

Automated Rare Coin Grader

As described on [CS631Q Pervasive Computing Systems Website](#)

Overview: This project will undertake the development of a system that will be used to grade, appraise and authenticate valuable collectibles items such as rare coins using advanced scanning, weight measurement and data mining technology. The initial plan is to design the system for processing rare coins and then to expand the usage scope to other valuable collectibles such as postage stamps, cards and possibly antiques.

Innovative Features: A user will be able place a coin on a special scanner/scale at which time a high-resolution scan of the coin will be made and the weight in grams will be recorded. After the scan is completed the system will then:

- Make a determination to see if the coin is a counterfeit or if the coin has been altered by comparing the image to a database of known fakes.
- Compare the scanned visual image to a large graphical database to determine the type, denomination, date and an accurate grade of the coin.
- Cross-reference the information obtained and compare it against a database of market values to assign an appropriate asset value. Obtaining a proper asset value is extremely important for securing proper insurance as well as knowing what price should be charged in asset disposition.

Rationale / Justification: Rare coins are presently graded by human hand and eye inspection that often produces varied, inconsistent and sometimes dubious results. For instance one grader may assign a grade of Very Good to a particular rare coin and another grader may assign a grade of Fine to the same coin. On many rare coins a difference of a single grade can often mean thousands of dollars in difference in the value of the asset. Some times these discrepancies in grades are simply errors by the graders due to poor training, poor lighting, fatigue or misinformation. But many times the discrepancies can be attributed to dealers under-grading items so that they can purchase them for an amount that is cheaper than what they are worth or over-grading them so that they can sell the items for more than they are worth.

With our proposed system grading will always be consistent since no human error factors or financial incentive can be introduced into the grading process. Our system will simply read the asset by scanning and weighing to produce an automated comprehensive assessment, which includes authentication and valuation.

Market Potential: The market need for fair, consistent, accurate and unbiased grading / appraisals of rare collectibles encompasses each major category of collectibles. Initially our system will be developed for the rare coin segment of collecting as abuses in grading / appraisals are widespread and revenue opportunity is large.

Consumer Appeal: Accurate grading of rare coins and collectibles 100% of the time, consistent grades / appraisals every time no matter how many times a user resubmits a coin for regrading.

About the Author:

Richard Bassett is an Assistant Professor of MIS at Western CT State University (WCSU) in Danbury Connecticut and can be reached via email at rbassett@bassett.ws