Project Proposal

Mobile OMR System for Recognition of Filled Bubbles

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Our goal of this project is to develop an android application to find filled bubbles on an OMR answer sheet to automatically grade students’ answers. The execution sequence of this program is as follows.

1. Take a picture of the reference answer sheet with correct answers, and store answers for each question.
2. Take a picture of a student’s answer sheet.
3. Automatically compute the number of correct answers and give statistics for the student.

The challenge of this project is on how to align images (image registration) and detect filled circles. Our proposed algorithm is as follows.

1. Apply image registration technique so that the reference image and student’s image are aligned in the same coordinate system.
2. Do the image processing algorithms to leave only filled circles in both images.
3. Compare the coordinate of all filled circles to get the number of correct answers.

We will first try some algorithms for image registration and processing in Matlab, and then write the Android code.

References
2. EE368 Class Project, Mobile Lottery Ticket Recognition Using Android Phone, Ashish Gupta, 2012
The format of answer sheet we will use is shown below.
The image below shows prototype interface -