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Image Processing

Project 2

FLOWCHART

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Input Images → Blur Image with a specified Integral Kernel (remove background noise) → Find Derivatives in x & y directions using Sobel Kernel
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Repeat the previous steps to find the Second Derivative of the image & Localize Edges (single pixel Edges) ← Threshold Magnitude of the Image & Localize Edges (Thicker Edges) ← Calculate the Magnitude of the Image to localize edges
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Remove artificial artifacts in the corners of the image in both Magnitude and Second Derivative of the image → Find 4 corner points of the Edges using the Second Derivative edges → Track Longer side of the card using 3 corner Points
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Display "original" and "rotated + cropped" image ← Use Magnitude of the image to crop the image ← Use Longer side to calculate rotation angle & rotate image (Refer to Figure 1)
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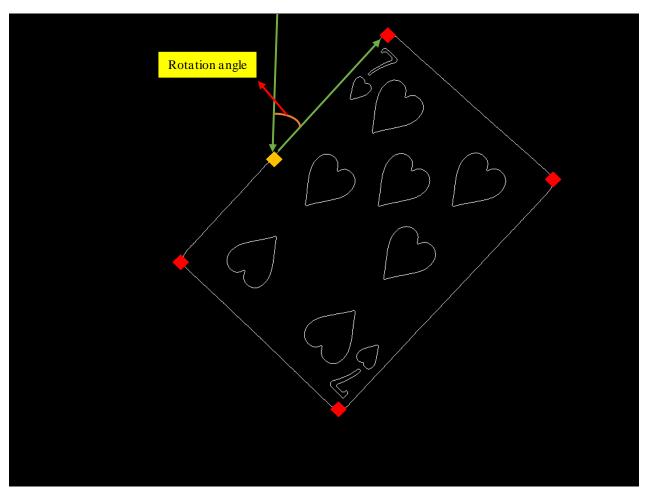
Figure 1: Figure showing an example of 4 Corner Points and tracking of <u>longer side</u> of the card using the edges found with Second Derivative and calculating the rotation angle