# Elevator Control System and Simulator

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Carleton University

Department of Systems and Computer Engineering

SYSC 3303A Real-Time Concurrent Systems Winter 2023

Iteration 4 – Adding Error Detection & Correction.

@version 1.0, 02/04/23

@version 2.0, 02/27/23

@version 3.0, 03/11/23

@version 4.0, 03/25/23

@version 5.0, 04/10/23

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## Group 7 Members:

\* Ismail Zakaria

\* Liu Patrick

\* Nguyen Trong

\* Elmokdad Hussein

\* Ngo Huu Gia Bao

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The distribution of work was coordinated using Atlassian Jira Software which can be viewed using this link: [ECSS](https://sysc3303-project-group-7.atlassian.net/jira/software/c/projects/ECSS/issues) for quick reference – see APPENDIX A. Here below is a general summary:

Iteration 5:

* Trong:
  + Implemented GUI for a whole system
  + Fixing timing bug of the Parser
  + Timing diagram, documentation
* Bobby:
  + Improved algorithm for Scheduler
  + UML class diagram, documentation
* Hussein:
  + Improved Floor Subsystem
  + Fixing bugs of the floor subsystem
* Patrick:
  + Updated the Parser functionality by adding new column representing the error
  + Sequence diagram
* Zak:
  + Improved, added unit tests and fixed bug for Elevator subsystem.

Iteration 4:

* Trong:
  + Implemented encode & decode interfaces for data transfer objects
  + Implemented floor request dispatching at a relative offset time
* Bobby:
  + Refactored Scheduler subsystem, implemented event-driven state machine
  + Developed optimal elevator job assignment algorithm
  + Unit testing of the elevator, scheduler, & floor subsystems
* Hussein:
  + Implement multiple floors and elevators each running on separate threads
  + Updated messaging interface to use UDP instead of RPC
* Patrick:
  + Refactored Scheduler subsystem, implemented event-driven state machine
  + Developed network communication interfaces for the Scheduler subsystem
  + Validated elevator car shaft traversal algorithm
  + Class Diagrams for subsystems
* Zak:
  + Refactored Elevator subsystem, designed & implemented event-driven state machine
  + Developed elevator car shaft traversal algorithm, added fault states and associated elevator behaviours

Iteration 3:

* Trong:
  + Implement Remote Procedure Calls using UDP
  + Implement distributed system processes
  + Documentation: Update class UML, sequence UML, Work Distribution Document, README
* Bobby:
  + Improve elevator traversal to each floor sequentially
  + Create UI integration with Static Model of Domain (buttons, sensors…)
* Hussein:
  + Implement multiple floors and elevators each running on separate threads
* Patrick:
  + Improved parser by sorting elevator request prior to sending to Floor
* Zak:
  + Elevator subsystem refactoring & design

Iteration 2:

* Trong: SchedulerState class, FloorState class, SchedulerStateTest, FloorStateTest class, and javadocs
* Bobby: FloorState class, README, refactoring, documentation
* Hussein: UI improvements, refactoring
* Patrick: Update Elevator Location feature, UML and State diagrams
* Zak: Proposing ideas, revisions

Iteration 1:

* Trong: Elevator class, README, UML class & sequence, refactoring
* Bobby: Scheduler class, README, UI logger
* Hussein: Floor class, FloorTest, ElevatorTest
* Patrick: Parser class, ElevatorRequest class, ParserTest, Exception class
* Zak: Integration of system and system testing, revisions

Everyone took part in major code reviews and approved pull requests.

**APPENDIX A**

Iteration 5

Graphical user interface, application, Teams

Description automatically generated

Iteration 4

Graphical user interface, application

Description automatically generated

Iteration 3

Graphical user interface, application

Description automatically generated

Graphical user interface, application, Teams

Description automatically generated

Iteration 2

Graphical user interface, application

Description automatically generated

Graphical user interface

Description automatically generated with medium confidence

Iteration 1

Graphical user interface, application

Description automatically generated

Graphical user interface, application

Description automatically generated

A picture containing chat or text message

Description automatically generated