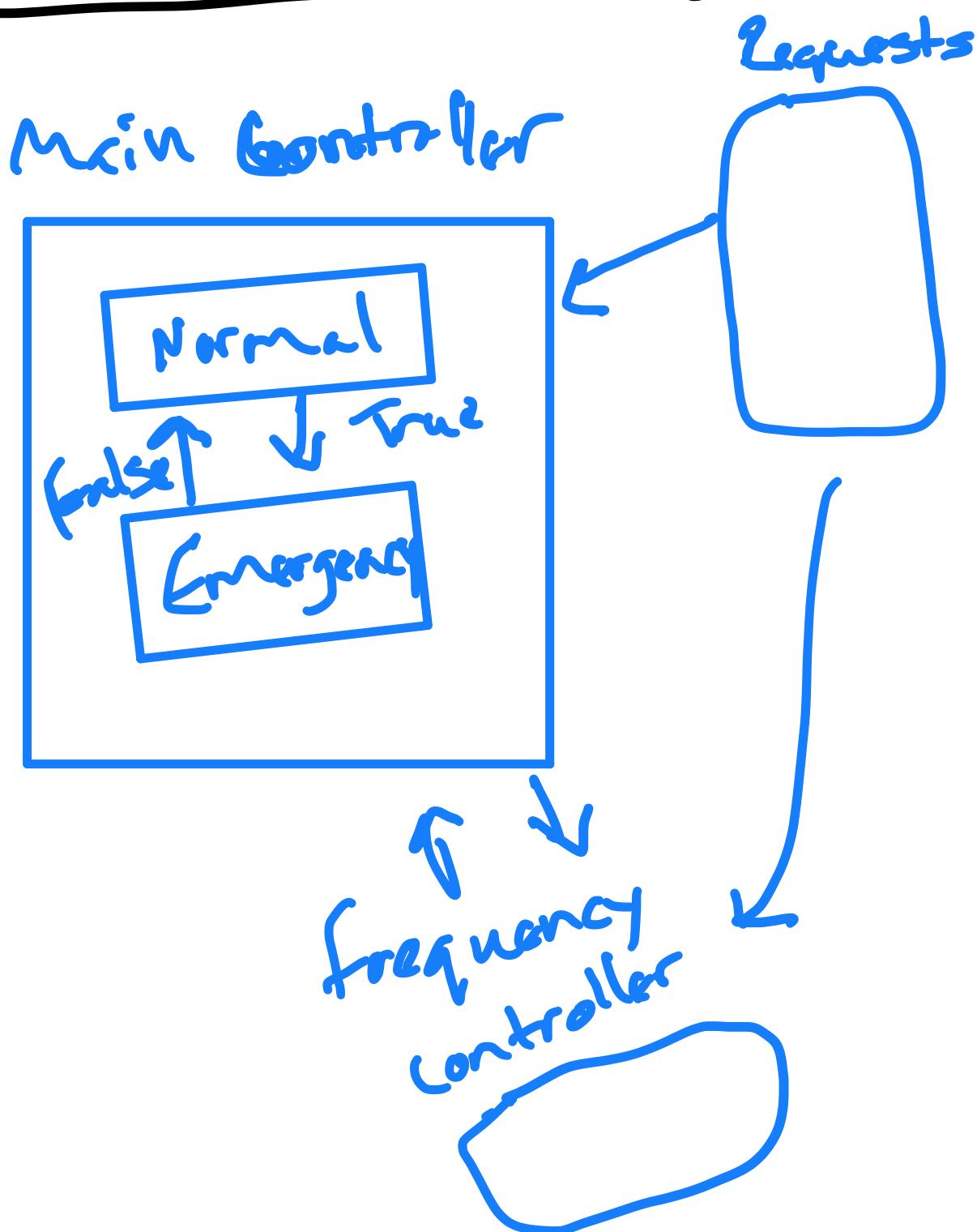
- Each floor has 1 elevator

visual:



- 3 railings for wall sides
- Panel that holds all buttons
- Display light above doors
- lights on ceiling

Elevator Model Diagram



States → Idle, UP, down, door
open