The idea our team came up with is to create an elevator, with let’s say floor. We could use an adder to add up which floor we are at. We could have a button inside the elevator which you press to decide to which floor you go to. Whichever floor is clicked we go to that floor and lets say we have a **counter** (**8 SEGMENT DISPLAY)** in there (also just to incorperate what we've learned) that stays at the floor for lets say 5 seconds bef ore moving on.

Full adder for adding up which floor, a delayed counter or clock to time how long it stays at each floor. What we want to do is use the board to input which floor to go to and also on the 8 segment maybe count down from 5 to 0, for every floor we stay on (stay on floor for 5 secs)

OPTIONAL: Elevator music, using MUX.

<https://www.youtube.com/watch?v=wFwTJ9aAbgM>

<https://www.youtube.com/watch?v=gB6wGilsgbI>

**To-Do:**

* Email Brian about equipment, and whether we can pick it up on Monday and start to play around with it.
  + Motor
  + Lego Mindstorms
* Read up on FSM (Lab)
* Read up on Lego + Assembly

Provide a 1 paragraph description of your project:

What do you plan to have completed by the end of the first lab session?:

* 4 floor structure (building & assembling)
* **Simple counter** counting from 5 to 0, on each floor it goes to.
* **2 HEX SEG Displays** - HEX Display for the 5 to 0, as well as the floor number we are on.
* **Relate it to Finite State Machine**
  + Putting input onto the hex
* physically using motor (Stepper Motor) to move it up and down

What do you plan to have completed by the end of the second lab session?:

* Middleware Connection – operating using Verilog/DE2/Mindstorm.
* Hardcoding (# of secs / # of motor loops)
  + Sensor for each level (**2nd Option**)– to detect where we are at (We could also use a simple 2 second delay, as it will be enough to go to level to level).

What do you plan to have completed by the end of the third lab session?:

* **MUX** for saying the number as it reaches each floor (**Option)**
* **Counter** as it goes from floor to floor, pauses on floor we are at.
  + Replacing the simple floor display we made earlier.

What is your backup plan if things don’t work out as planned?

* Ping pong

What hardware will you need beyond the DE2 board (be sure to e-mail Brian if it’s anything beyond the basics to make sure there’s enough to go around)

* Stepper Motor
* LEGO pieces (Construction of Elevator)
* Sensors

Motivations

-----------

How does this project relate to the material covered in CSCB58?:

MUX, Counter, 2 HEX SEGEMENT DISPLAY, VERILOG (?), DE2 Use

Why is this project interesting/cool (for CSCB58 students, and for non CSCB58 students?):

This project interestingly utilizes many of the important concepts we’ve learned in this course. This brings to theory into practical use, which shows us how what we’ve learned is applicable in daily use.

We feel that theory can sometimes overwhelm students and turning theory into practical tasks can simplify complex concepts.

Why did you personally choose this project?:

We wanted to challenge ourselves with creating a unique project which would both utilize our theorical knowledge from CSCB58 as well as our practical knowledge from working on the labs.