2D Image Processing

C++ Coin Detector Project Report

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The following statistics are calculated with default values. If you wish to change them, please see how to do it in "readme.txt".

All True Positives: 117.

All False Positives: 1.

All False Negatives: 2.

Overall Precision: 0.991525.

Overall Recall: 0.983193.

Overall F1-score: 0.987342.

Image file: "images\img001.jpg".

Detected coins information:

1) x = 178, y = 532, radius = 152.

2) x = 632, y = 588, radius = 86.

3) x = 200, y = 134, radius = 103.

4) x = 384, y = 532, radius = 97.

5) x = 244, y = 328, radius = 75.

6) x = 388, y = 116, radius = 76.

7) x = 628, y = 386, radius = 106.

8) x = 452, y = 328, radius = 93.

9) x = 498, y = 696, radius = 80.

10) x = 560, y = 172, radius = 69.

11) x = 694, y = 116, radius = 81.

Total number of detected coins: 11.

True Positives: 11.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img002.jpg".

Detected coins information:

1) x = 308, y = 294, radius = 263.

2) x = 554, y = 586, radius = 175.

3) x = 792, y = 317, radius = 194.

4) x = 231, y = 747, radius = 214.

5) x = 814, y = 788, radius = 157.

Total number of detected coins: 5.

True Positives: 5.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img003.jpg".

Detected coins information:

1) x = 294, y = 293, radius = 280.

2) x = 1744, y = 290, radius = 223.

3) x = 824, y = 288, radius = 241.

4) x = 240, y = 866, radius = 197.

5) x = 1018, y = 862, radius = 224.

6) x = 1444, y = 864, radius = 186.

7) x = 1292, y = 286, radius = 209.

8) x = 1800, y = 863, radius = 158.

9) x = 614, y = 862, radius = 169.

Total number of detected coins: 9.

True Positives: 9.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img004.jpg".

Detected coins information:

1) x = 418, y = 192, radius = 156.

2) x = 550, y = 507, radius = 134.

3) x = 210, y = 496, radius = 171.

4) x = 578, y = 868, radius = 105.

5) x = 830, y = 412, radius = 107.

6) x = 822, y = 714, radius = 148.

7) x = 750, y = 154, radius = 127.

8) x = 174, y = 828, radius = 125.

9) x = 392, y = 720, radius = 100.

10) x = 130, y = 126, radius = 89.

Total number of detected coins: 10.

True Positives: 10.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img005.jpg".

Detected coins information:

1) x = 818, y = 388, radius = 157.

2) x = 460, y = 485, radius = 199.

3) x = 150, y = 646, radius = 128.

4) x = 316, y = 190, radius = 114.

5) x = 590, y = 176, radius = 113.

6) x = 757, y = 681, radius = 114.

7) x = 146, y = 386, radius = 115.

8) x = 342, y = 801, radius = 100.

9) x = 557, y = 799, radius = 97.

Total number of detected coins: 9.

True Positives: 9.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img006.png".

Detected coins information:

1) x = 446, y = 96, radius = 79.

2) x = 448, y = 264, radius = 75.

3) x = 226, y = 94, radius = 70.

4) x = 110, y = 190, radius = 62.

5) x = 325, y = 192, radius = 44.

6) x = 214, y = 270, radius = 56.

Total number of detected coins: 6.

True Positives: 6.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img007.jpg".

Detected coins information:

1) x = 138, y = 222, radius = 122.

2) x = 468, y = 360, radius = 123.

3) x = 702, y = 448, radius = 123.

4) x = 236, y = 448, radius = 122.

5) x = 354, y = 140, radius = 120.

6) x = 800, y = 222, radius = 123.

7) x = 590, y = 138, radius = 120.

Total number of detected coins: 7.

True Positives: 7.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img008.jpg".

Detected coins information:

1) x = 242, y = 636, radius = 142.

2) x = 542, y = 636, radius = 140.

3) x = 518, y = 126, radius = 119.

4) x = 268, y = 128, radius = 120.

5) x = 520, y = 374, radius = 112.

6) x = 272, y = 376, radius = 113.

Total number of detected coins: 6.

True Positives: 6.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img009.jpg".

Detected coins information:

1) x = 485, y = 413, radius = 153.

2) x = 336, y = 174, radius = 167.

3) x = 140, y = 668, radius = 113.

4) x = 716, y = 110, radius = 74.

5) x = 216, y = 460, radius = 117.

6) x = 107, y = 116, radius = 94.

7) x = 696, y = 694, radius = 89.

8) x = 321, y = 662, radius = 75.

9) x = 703, y = 299, radius = 85.

10) x = 706, y = 508, radius = 84.

11) x = 560, y = 128, radius = 97.

12) x = 99, y = 337, radius = 92.

13) x = 503, y = 673, radius = 121.

Total number of detected coins: 13.

True Positives: 13.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img010.jpg".

Detected coins information:

1) x = 594, y = 148, radius = 137.

2) x = 410, y = 312, radius = 142.

3) x = 120, y = 240, radius = 105.

4) x = 568, y = 492, radius = 71.

5) x = 478, y = 650, radius = 84.

6) x = 251, y = 119, radius = 102.

7) x = 728, y = 488, radius = 69.

8) x = 625, y = 698, radius = 83.

9) x = 96, y = 594, radius = 92.

10) x = 308, y = 501, radius = 66.

11) x = 189, y = 443, radius = 67.

12) x = 216, y = 682, radius = 88.

13) x = 679, y = 328, radius = 76.

Total number of detected coins: 13.

True Positives: 13.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img011.jpg".

Detected coins information:

1) x = 450, y = 522, radius = 140.

2) x = 150, y = 512, radius = 144.

3) x = 148, y = 204, radius = 142.

4) x = 1108, y = 226, radius = 155.

5) x = 734, y = 532, radius = 128.

6) x = 778, y = 210, radius = 153.

7) x = 462, y = 216, radius = 149.

Total number of detected coins: 7.

True Positives: 7.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img012.jpg".

Detected coins information:

1) x = 460, y = 262, radius = 125.

2) x = 144, y = 138, radius = 124.

3) x = 452, y = 425, radius = 129.

4) x = 328, y = 192, radius = 120.

5) x = 266, y = 376, radius = 91.

Total number of detected coins: 5.

True Positives: 4.

False Positives: 1.

False Negatives: 2.

Precision: 0.8.

Recall: 0.666667.

F1-score: 0.727273.

Image file: "images\img013.jpg".

Detected coins information:

1) x = 300, y = 358, radius = 83.

Total number of detected coins: 1.

True Positives: 1.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

Image file: "images\img014.jpg".

Detected coins information:

1) x = 282, y = 478, radius = 84.

Total number of detected coins: 1.

True Positives: 1.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.

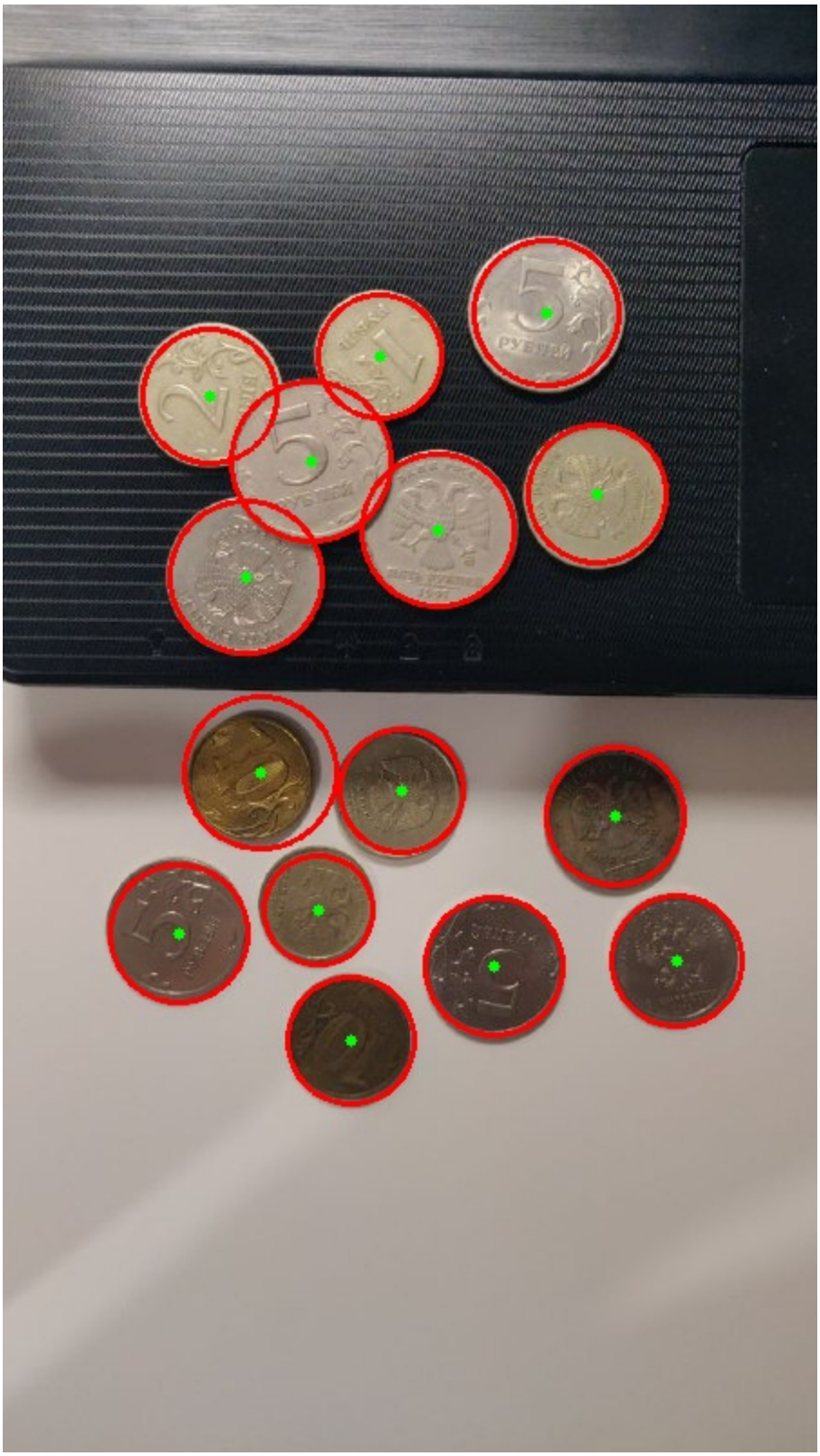

Image file: "images\img015.jpg".

Detected coins information:

1) x = 300, y = 170, radius = 40.

2) x = 170, y = 252, radius = 44.

3) x = 328, y = 270, radius = 38.

4) x = 114, y = 216, radius = 37.

5) x = 338, y = 448, radius = 38.

6) x = 240, y = 290, radius = 42.

7) x = 220, y = 434, radius = 34.

8) x = 174, y = 500, radius = 30.

9) x = 134, y = 316, radius = 42.

10) x = 208, y = 194, radius = 34.

11) x = 97, y = 513, radius = 38.

12) x = 271, y = 531, radius = 38.

13) x = 192, y = 572, radius = 35.

14) x = 372, y = 528, radius = 36.

15) x = 142, y = 424, radius = 42.

Total number of detected coins: 15.

True Positives: 15.

False Positives: 0.

False Negatives: 0.

Precision: 1.

Recall: 1.

F1-score: 1.