Short Report

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The following is the result of detecting coins for each image. There are 13 datasets, which showed the input image on left and the output image on right side respectively. Red circle shows the result of coin detection meanwhile green point means the center of the detected circle. The number of detected coins is shown the below of each dataset.

Fig.1, testdata1.jpg

Fig.2, testdata2.png

Fig.3,testdata2.PNG

Fig.4,testdata4.PNG

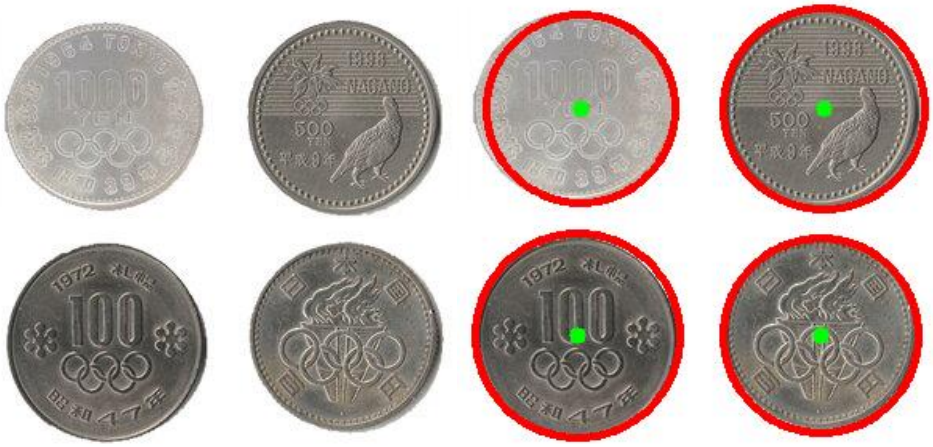

Fig.5,testdata5.jpg

Fig.6,testdata6.jpg

Fig.7,testdata7.jpg

Fig7 shows a false positive circle was detected in testdata7.jpg.

Fig.8, testdata8.jpg

A false negative circle was found in Fig.8.

Fig.9, testdata9.jpg

Fig.10, testdata10.jpg

Fig.11, testdata11.jpg

Fig.11, testdata11.jpg

Fig.12, testdata12.jpg

According to the above, the number of true positive(TP),false positive(FP), and false negative(FN) are 11, 1,1 respectively. Therefore, following the next formula, the results of precision, recall and F1-score are all 0.916.

$$\begin{aligned} \text{Precision} &= TP/(TP + FP) \\ &= 11 / (11 + 1) \\ &= 0.916 \end{aligned}$$

$$\begin{aligned} \text{Recall} &= TP/(TP + FN) \\ &= 11 / (11 + 1) \\ &= 0.916 \end{aligned}$$

$$\begin{aligned} \text{F1-Score} &= 2 * \text{Precision} * \text{Recall} / (\text{Precision} + \text{Recall}) \\ &= 2 * 0.916 * 0.916 /(0.916 + 0.916) \end{aligned}$$

$$= 0.916$$