Project: Credit card detection

Method

1. Median filter is applied to remove noise from the image. This is applied as pre-processing step. Median filter preserves edges while removing noise.
2. Thresholding technique is applied to preprocessed grayscale input image. Thresholding is performed to simplify the visual data. Otsu's binarization technique is selected as thresholding technique since it is effective in thresholding of bimodal images like our case of object detection from background. Mask representing foreground object as 255 and background as 0 is generated.
3. Contours are obtained using cv2.findContours function. Obtained mask is passed as input to the function.
4. The contours are sorted in decreasing order of area. This is done to avoid selection of minute details in the next step.
5. The contours are processed to check if the contour approximates a quadrilateral.
6. The contour approximating a polygon with 4 corners is selected and drawn on the input image to explicitly show the detected contour.
7. In case the contour doesn't approximate to a polygon with 4 corners then the largest contour is approximated to a minimum fit rectangle.

Results and Evaluation

1. **Original images without any variation**


Meridian
CASH BACK
VISA INFINITE
4000 1234 5678 9010
VALID THRU 10/17
CARDHOLDER
VISA


Meridian
CASH BACK
VISA INFINITE
4000 1234 5678 9010
VALID THRU 10/17
CARDHOLDER
VISA

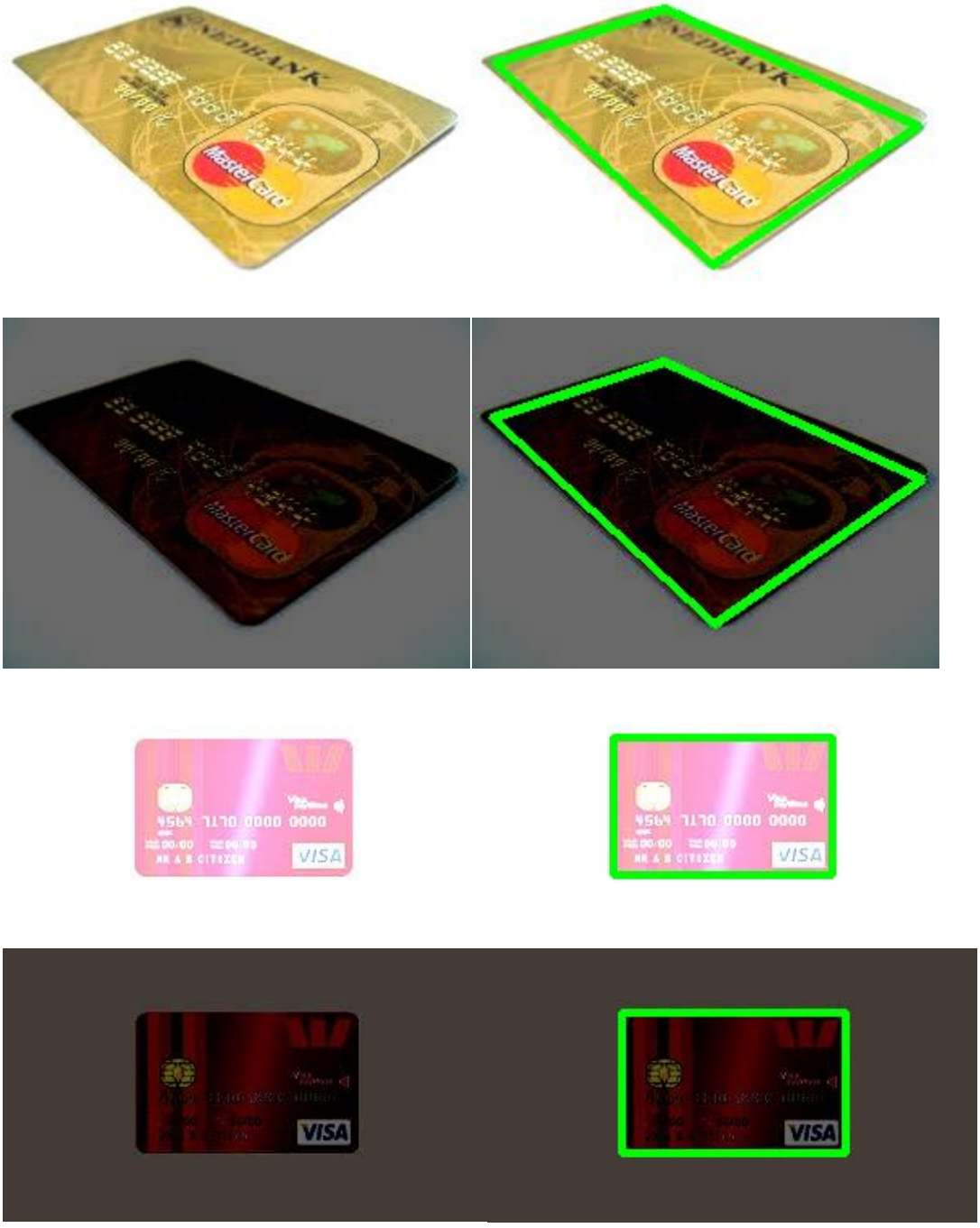

Bank Alfalah
TITANIUM
4221 8200 1234 5678
07/15
07/18
SYED ARSALAN ALI
MasterCard


Bank Alfalah
TITANIUM
4221 8200 1234 5678
07/15
07/18
SYED ARSALAN ALI
MasterCard

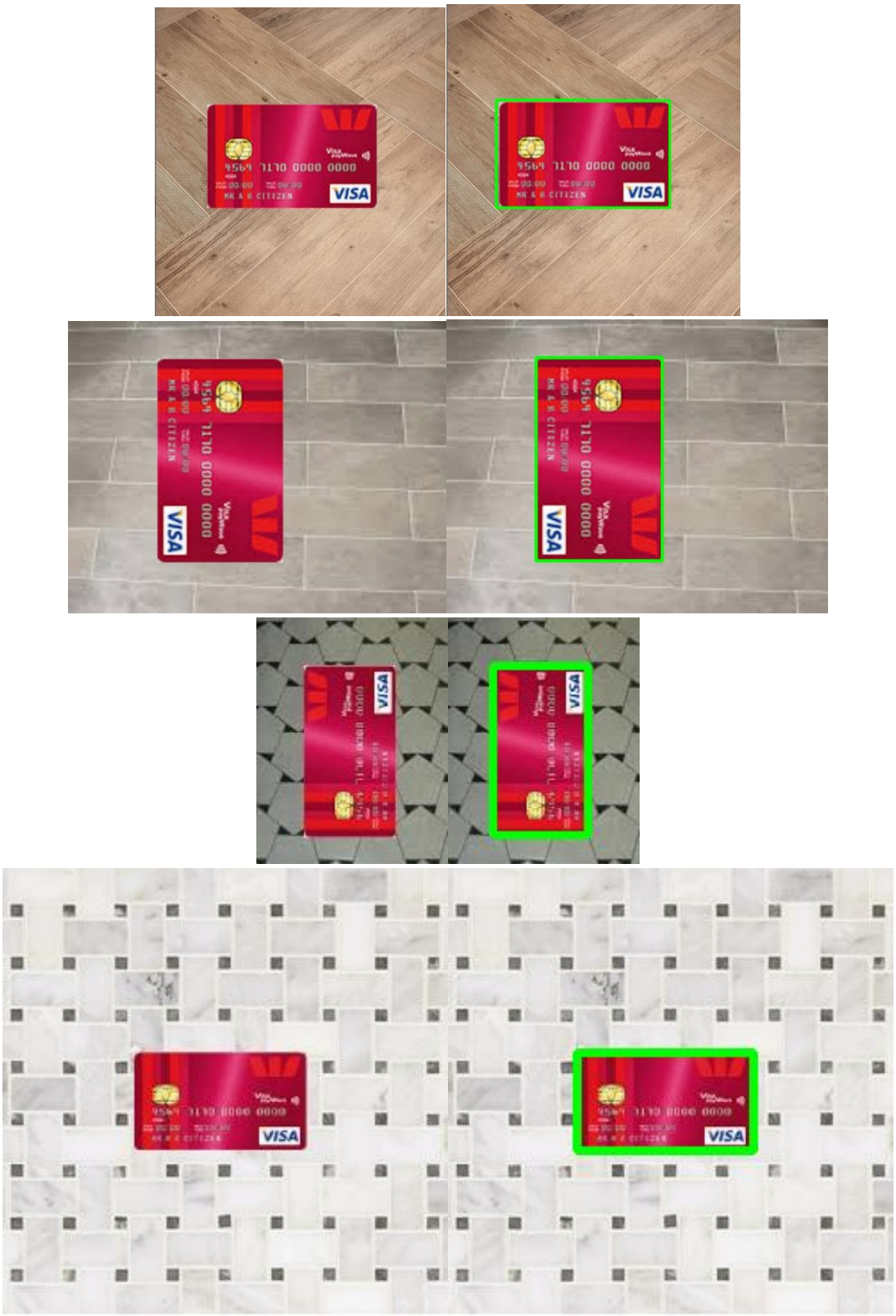

MasterCard


MasterCard

2. Variation is lighting

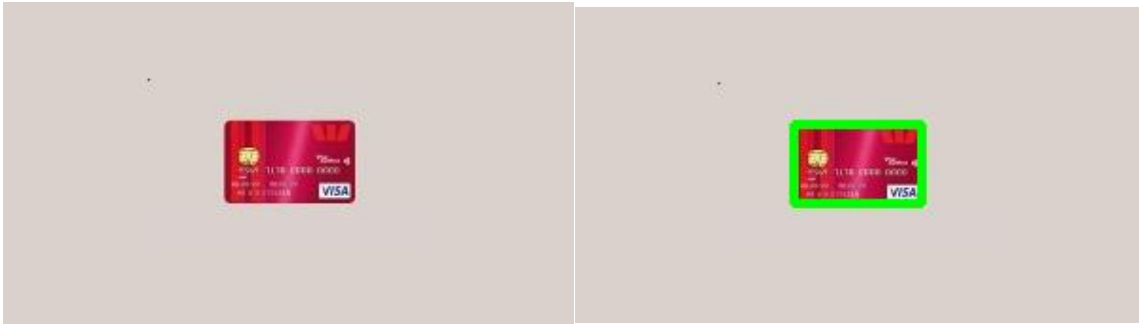


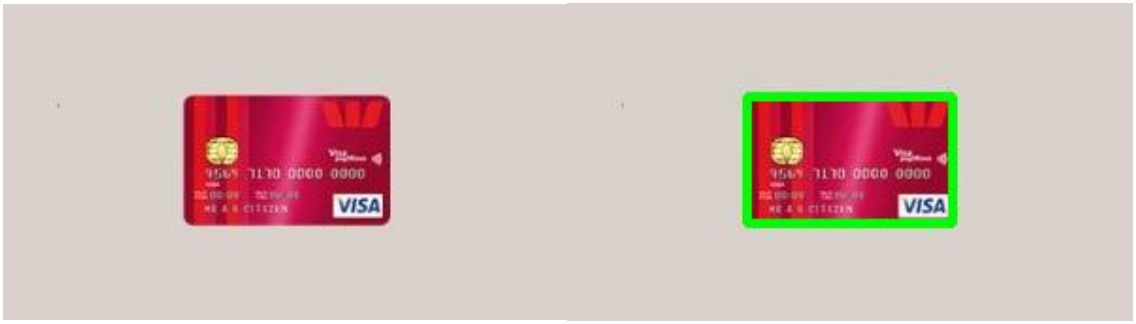
3. Variation in background



4. Variation in position and scale


vertigo
VISA
vertigo
VISA


VISA
VISA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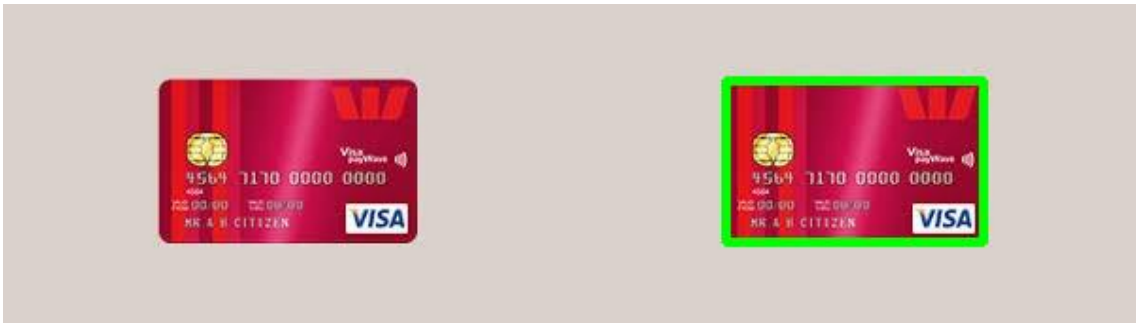
VISA
4564 7170 0000 0000
VISA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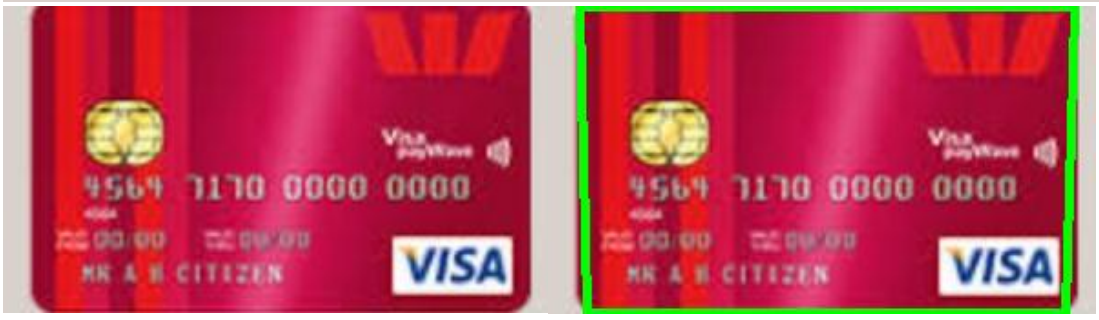
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Examples which needs further improvement