

# Monitor Remote Mobile Examination System

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**Abstract**— According to improvement of the technology, a new system based on mobile computing has been found. Mobile computing has been used in education; this paper suggested mobile examination system used a mobile device of the student. This paper aim to develop a mobile examination system helps to detect a wide variety of cheating behaviors during mobile examination session. In this paper, proposed model for mobile examination system to detect cheating behaviors during exam, using mobile camera, microphone to monitor the visual and audio environment of the exam, the proposed model using user verification and voice detection.

**Keywords**—Mobile examination , Monitor Mobile examination

## INTRODUCTION

AS per the change of the innovation, a portable examination has turned into an effective supplement to conventional examination. In conventional exam students are likely to get cheating under the usual method, which could influence of examination. The conventional technique for writing examination, which has been progressing for a considerable length of time, may not please for use because of the issues for the most part related including examination setting limitations, ability to hold or do something restrictions, delay in the release of results, cost of printing examination materials and human fault [1]. Fortunately, technology had given us the answer for the issue few years back as online examination system, in the technique for conduct of the examination, there is a server acting as question bank and question are shown on the screen of the student computer which is connected with the server. The question paper was created by random determination of question from the database, the student computer is used to gather the reactions of the questions, But, because of phenomenal progressions in the mobile technology, using the mobile device to replace student computer PC to make the "mobile examination system". The mobile examination system is an awesome change over the traditional examination and in addition online examination system [2].

A mobile examination system is a mobile application that enables a foundation to lead examination by Internet. When utilizing this system is useful on the grounds that it is speedier, simpler and helpful. This systems makes it less requesting for examiners to manage and sort out results. The mobile application offers facility to manage and do mobile examination wherever and at whatever point, and has improved the methodology during the time to have space for more understudies and secure/guarantee a smoother mobile examination. Be that as it may, one of the greatest difficulties to mobile examination is cheating utilizing innovation.

In this paper, introduce mobile examination system to perform exam protecting. The main aim of this system is to keep up

academic integrity of exams, by providing real-time protecting for detecting most cheating behaviors of the student. To accomplish such aims, varying media perceptions about the students are required to have the capacity to identify any cheat conduct. Many existing multimedia system [3], [4] have been using highlights separated from multimedia information to think about human conduct.

## RELATED WORK

Throughout the years, the interest for online learning and mobile learning has expanded altogether. Researchers have proposed different techniques to monitor online exams in the most efficient and convenient way possible, yet still protect academic integrity. These techniques were classified to, **1- no proctoring** According to Cluskey et al. (2011), believe they can prompt academic honesty by proposing eight control strategies that empower faculty to expand the difficulty and therefore reduce the likelihood of cheating [5]. Wahid et al. (2015) suggest that a protected online exam system alongside network design which is required to prevent cheating [6]. Another type was **2- Online human monitoring** is one normal approach for proctoring online exams. The fundamental drawback is that it's very expensive as far as requiring many employees to monitor the students [7]. Jung et al. (2009) proposed diverse techniques in full monitoring, where they utilize snapshots to lessen the bandwidth cost of transmitting extensive video files [8]. Rosen et al. (2013) in [9] endeavor to do third techniques **3- semi-computerized machine proctoring**, by building a desktop robot that contains a 360° camera and movement sensors. This robot transmits recordings to an observing focus if any suspicious movement. The primary issue is that a single camera can't perceive what the subject sees, and therefore even people may experience serious difficulties distinguishing many swindling procedures. For instance, an accomplice who is outside the camera see, however can see the test questions (e.g., on a moment screen), could supply answers to the student utilizing quiet flags, or composing on a bit of paper which is noticeable to the student. Among all earlier work, the most significant work is the Massive Open Online Proctoring system [10], which joins both automatic and collaborative ways to deal with cheating behaviors in online exams.

Eye gaze tracking is a conspicuous technique utilized for online proctoring. This technique as a rule requires special hardware, for example, infrared high-resolution camera and infrared light sources. Additionally, for the most part they require a fairly indulgent adjustment process. For instance, Y. M. Cheung and Q. Peng [11] address the eye gaze tracking issue utilizing low cost hardware like a web camera in a desktop. They track the human face from the real time video arrangement to identify the region around eyes. For

discovering the iris center, they consolidate the intensity, energy and edge strength and utilize piece wise eye corner indicator for identifying the eye corner. The paper adopts a sinusoidal head model to simulate the 3-D head shape, and propose versatile weighted facial features embedded in the pose from the orthography and scaling with cycles set of computer instructions, whereby the head stand in show and fake way can be guessed. Finally, they coordinate this head movement information from the eye vector received to get the look following.

The new interesting idea of having conduct identification in online examination incorporates gathering visual sensor data of the examinee while taking an online examination [12]. C. Voss and N. J. Haber show that utilization of a webcam to carefully study the student conduct all through the examination [12]. The gathering of visual data just to process may not be capable of producing a pattern for recognizing cheating. Also, Spriggs et al. (2009) related to time separates human movement into action and arrangement activity to big picture of cooking [13]. Tsukada et al. (2011) utilizes a wearcam to recognize the iris and guess the visual field in front of the subject, which distinguishes where exactly the subject is looking [14].

#### PROPOSED MODEL

Proposed model for mobile examination system process includes two stages, the preparation stage and exam stage. In the preparation stage, the student needs to authenticate him before starting the exam, by utilizing a secret key and face verification.

In, first stage “preparation stage” also includes adjustment accuracy related steps to make sure that the smart phone are connected to application, and functioning work properly. Moreover student learn how to use the system and the rules of using this system, such as nobody is allowed in the same place, the student should not leave the place during exam. In, second stage “exam stage”, the student takes the exam, under supervising of mobile online exam system for real time cheating behavior identification. Proposed system use smart phone camera and microphone to catch varying media signs of the exam environment and student.

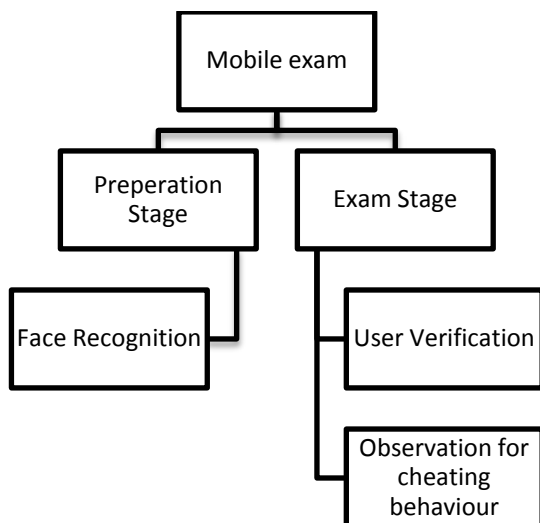


Fig.1 Proposed System Modules

#### Modules of proposed Model:

**First Step: Preparation exam:** The first stage of proposed system, is called “preparation stage” consists following steps:

- 1- Student Registration: each student install application ,take user name , take face recognition and also eye recognition to know how the eye are move through screen.
- 2- Student Face Recognition: take face recognition for first time and store in database
- 3- Student Eye Recognition: take eye recognition for first time and learn system how his eye are move through screen size.

**Second Stage: Exam Stage:** This constitutes the second stage of proposed system, is called “Exam stage” consist following: When student start exam ask him to insert user name and password, after that begin first step in exam stage to identify student by:

- 1- Image Acquisition: The system consists of a camera that captures the picture and send it to the image pre-processing. At that point the picture send to second step for face detection.
- 2- Face Detection: In this step begin separates the facial area from the rest of the background image. The faces which are stored in the database.
- 3- Feature Extraction: Feature extraction is used to improve distinguishing faces of different student. Using eyes, nose and mouth are extracted. Feature extraction is useful in face detection and recognition.
- 4- Face Recognition: The face picture is then contrasted with stored picture. If the face picture is matched with the stored picture then the face is recognized. Then for that specific student can start exam.

After student access the exam and takes the exam, under observing of system for real-time cheating behavior detection. Utilize two sensors smartphone camera and mic to catch varying media signals of the exam environment and the student. The detected data is first prepared utilizing three components. These components are: user verification, speech detection, eye detection.

Using two sensors to viewing and hearing forbidden information that student may cheat from it. Therefore, proposed system use smartphone hardware to hear and see what the student sees, by smartphone camera and mic. Smartphone camera facing the student and use in multiple purposes like what student doing and where is looking. Smartphone camera essentially captures the field of view of student and analyzing its video content to detect cheating behaviors like reading from books, notes. The proposed system begins to get video streams from smartphone camera in

the same time, the two video and sound streams are consequently synchronized during the test session.

**User Verification:** One of the significant worries in mobile exams is that the test taker requests help from someone else on all or part of an exam. The proposed system ought to have to continue to verify whether the student is who he claims to be all through the whole exam session. The student is likewise anticipated that would take the exam alone without the guidance of someone else in the room. Proposed model use user authentication model decide to use face verification due exam.

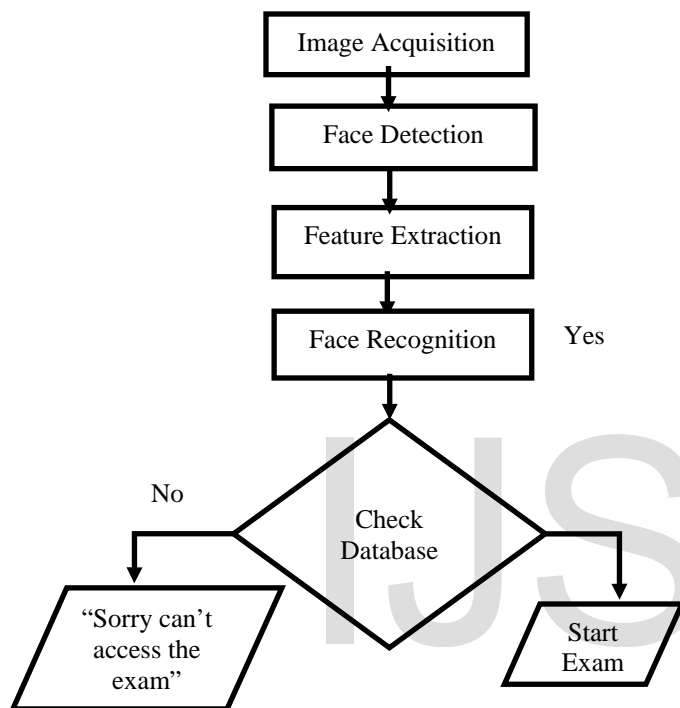
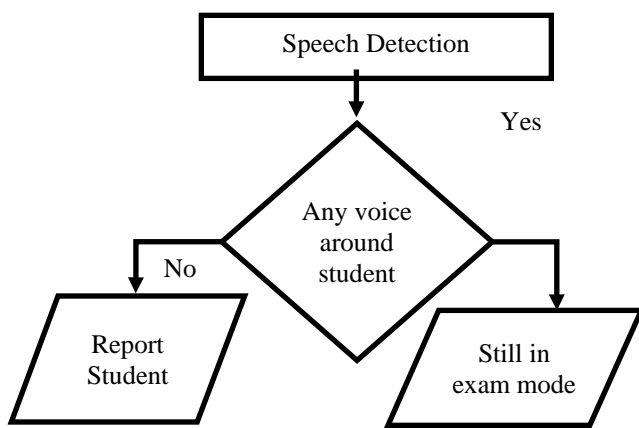


Fig. 2 steps to user verification

**Speech Detection:** A standout amongst the in all probability cheating in exams is to look for verbal help from someone else in a similar room, or remotely through a phone call. For that required from student to take the exam in a tranquil stay with nobody around, any human discourse being distinguished could be viewed as a potential cheating case. Therefore, proposed system use algorithms to detect speech from acoustic signals. Following a learning-based speech detection scheme, first gather a wide assortment of average sounds in an office situation, for example, breath, burp, seat moving, hack, steps, and so forth. Thinking about previous speech as the positive



examples, while the rest of the classes of sound are negative.

Fig. 3 steps to Speech Detection

**Suspend applications:** when student start exam application work, force control of changes in main screen in smart phone used by student. Student can’t opening up any application for searching answers or open any application. When student log on exam application smart phone all application on his smart phone will be suspend until finish exam time. Active screen take control of enables the act of being taken of all the running processes in the system at the time of examination.

**Gaze Estimation:** With the video input, it is workable for watching the face of the student through the exam. In an exam, the student can move the head moves or keeps head turned to a position. All these are taken by controlled, sound act of being controlled by force is useful if student looking for an answer to someone by conversing with a person. Also utilizing eye moves to discover if a student sees to another device such as mobile, pc or book because that using eye detection by comparing between his eye moves and eye moves stored in a database in the preparation stage.

## CONCLUSION

Mobile computing has found variety of application, one of them in the field of education. Mobile examination system is a system of leading the examination without usage of pen and paper. The system includes the utilization of smartphone device in hand of the student through which he/she can take the examination. In any examinations, there’s a chance of cheating and so its detection and control are a very important point. The objective of this paper is to develop a well-rounded inference system which is capable of detecting any cheating behavior at a mobile examination system. The proposed system includes two stages, the preparation stage and exam stage. In the preparation stage, the student needs to authenticate him before starting the exam, by utilizing a secret key and face verification. Second stage “exam stage”, the student takes the exam, under supervising of mobile examination system for real time cheating behavior identification. Proposed system use smart phone camera and microphone to catch varying media signs of the exam environment and student.

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