



Week 7 Design Goal: Lighting System

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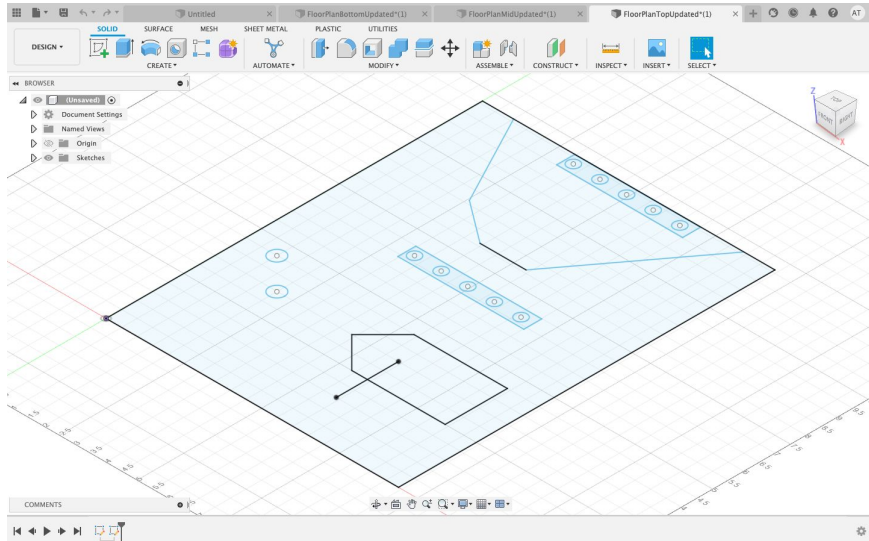
Our Lighting System



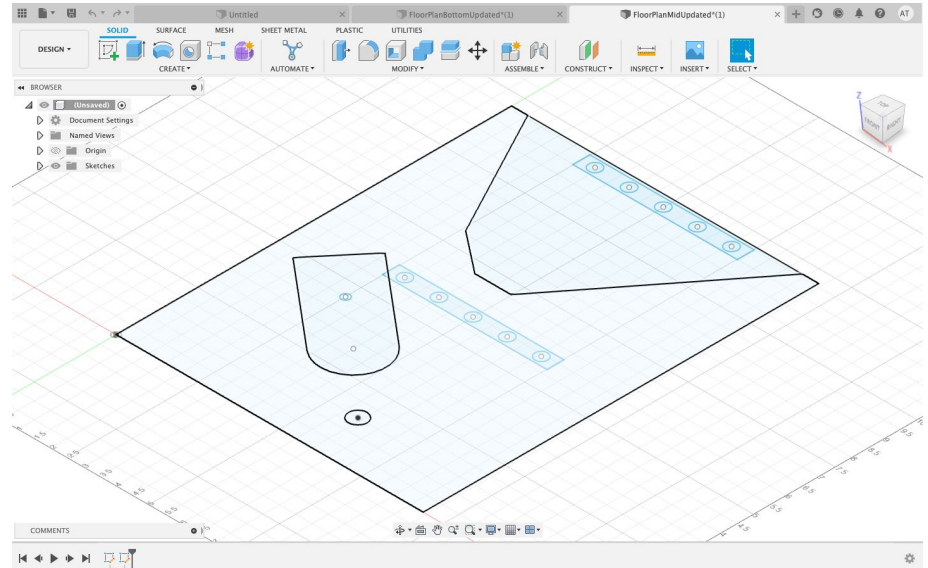
- For our lighting system, we will use an Elegoo Uno R3 (equivalent to the Arduino Uno) to program 6 NeoPixel strips.
- We will have one strip in each of the three levels of the environment, stuck on the top of each floor.
- We will also be making our iceberg out of a translucent material and be able to place one NeoPixel strip in each of the three iceberg pieces to give it a magical glow.

Updated Floor Plans

Top Level:

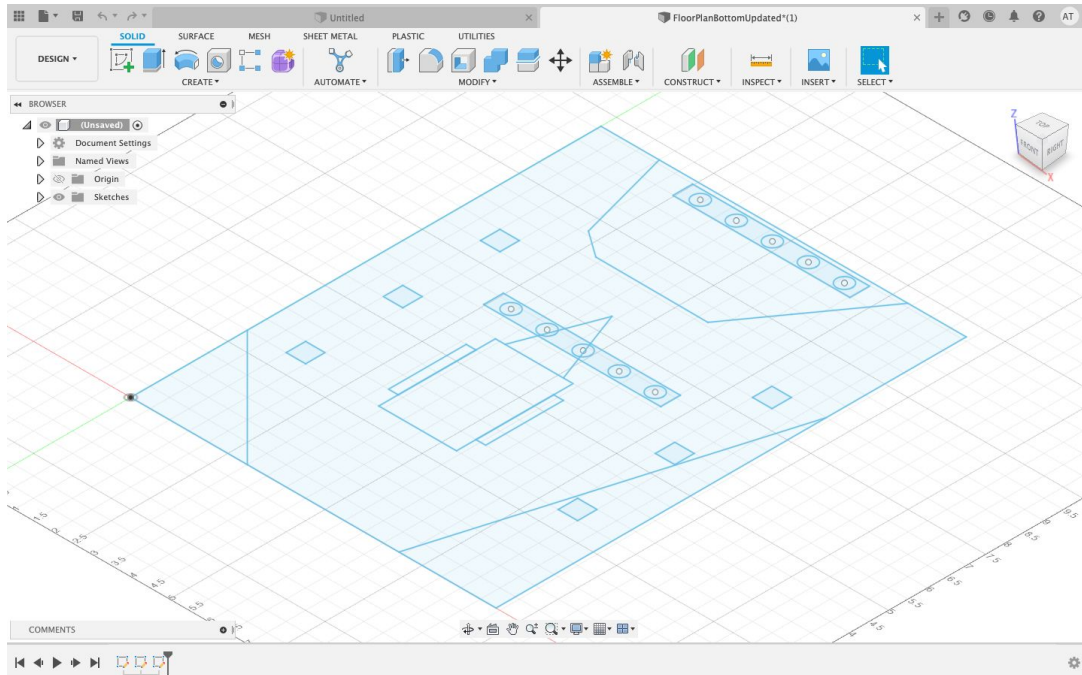


Middle Level:



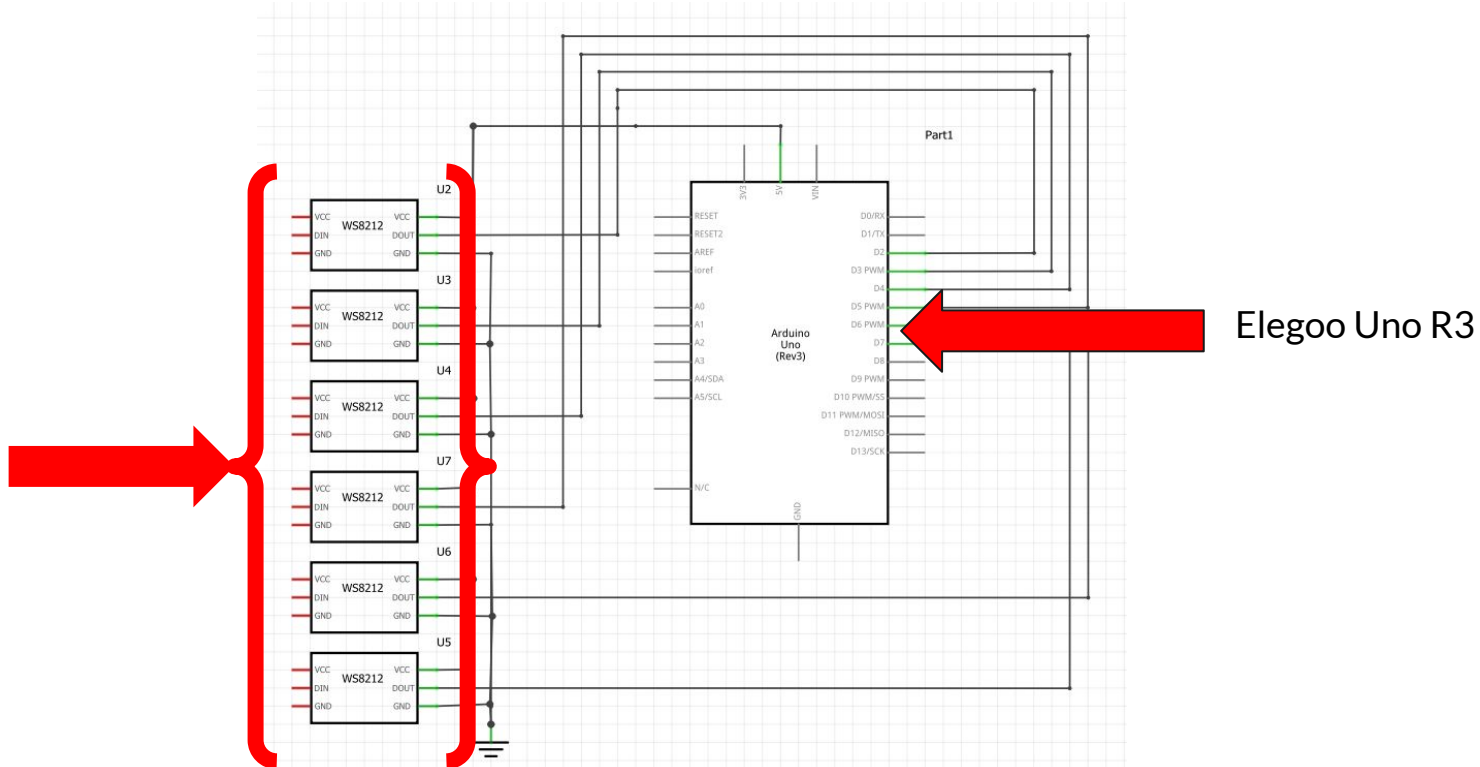
Updated Floor Plans Continued

Bottom Level:



Schematic Drawing:

6 NeoPixel Strips



Proof of Concept



- We first needed to build a schematic to see how all the components connected
- We then created custom Arduino code for each level
 - Sky -> white
 - Water -> moving from light blue to dark blue
 - Cavern -> moving from light gold to dark gold
 - Iceberg -> blue purple gradient
- We will then cut and solder the appropriate sizing of NeoPixels
- Use the adhesive back of NeoPixels to stick in the correct locations

Arduino Code

Our Arduino code is available here
and will be updated as time goes on:

<https://gist.github.com/jagreer7/dcc8fd5f2f10288de46335a20d151e26>

```
#include <Adafruit_NeoPixel.h>
#ifdef __AVR__
#include <avr/power.h>
#endif

const int neoPixel2 = 2; //Upper Iceberg
Adafruit_NeoPixel strip2 = Adafruit_NeoPixel(5, neoPixel2, NEO_GRB + NEO_KHZ800);
const int neoPixel3 = 3; //Mid Iceberg
Adafruit_NeoPixel strip3 = Adafruit_NeoPixel(5, neoPixel3, NEO_GRB + NEO_KHZ800);
const int neoPixel4 = 4; //Lower Iceberg
Adafruit_NeoPixel strip4 = Adafruit_NeoPixel(5, neoPixel4, NEO_GRB + NEO_KHZ800);
const int neoPixel5 = 5; //Sky
Adafruit_NeoPixel strip5 = Adafruit_NeoPixel(5, neoPixel5, NEO_GRB + NEO_KHZ800);
const int neoPixel6 = 6; //Water
Adafruit_NeoPixel strip6 = Adafruit_NeoPixel(5, neoPixel6, NEO_GRB + NEO_KHZ800);
const int neoPixel7 = 7; //Cavern
Adafruit_NeoPixel strip7 = Adafruit_NeoPixel(5, neoPixel7, NEO_GRB + NEO_KHZ800);

void setup() {
  strip2.begin();
  strip2.show(); // Initialize all pixels to 'off'
  pinMode(neoPixel2, OUTPUT);
  strip3.begin();
  strip3.show(); // Initialize all pixels to 'off'
  pinMode(neoPixel3, OUTPUT);
  strip4.begin();
  strip4.show(); // Initialize all pixels to 'off'
  pinMode(neoPixel4, OUTPUT);
  strip5.begin();
  strip5.show(); // Initialize all pixels to 'off'
  pinMode(neoPixel5, OUTPUT);
  strip6.begin();
  strip6.show(); // Initialize all pixels to 'off'
  pinMode(neoPixel6, OUTPUT);
}
```

Design Goals Going Forward



- Finish iceberg model with either cotton balls or soft styrofoam by the end of this week.
- Finish lighting system (full fabrication) by the end of this week and place into locker.
- Start modeling objects for our first and second level that will be placed into our world.