

# Modular Paper City

DIGITAL FABRICATION

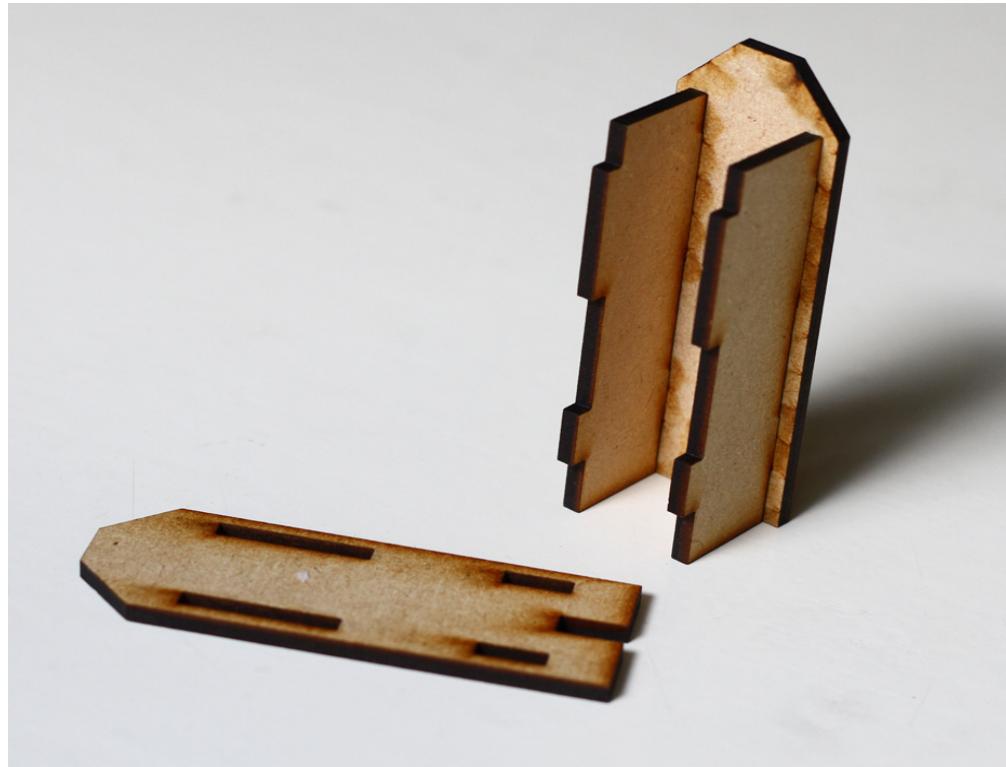
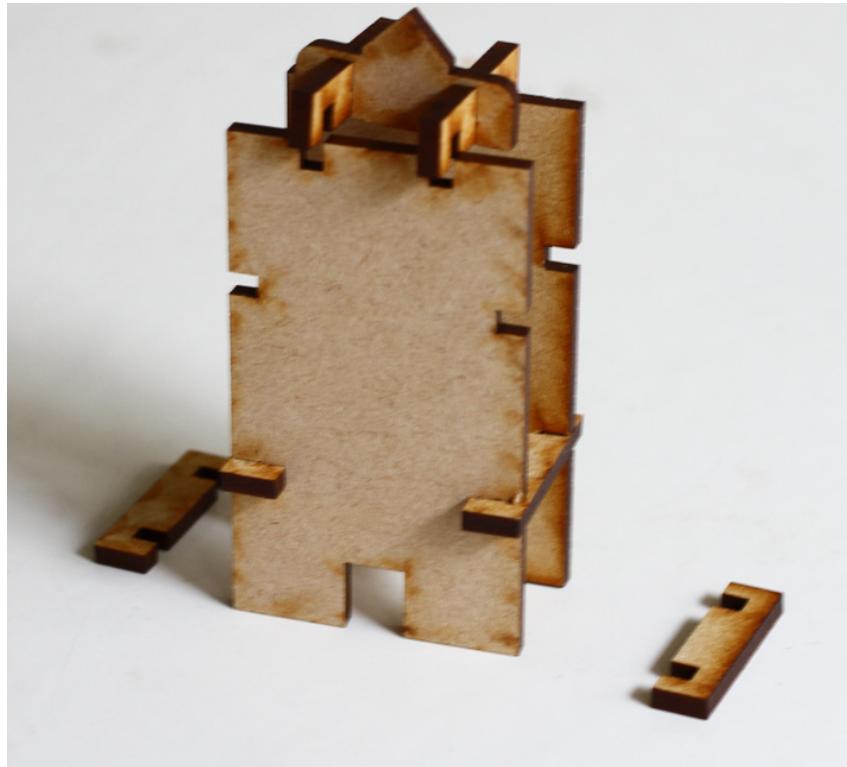
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## CONCEPT

Creating an imaginary Cityscape out of paper.  
All the structures can be assembled or disassembled.  
The city lights up in an animated manner, the speed controlled by a potentiometer. The idea is to make an imaginary and magical landscape out of paper. It's an experiment exploring paper, laser cutting, making 3D structures and basic electronics.

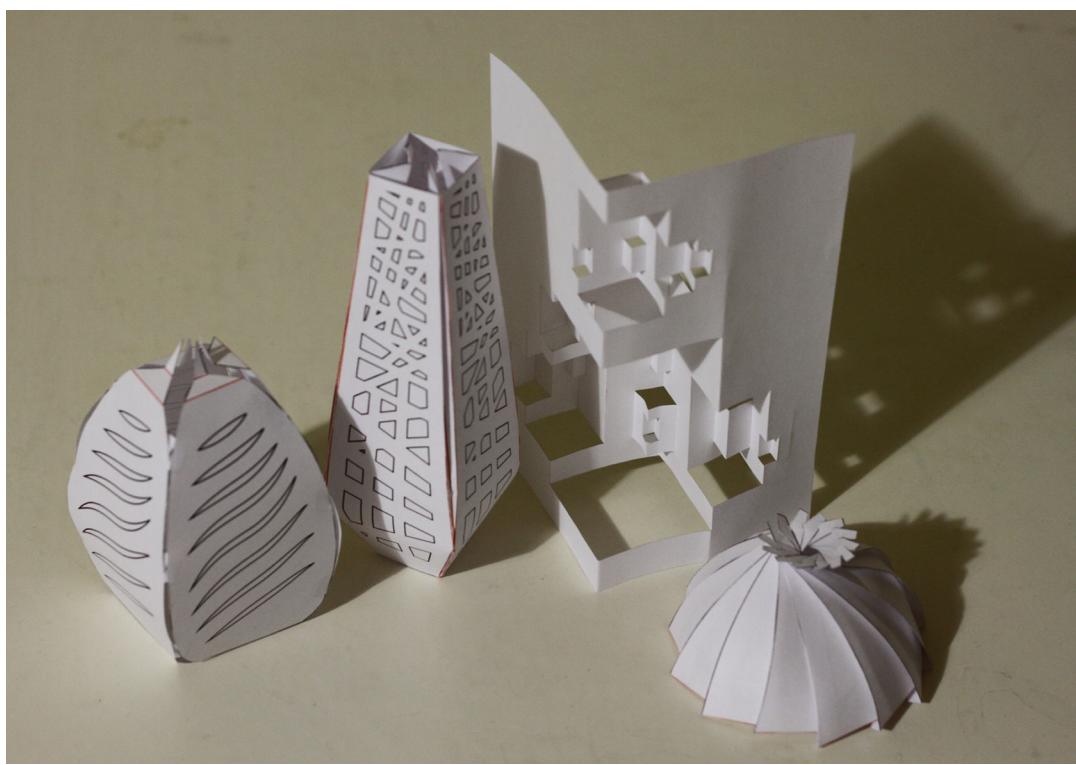
## INITIAL ITERATIONS USING MDF

- Different types of joinery
- Used 3mm. MDF to explore modular structures
- Tried to explore interesting structures



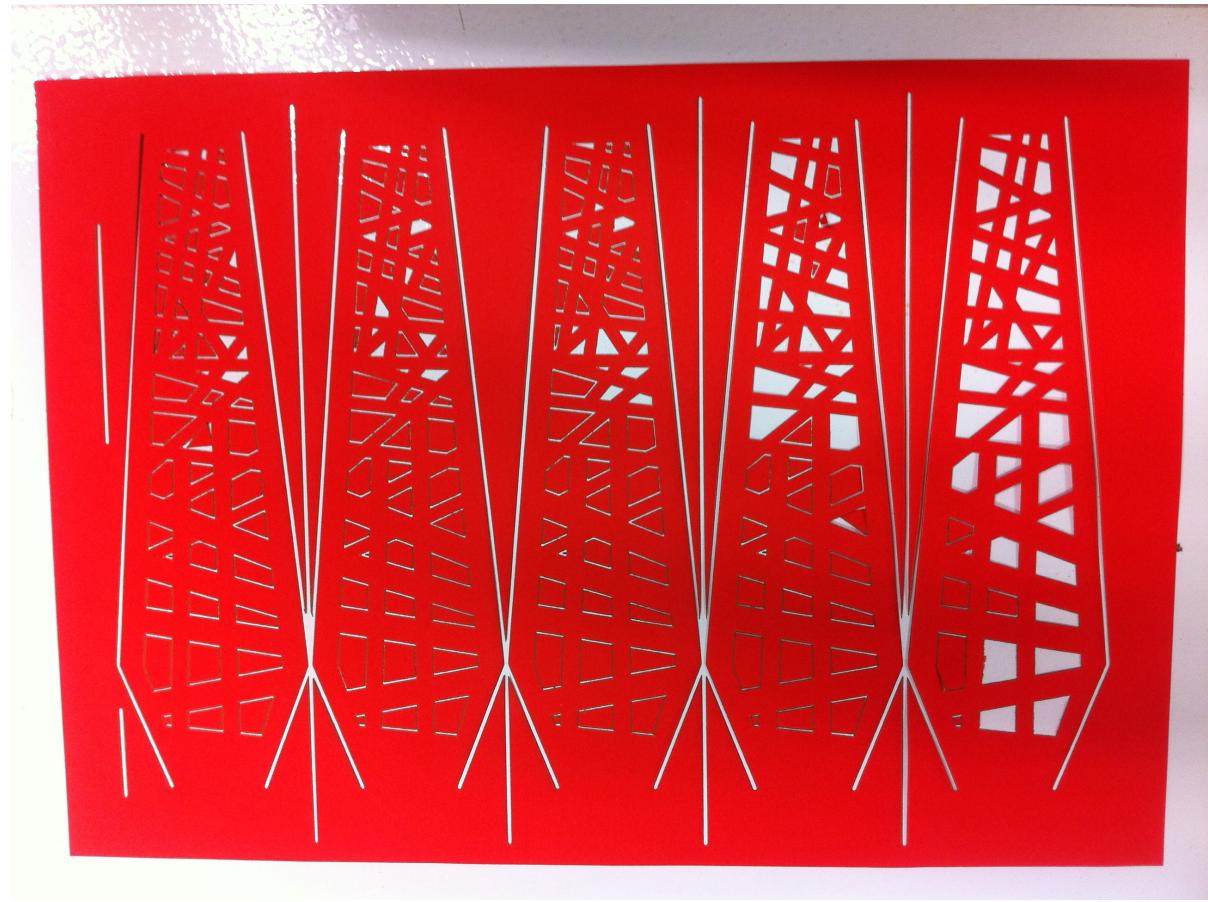
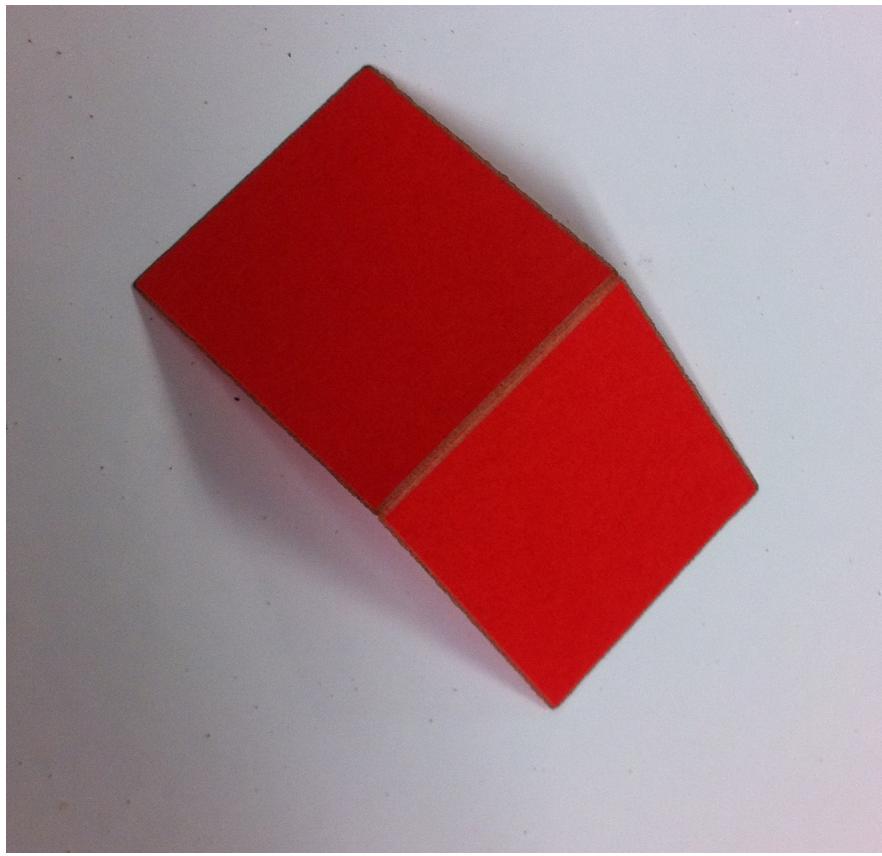
## INITIAL ITERATIONS USING PAPER

- Different types of joinery
- Used normal A4 sheet paper to understand the constructions in paper
- Hand cut all structures using a craft knife
- Many joineries did not work using the thin sheet of paper and needed to be glued



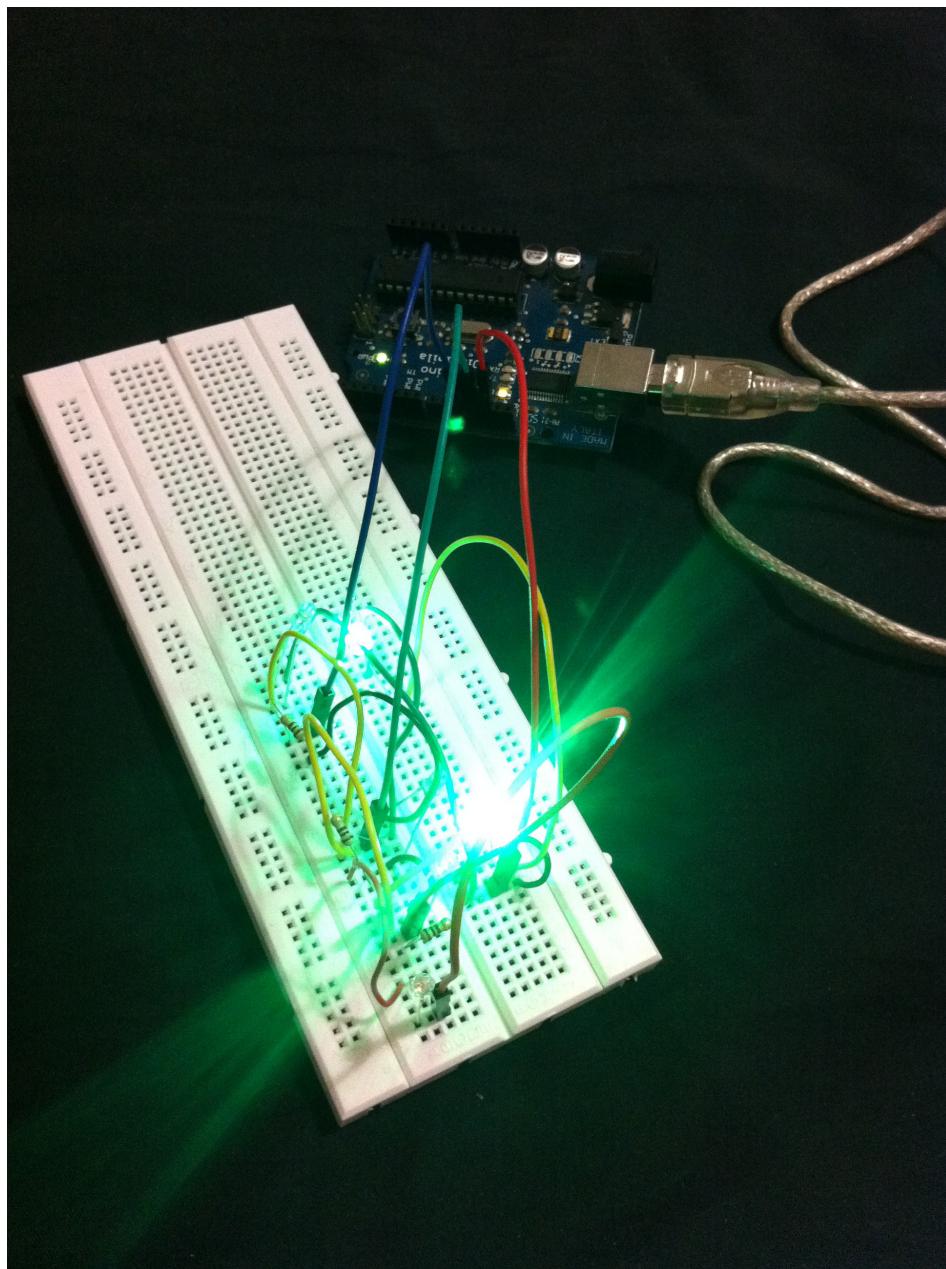
## LASER CUTTING THE STRUCTURES

- Used normal A4 colored paper to try the joineries in paper
- The settings used to cut and crease the paper worked but needed some testing
- The joinery, cutting and creasing worked perfectly
- Vector settings used for cutting the thin paper, speed -100, power - 30, frequency - 5000
- Color mapping settings, Red (for creasing) Speed - 40, power - 2, frequency - 500



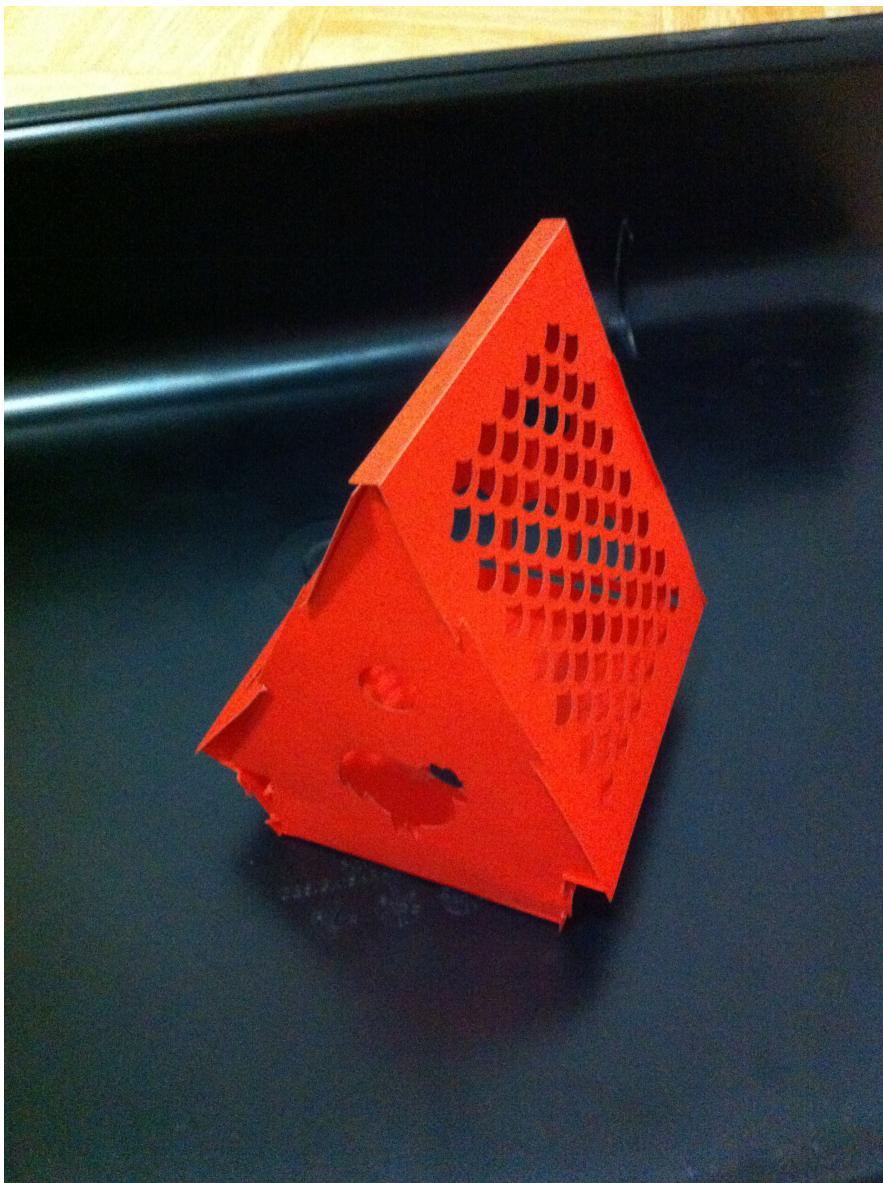
## CHARLIEPLEXING CIRCUIT

- Is a technique where one can drive and control multiple LEDs using a microcontroller.
- Used open source resources to figure out the circuit.
- Used an Arduino to control the LEDs



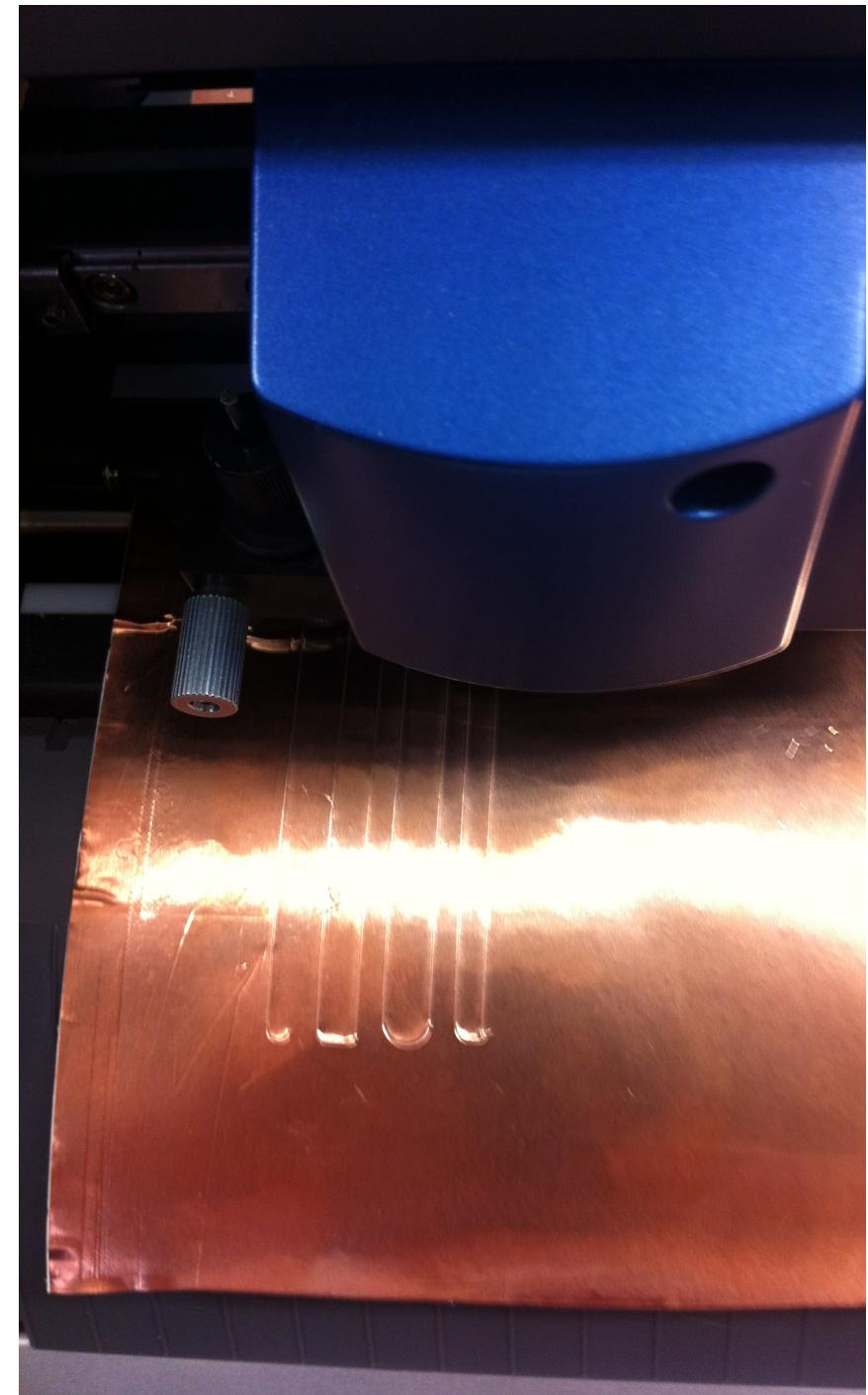
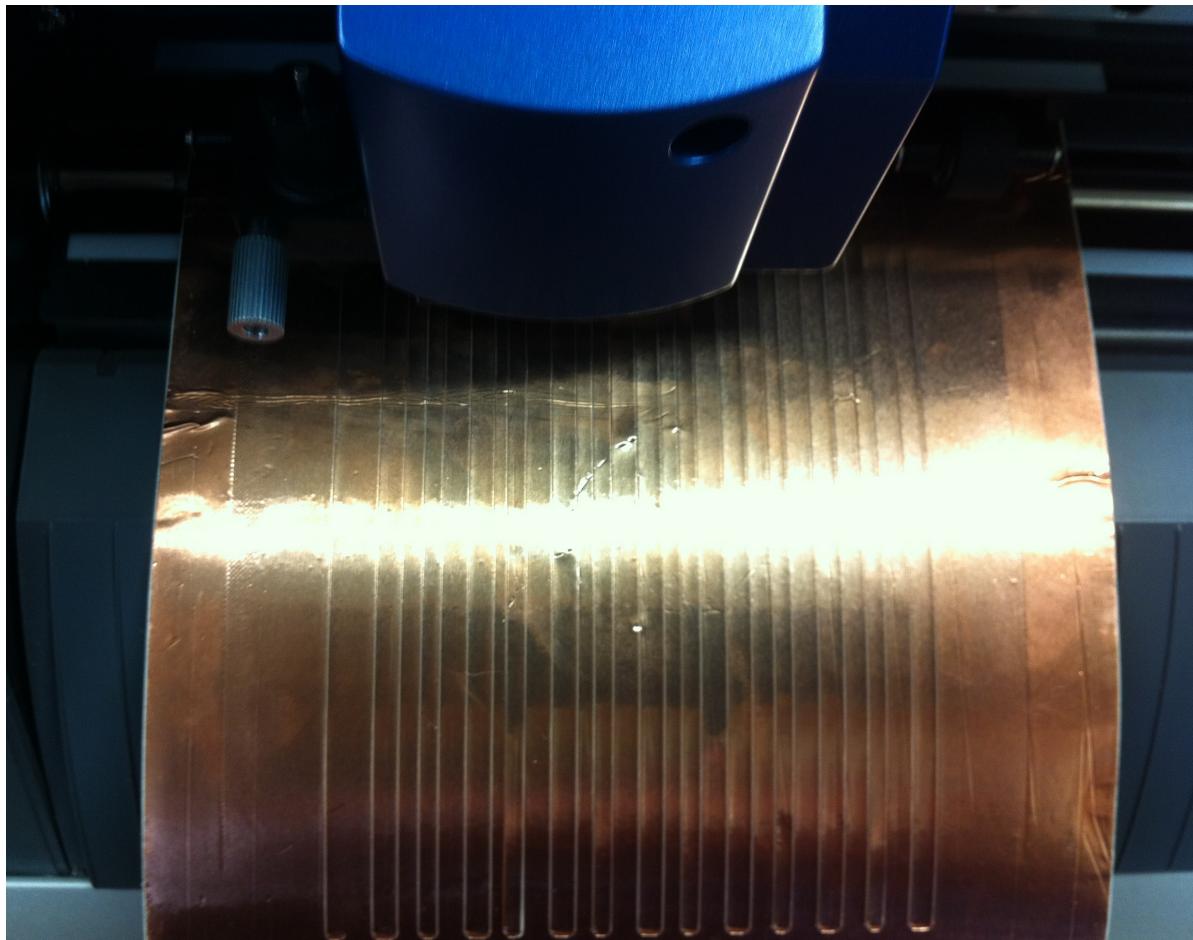
## EXPLORING MORE STRUCTURES

- Wanted to test intricate patterns using the laser cutter



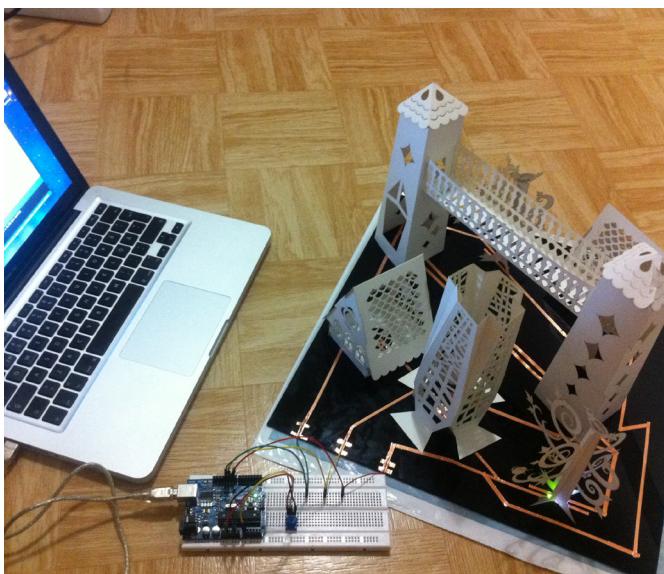
## VINYL CUTTING COPPER SHEET

- I decided to use a copper sheet to build my circuit at the base of the city
- I cut thin stripes of 3mm - 4mm with rounded corners, as the vinyl cutter cannot cut at 90° angle
- Settings for the vinyl cutter, force - 140, speed - 1cm, pen settings - +1



## FINAL PROJECT

- Created new structures for the final project
- Used white 130 gsm paper to laser cut all the final structures.
- Used a 14"x14" 3mm acrylic sheet for the base of the city
- Using a waste sheet under the white sheet helped protect the paper from burn marks
- Vector settings for cutting, speed - 100, power - 30, frequency - 5000
- Color mapping settings, Red (for creasing), speed - 40, power - 2, frequency - 500 (select vector)



Thank you!