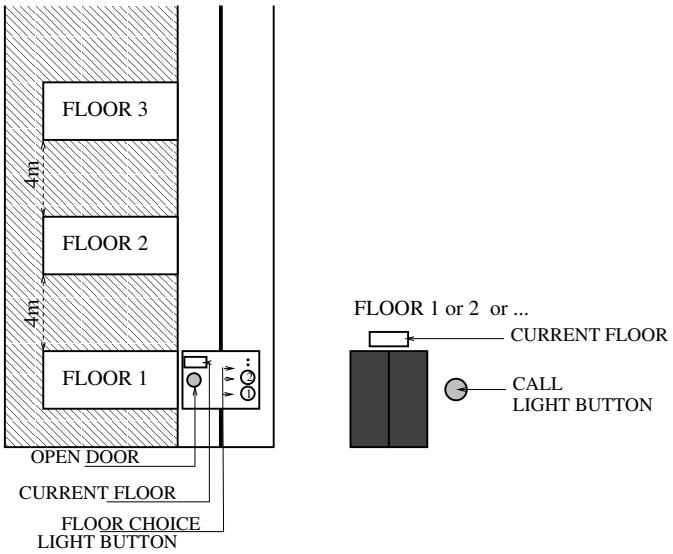
Critical Application Development
PROJECT
2016-2017

1. **Modeling:** Model using Esterel language the behavior of an elevator,
2. **Execution:** Write a C code to simulate the execution of the elevator,
3. **Optional**: A graphical user interface to simulate the execution or the elevator.



The Elevator Description

- The elevator is situated in a building of 4 floors,
- The speed of the elevator is 1 meter /4 seconds,
- The opening of the doors is done in 2 seconds,
- The closing of the doors is done in 2 seconds,
- The doors of the elevator are closed when the elevator is between two floors,
- The doors of the elevator are opened automatically when the cabin elevator arrives at a floor, the doors remains open 3 seconds then are closed automatically.
- The current floor (floor 1, floor 2 ...) is displayed at each floor in the cabin and out of the cabin,
- The user can use the following buttons:
    1. 4 buttons (BUTTON1, BUTTON2, ...) inside the cabin to choose the floor. If the user press one of these buttons, this button lights and remains on until the elevator arrives to the chosen floor,

2. 1 button "OPEN DOOR" inside the cabin. This button is used to open the doors if they are closed,
3. 1 button "CALL" at each floor. This button is pressed to call the elevator. When the elevator is moving this button lights, and it does not light when the elevator is stationary. Several button "CALL" can be pressed at the same time in different floors.

- If the elevator is moving to a certain floor, it stops if it arrives to the appropriate floor or if a user has pressed a button of a floor situated in its direction.

The Esterel Program

Remark : to compile several Esterel files:

```
esterel file1.strl file2.strl -B file
```

You can decompose (but you are not obliged to follow this decomposition) the Esterel program into 4 modules:

1. Module FLOOR: Manages the behavior of a floor button. Each floor contains a sensor which detects the position of the cabin,
2. Module CABIN: Manages the behavior of buttons in the cabin,
3. Module SCHEDULER: Manages the movement of the cabin and the opening and closing of the doors,
4. Module ELEVATOR: The principal module.