CMPN-445

Credit Hours System
GENN002 English

Cairo University
Faculty of Engineering

Project Report
"Elevator"

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Project Idea

(Inspired from : https://www.youtube.com/watch?v=V2Uwux0C2E0*)*
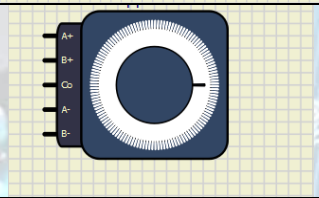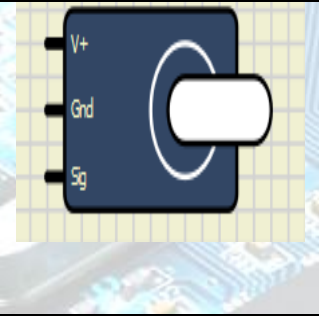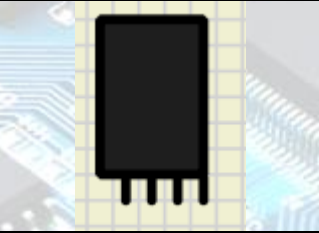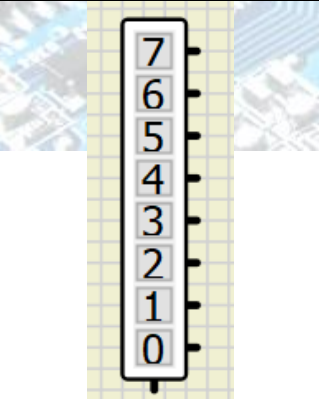
Functionality
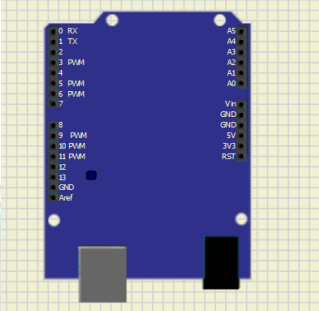
- 8 floor scalable elevator

- The elevator box is driven by a stepper motor

- Each floor's door is modelled by a servo motor

- A 7 segment BCD at each floor showing which

  floor is the elevator at

- An internal keypad to choose a floor to go to

- External push buttons at each floor to order a

  trip down/up stairs

Features and assumptions

- Floor number is global between keypad and push buttons.
- The elevator can do as much stops for calls in the SAME direction.
- If a button is pressed and the elevator is in the request's floor, the floor's door opens and closes normally.
- If a door is open and someone tries calling it again, this will be ignored
- Assume no 2 elevator calls can be made in the SAME moment.
- Assume if the elevator is gowing up and a down-trip is called, the elevator will finish its trip upwards and then visit the down orders

➢ Simulation tool used : *SimulIDE*

Components

|	
	x1 arduino uno: main microcontroller
	x1 stepper motor: • Driving the elevator box. • Can rotate in both directions
	x8 servo motors: • Modelling doors, a door at each floor. • Opens with 180degree angle and waits 2 seconds before closing
	x8 7 segment BCDs: All 7 segments show the number of floor the elevator is currently at
	x1 internal keypad: To pick a floor to go to from inside the elevator

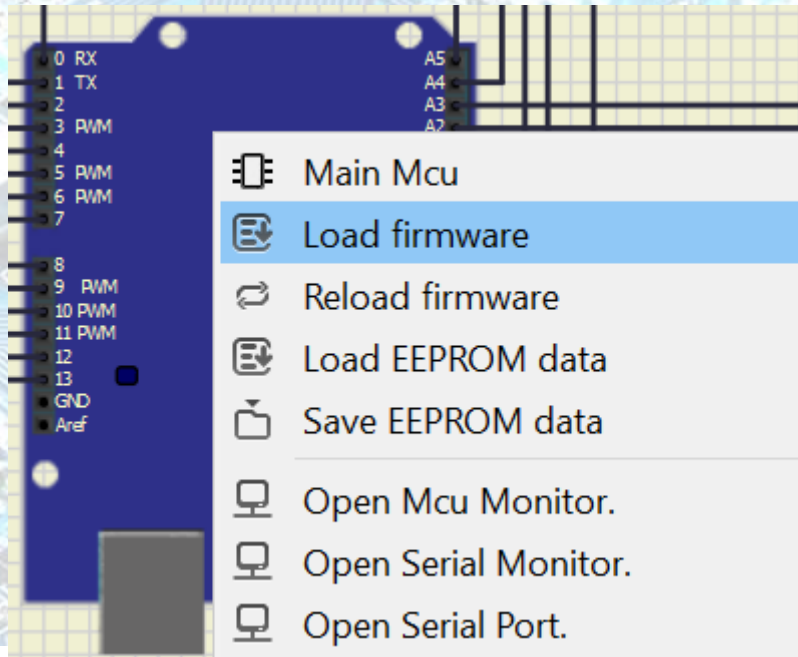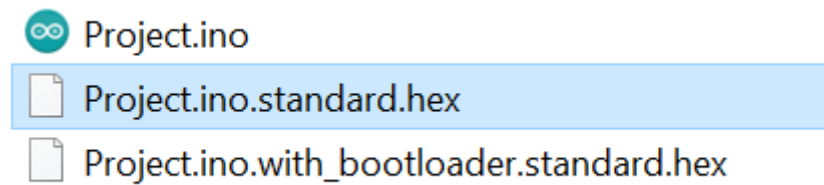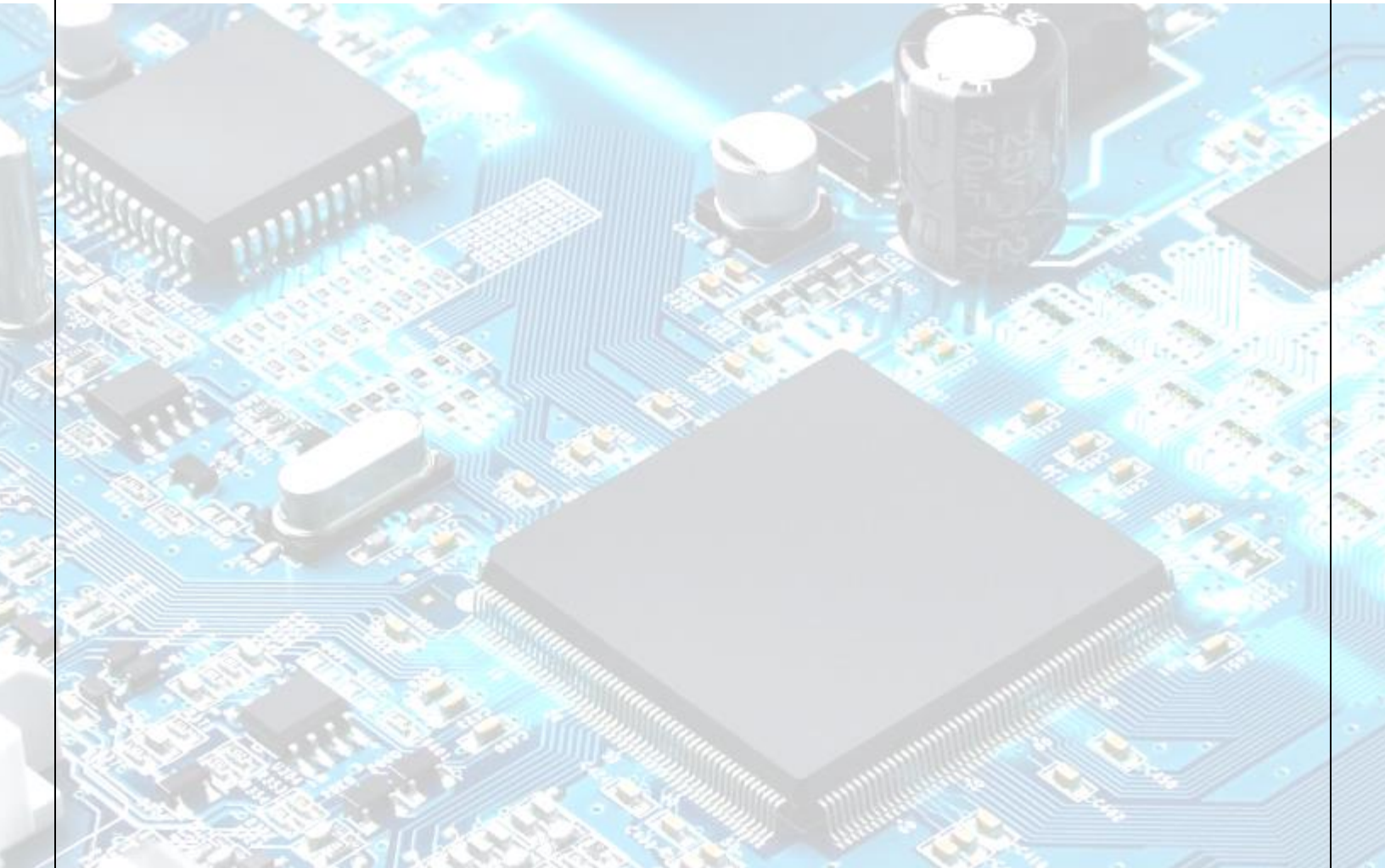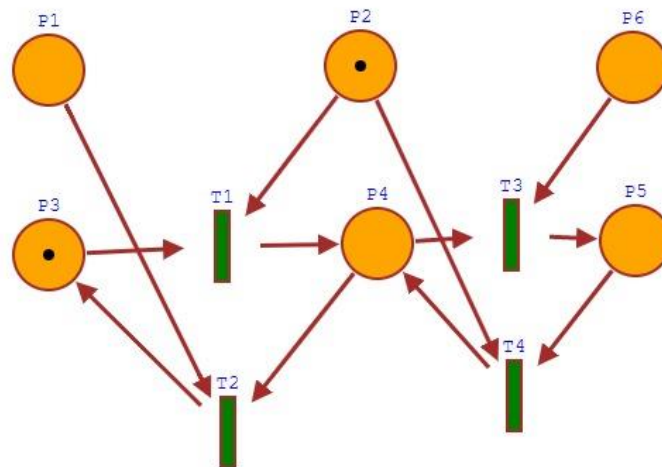|	x14 push buttons:
	1 at ground floor (goes up only) 1 at last floor (goes down only) 2 at each floor between 1st and 7th (can go up and down)
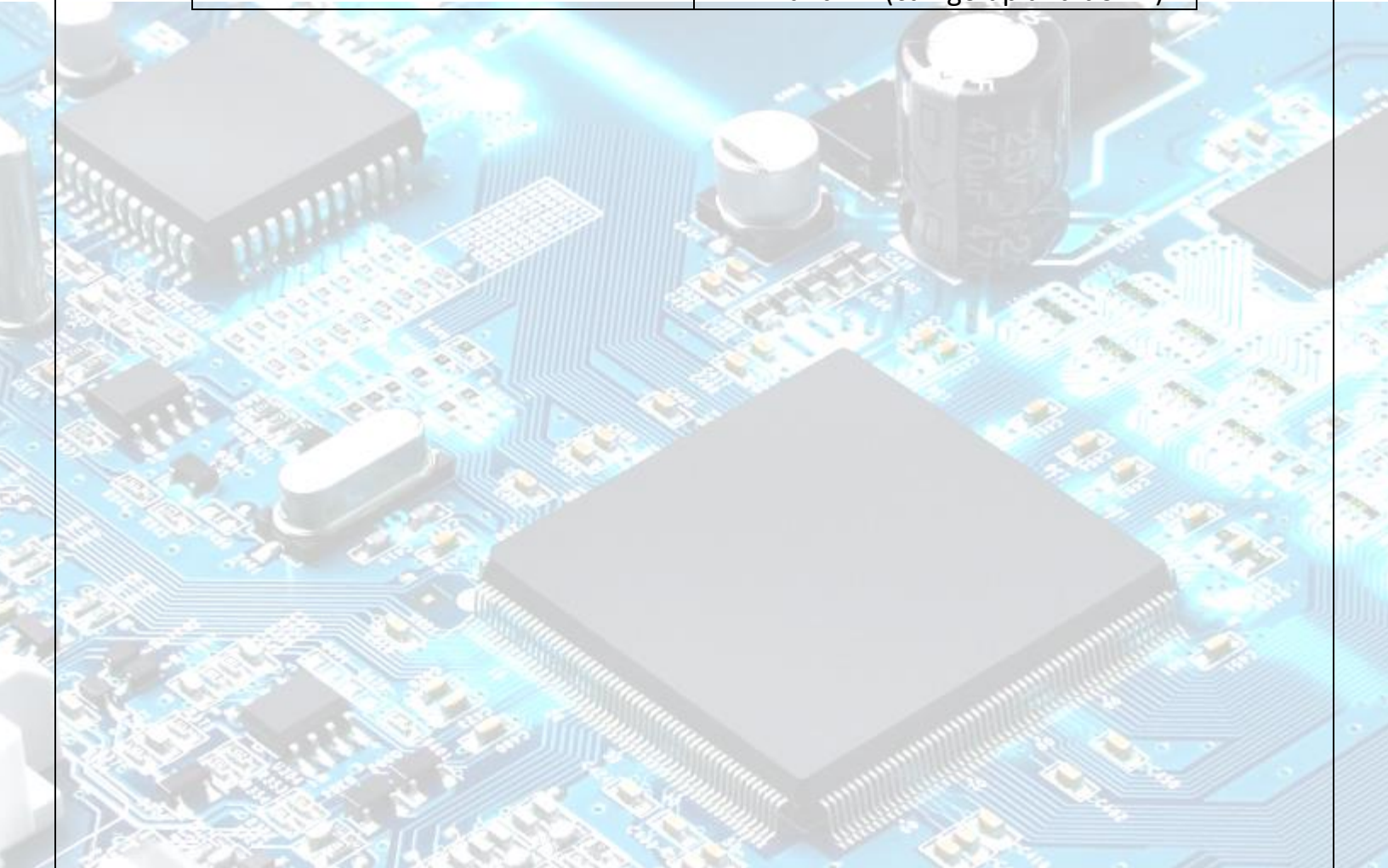
How to run

Step 1:
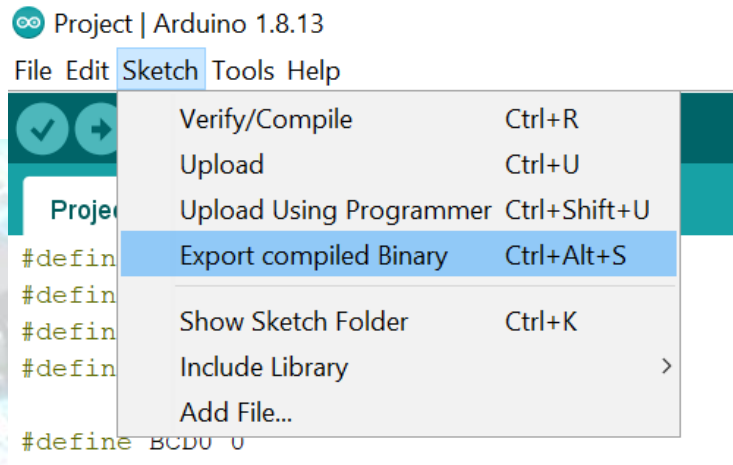
Step 2:

Step 3:

Step 4:

Turn on
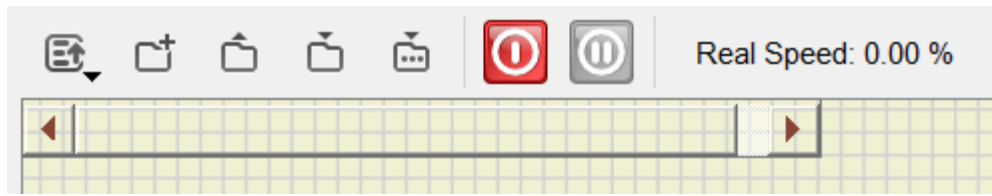
Petri Network

Reachability tree: