



ARTWORK SUPER-RESOLUTION SCANNING APPLICATION

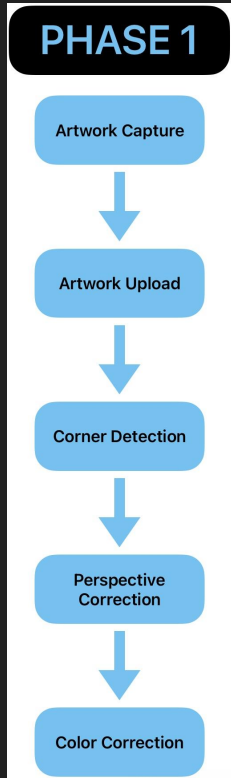
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Project Overview - Problem Statement

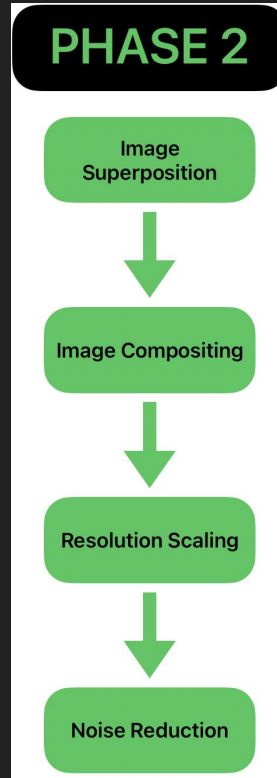
- Freelance artists with small budgets and limited income
- No current cheap/easy solution to digitizing physical artwork
- No way to monetize physical artwork (aside from sale)
- Large-scale prints require high resolution images
- Difficult to create a “backup” of a painting



Project Overview - Process Flow



- Currently developing in process phase 1
- Artwork capture, upload, and corner detection are complete
- Perspective correction and color correction are being developed concurrently



- Process phase 2 is expected to begin in the 2nd half of the semester

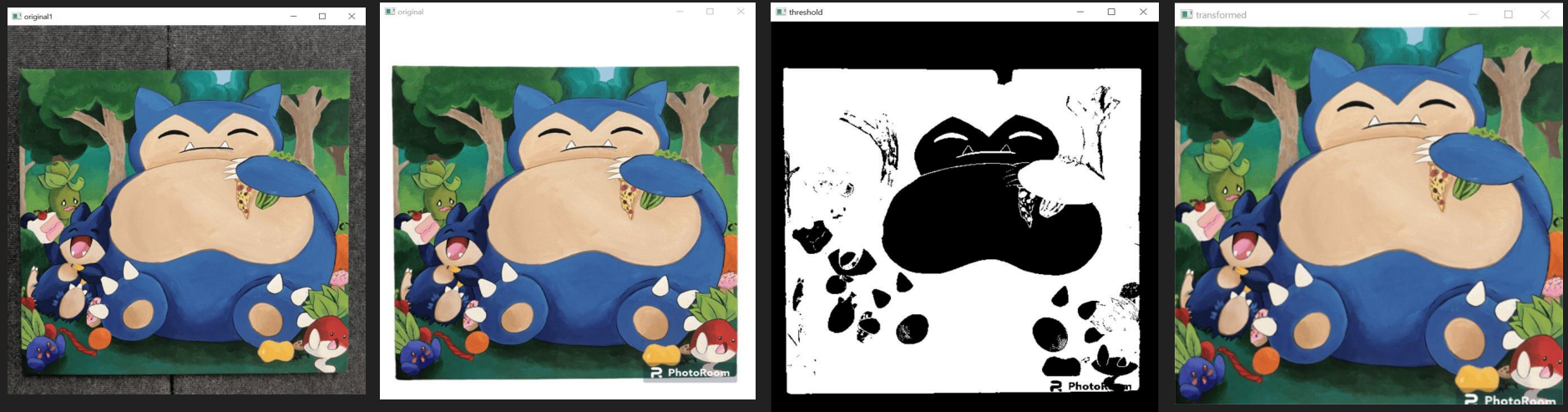
Project Goals

- Have a functioning program capable of the following functions automatically
 - Border detection
 - Image overlay
 - Perspective correction
 - Color correction
 - Noise Reduction
- Implement ability for user confirmation to ensure high quality results
 - Allow the user to make minor adjustments if necessary
- Simplified algorithms to reduce computation time
 - Current method within photoshop requires excessive and unnecessary processing power

Biggest Technical Challenges

- Color correction
 - Using pantone color cards
 - Pantone will also help with border detection
- Compiling all functions together
 - Ensuring functions are compatible and do not interfere with each other
- Unfamiliarity with opencv functions
- Unbalance of member backgrounds
 - 3 Electricals and 1 Software
- Limited to cheap and accessible hardware
 - Smartphone camera
 - Pantone color match cards

Last Semester Algorithm

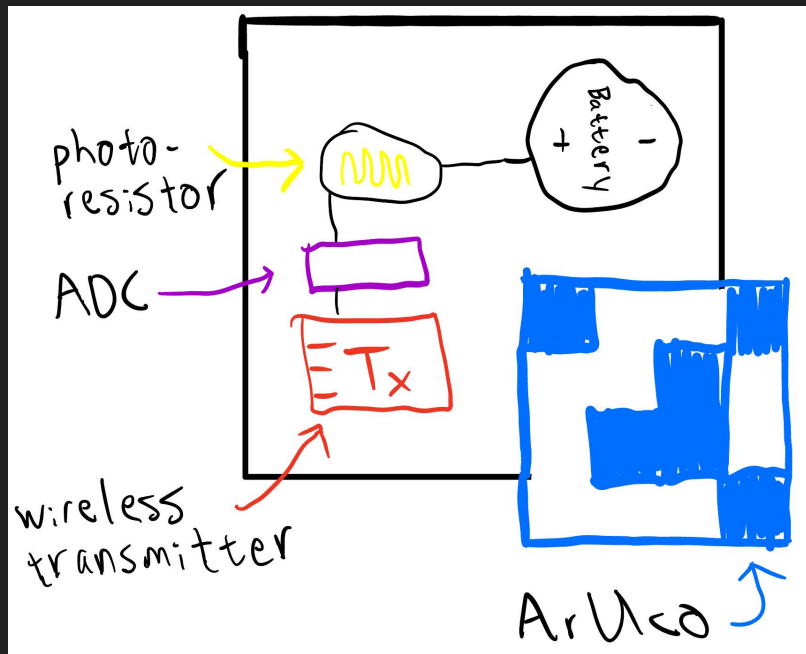


Pantone Card with Aruco Corners



Also used for color correction

Possible Implementation of Corner Markers



- Wireless PCB mounted at corners
- ArUco marker fixed to PCB
- Battery powered
- Ambient light detection
 - ◆ Data can be used for color correction
- Wirelessly transmitted to central microcontroller

Current Border Detection Approach



Thank you!