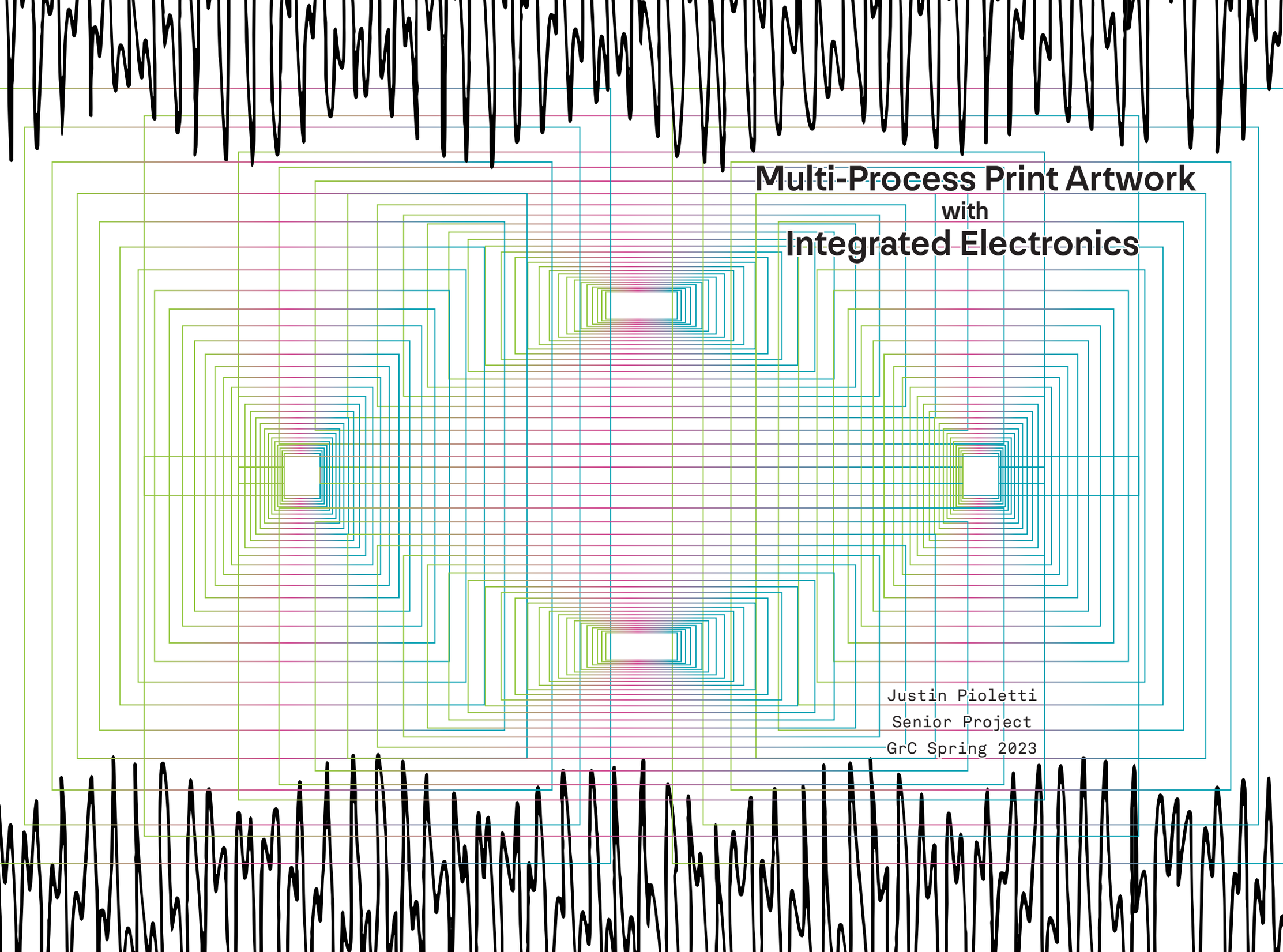
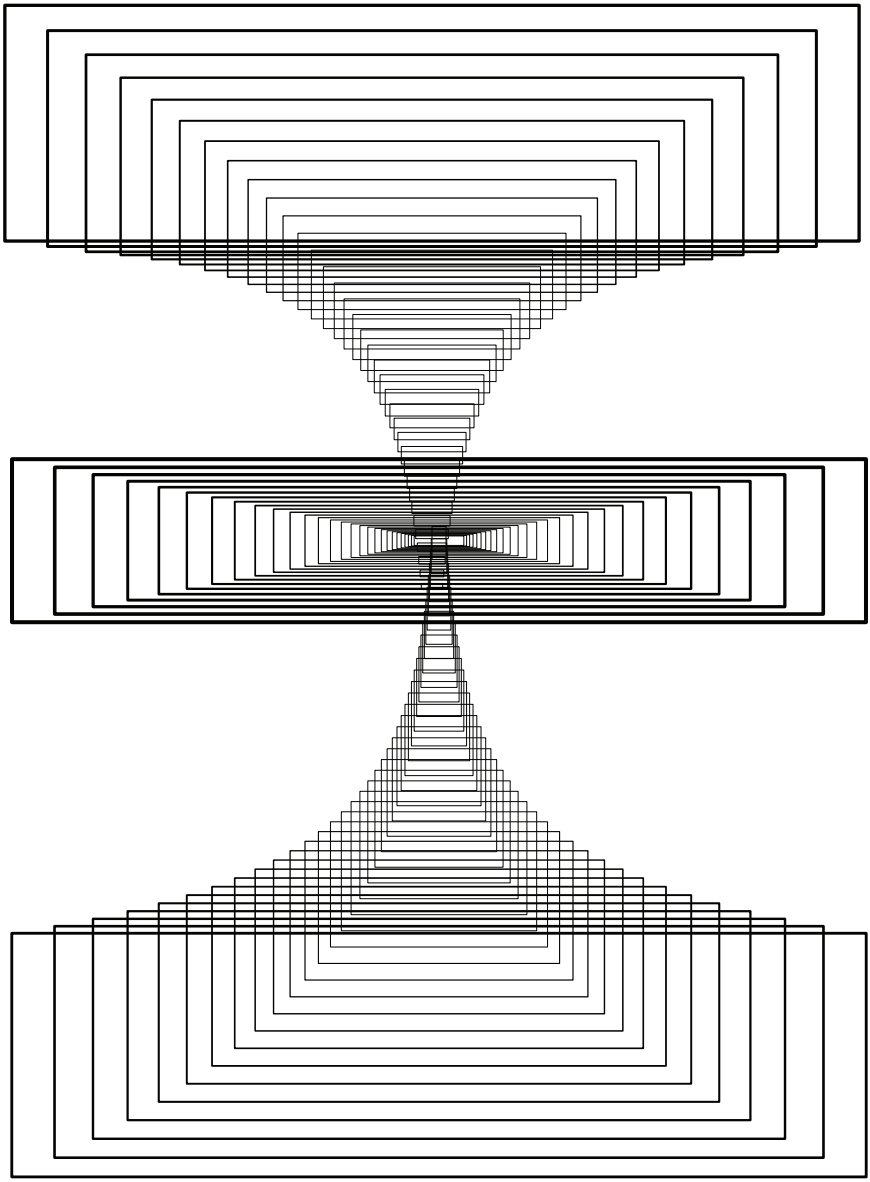


Multi-Process Print Artwork
with
Integrated Electronics

Justin Pioletti

Senior Project

GrC Spring 2023



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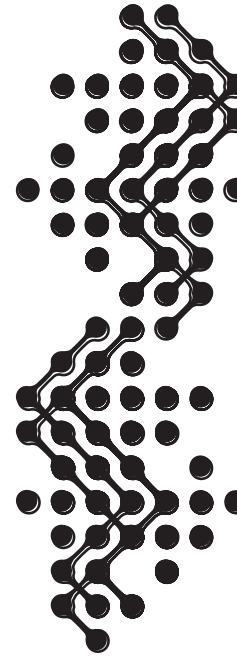
About Me

I'm Justin.

I am a packaging, product and digital design creative looking for fast-paced work in a team oriented space. Seeking to serve the people, aiming to make my dog proud.

Abstract

"Multi-Process Print Artwork with Integrated Electronics" explores the production of screen, block, and digital printing, and incorporates capacitive sensing to generate interactivity. The primary function of the art is to serve as promotional material for the student media group ".wavzine." Moreover, the multi-print production is intended to demonstrate the inherent, tangible benefits of various printing methods. This is important to consider as the print industry continues to move towards digital homogeneity.



Problem Statement

Digitization has disrupted the print industry for years, commonly regarded with the rhetoric that “print is dead.” Rather than tell, I wanted to show that this notion is terribly wrong. My goal is to demonstrate the value of a diverse print environment, and what can be achieved with printed media when modern technology is incorporated.

Successfully reproduce graphics through three different printing methods.

Objectives:

Build and incorporate functional electronics to create audio and visual interaction

Timeline

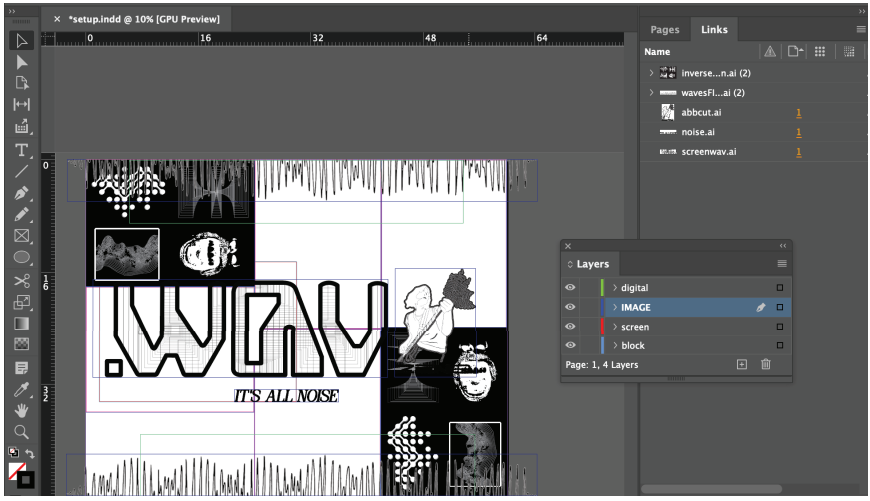
APRIL 2023
4 T
5 W
6 T
7 F
8 S
9 S
10 M
11 T
12 W
13 T
14 F
15 S
16 S
17 M
18 T
19 W
20 T
21 F
22 S
23 S
Multi-process print artwork with integrated electronics
Design
Sketching and ideation
Determine print order
Design completion
Prep design for printing
Print
Obtain base canvas for artwork
Purchase print materials
Engrave linoleum with laser cutter
Apply block print
Print screen transparencies
Apply emulsion to screens
Burn emulsion and wash out screen
Apply screen print
Print and cut out vinyl digital artwork
Transfer digital artwork to canvas
Electronics
Purchase microcontroller, electric ink, lights, and speakers
Program microcontroller and soundboard
Connect wiring and speakers
Presentation
Project proposal
Milestone #1 project presentation
Group check in #1
Progress report
Project showcase poster
Milestone #2 Showcase Presentation
Project Reflection
Process book

MAY 2023
24 25 26 27 28 29 30 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
M T W T F S S M T W T F S S M T W T F S S M T W T F S S M T W

Process

1. Develop mood board and design graphics.

Softwares: Illustrator, Photoshop, Procreate



2. Piece together composite and determine print order.

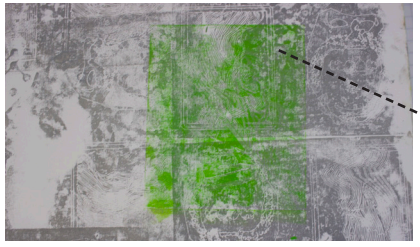
Software: InDesign

Block Printing

Typically, block printing impressions are made by hand, carving the linoleum with a knife. Due to the size and complexity of my block print graphics, carving by hand would be extremely difficult and time consuming. So, I experimented with a different method.

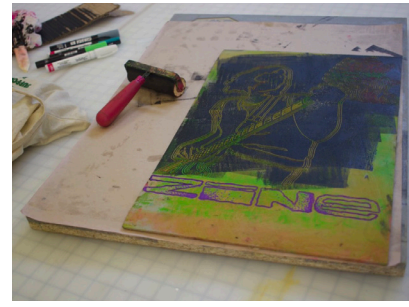
1. Use the CNC Router machine in the Cal Poly Innovation Sandbox to carve the inverse of the graphics with a 0.125" bevel.

2. Use roller to apply ink to linoleum surface area. Align block to board and apply even pressure to leave graphic impression.



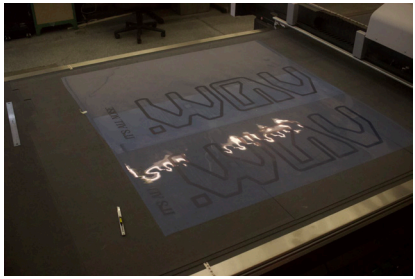
This method worked for the first impressions, but the second block print [green] did not turn out.

My solution: Dismount the etched linoleum from the woodblock, lightly apply ink to linoleum using roller [to make the graphic more prominent], directly mount the linoleum to the canvas.

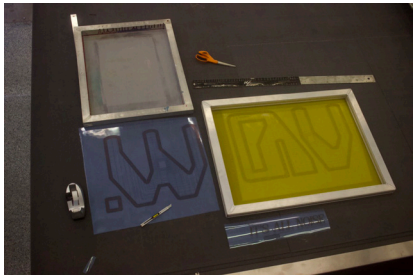


Process

Screen Printing



1. Print graphics on transparent film.

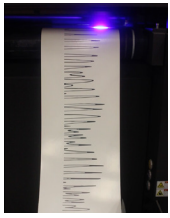


2. Apply emulsion to screen, let emulsion dry, burn emulsion, wash out graphic.

3. Apply screen print to canvas.

Digital Printing

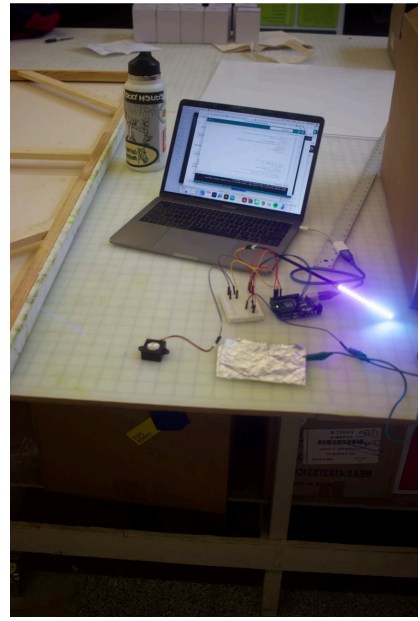
1. Print graphic onto adhesive transparent film with a wide format digital printer.



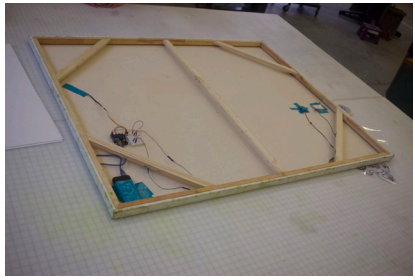
2. Apply film to canvas.

Electronics

1. Program Arduino microcontroller to display lights and play melody when capacitative sensor is activated.



2. Wire the capacitative sensor, speaker and lights to microcontroller.



3. Mount electronics to the back of the canvas.

Outcome

This is the most ambitious project I have ever taken on.

I am proud of what I have accomplished.

Believe in yourself.