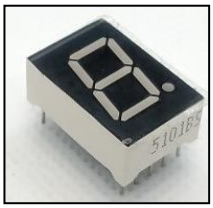
Computer Engineering – TEJ3M – ISU – Elevator project

Name: _____

Background: This project is the summative and it counts towards 30% of marks in this course. Objective of this project is to model an elevator for a mid-rise using Arduino. Two push-buttons control the up and down direction of the elevator and a 7-segment display shows the floor number where the elevator is. A keypad is used to enter a floor number from 1 to 9. This is an individual project.

Materials:

- Handouts, Arduino Uno, 4x3 keypad (1), 7-segment common-anode display (1), 330Ω resistors (9), push buttons (2), LEDs (green, red), 10KΩ resistors (2), tools, breadboard and wires. Any optional material that you may need.



Procedure:

- Construct an elevator simulator with necessary hardware and software to simulate a real-life elevator. Your elevator should have a minimum of the following:
  - 2 buttons: one to go up and to go down by one floor
  - always starts at the first floor
  - 7-segment display: to output the floor you've arrived at
  - 2 LEDs: indicate direction of elevator – up (red) and down (green)
- Keep in mind that these above expectations are what you must accomplish at a minimum. Also, number of pins or Arduino!!!
- Modify the elevator model any way you see fit, so long as it models a real-life elevator.
- Some tips for bonus marks:
  - Add more features to elevator
  - Write efficient code
  - Adding proper documentation is essential for a solid mark in communication (comments describing what hardware does, proper spacing, indenting, etc.)

Documents:

1. Schematic diagram of your project. You are free to use Eagle (free on all platforms) to create a schematic. Or a neatly drawn diagram (no free-hand sketches). This should explain the pin numbers on Arduino and pin numbers on keypad, display and switches etc.
2. It is a good idea to use Fritzing software to layout your components.
3. Project report that explains the working of your elevator. Use the attached template. Include a photo of the breadboard with all components wired up. Copy and paste the Arduino code in the report ***as a text.*** Simple copy and paste will add formatting and make your code unreadable.
4. List of steps to make the project in bullet points.
5. Report should have a title page with your name and date of submission. Include a footer with your name and page numbers, like this handout.

Marking criterion:

1. Hardware: /10
2. Software: /10
3. Report: /10

Due Date:

Project Report -Elevator

Your Name

Date submitted:

Project description: *Explain the project in YOUR OWN WORDS.* Highlight if your project has added features.

List of activities:

1.
2.
3.

Tools and components used:

1.
2.
3.

Schematic of your project.

Picture of your project. Stick a paper tape on the breadboard and write your name on it. Then take a picture.

Copy and paste your code AS PLAIN TEXT below: