Coin counting with Android

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The goal of the project is to develop an application that allows for counting the total amount of money imaged via cell-phone camera. Such an application can be useful for people with poor vision, or for automating the process of counting correct amount of change.

Overall process flow is:

1. Perform edge detection on the image based on color contrast
2. Fit ellipse into all sets of convex connected edges – detect only those sets where the fitting error is relatively small (the magnitude to be determined experimentally)
3. Correct for the effect of perspective (using 1:1 aspect ratio of perfect coins)
4. Detect edges of the pattern within the circle (can use the results from step 1)
5. Match the edge pattern to the standard binary edge pattern of stored coin images to distinguish coins from other circular objects
6. Sum the coin values and report the result

Constraints and limitations:

1. Coins are assumed to be fully exposed (no obstruction)
2. An image of a coin will be counted as a real coin
3. The initial version of the application might not work robustly with “state” quarters

Potential extensions:

1. Ability to recognize bills (flat, not obstructed)
2. Ability to recognize coins and bills that are obstructed by other objects

References:


The application will be developed on Android phone