Cost Effective Real-Time Image Processing Based Optical Mark Reader

Authors : Amit Kumar, Himanshu Singal, Arnav Bhavsar

Abstract : In this modern era of automation, most of the academic exams and competitive exams are Multiple Choice Questions (MCQ). The responses of these MCQ based exams are recorded in the Optical Mark Reader (OMR) sheet. Evaluation of the OMR sheet requires separate specialized machines for scanning and marking. The sheets used by these machines are special and costs more than a normal sheet. Available process is non-economical and dependent on paper thickness, scanning quality, paper orientation, special hardware and customized software. This study tries to tackle the problem of evaluating the OMR sheet without any special hardware and making the whole process economical. We propose an image processing based algorithm which can be used to read and evaluate the scanned OMR sheets with no special hardware required. It will eliminate the use of special OMR sheet. Responses recorded in normal sheet is enough for evaluation. The proposed system takes care of color, brightness, rotation, little imperfections in the OMR sheet images.

Keywords : OMR, image processing, hough circle trans-form, interpolation, detection, binary thresholding

Conference Title : ICIP 2018 : International Conference on Image Processing

Conference Location : Paris, France

Conference Dates : September 20-21, 2018