Elevator System Project

Objective:

Given the tools obtained throughout the course, your team will design and construct an elevator system. Using National Instruments hardware and LabVIEW software, your team will develop an algorithm to control your elevator. At the end of the quarter, all elevator designs will be presented at a showcase event where teams will have the opportunity to present their design and algorithm to industry representatives and fellow engineering students.

Grades:

Team assignments: 20%
Milestones: 40%
Presentation: 20%
Showcase: 10%
Peer evaluation: 10%

Project Assignments and Due Dates:

Assignment	Due Date
Team assignment #1	04/22/18
Team assignment #2	04/29/18
Team assignment #3	05/06/18
Milestone #1: elevator structure (frame and cart)	05/07/18
Milestone #2: prototype demonstration (working moving mechanism)	05/21/18
Milestone #3: final system demonstration (all modules fully integrated)	05/30/18
Team presentation	06/04/18
Project showcase	06/06/18

Design Considerations:

- Minimum of **3** stopping positions (e.g. 3 floors)
- Smallest configuration of the system must fit within a **10"x10"x22"** space (unless permitted by instructor)
- Use at least **7** modules

Available materials:

- Plywood (12" x 24", ⅛" or ¼" thick) – Limited to 6 total sheets per team
- Acrylic (12" x 24", ⅛" or ¼" thick) - ONLY available for final product
- Threaded rods (22" length, 3/8" diameter)
- Smooth rods (22" length, ¼" diameter)
- Pulleys (1" diameter)
- Twine/Nylon string
- 150g of 3D printed material

Options for Modules:

- LCD Screen
- DC Motor with Encoder
- Stepper Motor
- Micro Servos
- IR Distance Sensor
- Buttons
- LEDs
- Seven Segment Display
- Piezo Buzzer
- Limit Switch