



# Proctoring Using Artificial Intelligence and ESP32

1Tanushri G K, 2Dr.Harish B G

1Student, 2Head Of The Department Of MCA

1University BDT College Of Engineering,

2University BDT College Of Engineering

**Abstract:** This examine addresses the present day problems in on line examination, which might be especially applicable throughout the web mode of checks. Our attention is on instructional dishonesty related to on line assessments. Allowing college students to take checks from domestic thru on line in which they may be monitored with the aid of using a proctor for the complete period of the examination turned into pretty difficult. Further enforcing this technique at a huge scale will now no longer be manageable because of the team of workers required.To conquer this problem, an synthetic intelligence (AI) in python is used,that may capable of reveal the scholars the usage of their pc or device degicam and voice recorder itself might allow the supervisor to reveal more than one quantity of college students as soon as at a time, e-dishonest intelligence agent is a mechanism for detecting the practices of on line dishonest, which consists of main modules: the net protocol (IP) detector and the conduct detector. The intelligence agent video display units the conduct of the scholars and has the capacity to save you and come across any malicious practices.

**Keywords:** online mode, electronic spy agent cheat, online cheat, internet protocol and behavior detector.

## 1. INTRODUCTION

Online publications have emerged as a possible alternative in training. This platform is an increasing number of identified in schools and better training establishments inclusive of universities, or even applied in standard schools – for example, at some point of the Covid-19 pandemic. However, the indifferent nature of on line training increases worries approximately the capacity dangers of educational dishonesty, specifically while college students take a seat down for tests at far flung locations, withinside the absence of the disciplinary tactics which are normally hired at exam centers. There is exponential increase in on line training, in phrases of each pupil enrolment and the company promote it entails. However, present literature imply a incidence of on line cheating, which entails educational dishonesty via way of means of each the school and the college students. Although on line training gives treasured gaining knowledge of possibilities for individuals who do now no longer have get right of entry to to conventional first-rate training because of time .

Online proctoring permitting applicants to take assessments from any location. The proctored examination software program is used all through on-line proctoring to permit college students and proctors to take assessments at any place. It should be sufficiently dependable and net connected. Proctoring a web examination is not difficult. Monitoring software program is hired to reveal the scholars via audio and video after organising the examination's credibility and authenticity. A proctored examination is related to having an character proctor tracking an examination and tracking the scholars. A proctor absolutely influences an examination's integrity with strict invigilation. In case a pupil violates the policies of conduct, a proctor can brushed off the check and record the problem to the group engaging in the assessment.

## 2. Literature review

Prevention of fraud at some point of eExam (it may be regularly reported while on-line examinations are performed on this paper) as a result turns into a primary trouble for exam executive. Cuskey et al. introduced an technique of now no longer the use of 8 conventions for dietary monitoring. Above manner declare a lower in standard expenses with the aid of using lowering the cumulative quantity of time and assets the organization and college students use up [3]. The authors stated this technique might assist to lower the similarity of fraud while eExam is performed. The conversations between some of the students and the guides had been moreover a basis for exceptional artwork to emerge as privy to the cappotential of the students to evade[4]. The university student's conduct closer to trickeries sooner or later of on line examinations modified into stimulated with the useful resource of the use of factors in colleges and education approach observed with the useful resource of the use of teachers. Keriesztury&Cser indicated that students ought to now no longer take all styles of flash-based definitely memories, mobiles, calculators

and computer devices to exam to prevent some misbehaviours at on line sorting out centers [5]. In order to help the student apprehend responsibility and institution practices to decorate their private selves withinside the instructional training courses, in addition to scientific and non- scientific influences, superb trusted factors are forced with the useful resource of the use of Migueletal. [6]. University college attendees involved in duplicity through driven exams under positive strict conditions under certain conditions. Hy1tonetal. proposed the usage of virtual camera proctoring to encounter capability university college students involved in misbehave [7]. . However, the usage of this method approach that the captured photographs of digicam need to be investigated and monitored regularly, this is like good sized paper exams. later on, Kor man forced the approach to determine human beings involved in cheating during e-Exams via the usage of some of the pc and human beings [8]. The capability of pointing requirements for fraud university college attendees may be pace of typing, distractions, erratic typing, etc. In practical and conceptual letters, Zhang&Ke attempted to enlarge a paperless evaluation rules for the SQL language [9]. Conducting of this style of exam is useful if pc workers are unavailable for usability. As well, the fingerprint perception of facial identification turn out to be employed [10].

In the present gadget a few businesses rent personnel to reveal the net procedure of exam; they assume to constantly reveal the sports of the person to make sure honest exam is done. .Several research display that with the boom in technology and a couple of varieties of online resources to save you plagiarism, academic fraud increases. The e- exam has been a first-rate impediment for maximum Universities and academic institutions with a sizeable quantity of businesses presenting state-of-the-art and undetectable gadgets. Some of the anti-dishonest techniques are mentioned withinside the following sections in the direction of thawing the neaky dishonest trail.

#### **A. Procured Online Conformation ID**

This on-line conformation ID allows the examiner to exchange candidate conformation throughout the design of e-examination . In this technique, the scholar desires to click on a take a look at link, photo identity proof, and conformation information throughout the enrollment steps. The proctor may be able to affirm information use of their on-line portal and affirm the valid candidates [5, 6]. It will assist to keep away from faux examination takers or impersonators with the aid of using the use of the distinctive sorts of facial reputation tools. However, it isn't a foolproof technique and therefore more than one tests are crucial the use of this technique.

#### **B. Attained Exam Browser System.**

In this approach, a procured surroundings is started with already defined packages and beneficial web sites. Once the student clicks the application, it makes the gadget to close down robotically and the most effective application-associated equipment or web sites will run at the gadget [7]. Above approach may be greater relevant for open ee-e book assessments with limited/decided on assets to be had for the scholars the

use of the whitelisting technique. However, anti-dishonest strategies the use of this technique isn't always as powerful because the examiner can still get right of entry to outside assets to discover the response.

### C. Avoiding phone Usage.

The inhibitory actions are get admission to the take a look at solutions the use of cell telephones and blockingsome of the webweb sites which might be taking area which usually carries the solutions for sure query. Nearly 35% of college students use cell telephones for dishonest in on line exams [16]. The era detects gadgets which might be beneathneath usage, trying to find comparable content material associated with the exam and might be labelled if identified with a few activity [8]. It additionally inspect internet service provider and obstruct the web websites which might be grazed for solutions and reviews the identical which incorporates the associated take a look at questions and solutions. This method facilitates to keep away from any type of leakage of on line query papers. The largest downside of this technique isn't a stand-by myself anti-dishonest infusion.

### D.Auto-Supervising

With an automatic proctoring technique with integral software program facilitates to display the pupil's conduct and sports the use of the recordings to stumble on suspicious behaviour[9]. The builders are the use of synthetic intelligence (AI) primarily based totally algorithms to display pupil conduct, gestures, devices pre-owned, etc. Any type of sceptial conduct might be find. This technique demonstrate to be one of the value- powerful answers are far nonetheless beneathneath development with diverse add-ons.

### E.Live Monitoring

The monitoring software program software give rise to purple flags on the detection of sceptial functionality and is probably estimated for the probity of the exam [5]. By this approach possibilities of fakeness become less and it is very hard to scale the probity at times. Also, this approach has the electricity of compromising the price and generally, it is extra as compared with auto-supervised method.

### F.With 3600 Cam for Supervising.

Almost institutes are imparting the cam with pliability of photograph taking photographs for 3600 views in a exam. Cams are used with the help of a Systems show display monitor to note attendee's eyeboll movement and actions withinside the exam place [10].

### 3.Proposed System

Using AI and laptop vision, the proposed gadget is an attempt to expand a beneficial product withinside the area of proctoring systems. Tensor go with the drift and dlib libraries are hired right here to stumble on the more than one faces and head poses of users, and as quickly as unlawful sports are discovered, an alert is generated, in addition to a beep sound, the use of the board as a valid generator.

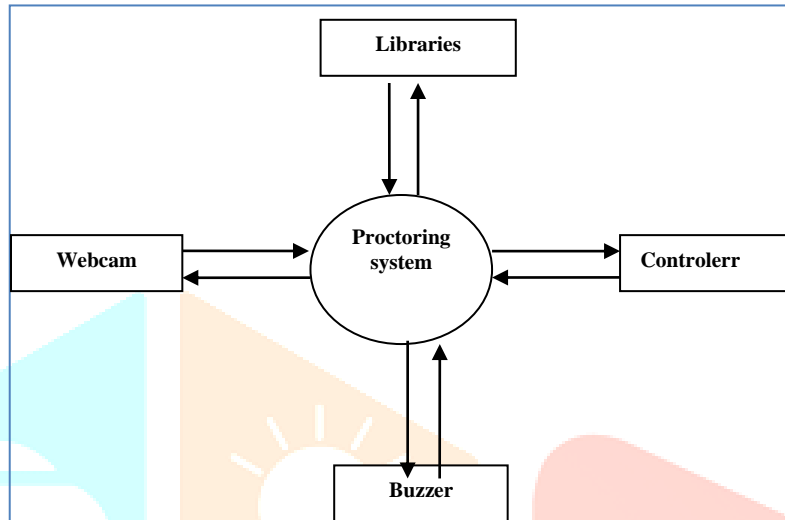


Fig.1. Context Diagram

In the proposed device ESP32 and BUZZER is used for giving the alert message to the consumer whilst the scholars misbehaves even as attending the web examination by sound with the intention to come to recognise that the scholar is cheating and the consumer might also additionally take the action.For every head motion and a couple of faces it indicators with the aid of using sound .

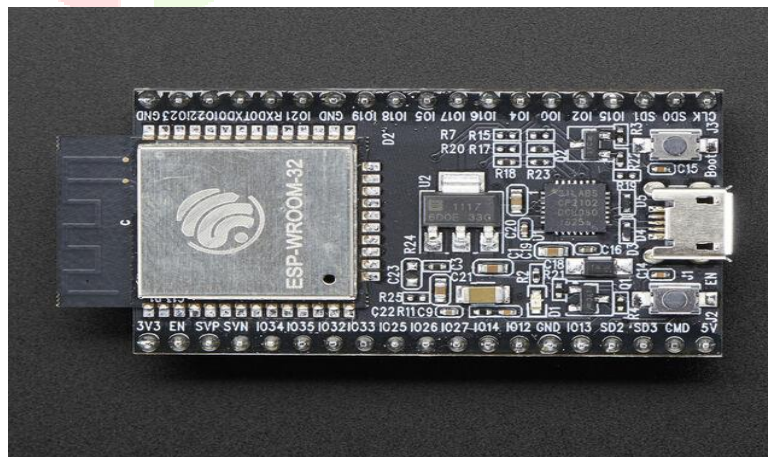


Fig.2. ESP32 BOARD

ESP32 microcontroller, that is one of the 802.11b/g/n microcontrollers (BT). There are many blessings to the usage of this low-cost, low-energy device to put in force the projects. A 40-nm method evolved via way of means of TSMC is used to provide the ESP32 microcontroller, which became designed via way of means of Shanghai-primarily based totally ESP Rensif Systems. It has been acknowledged to hyperlink up its personal community on occasion. Using the USB port, it could supply a 5V energy supply. The ESP32 is an top notch desire for peer-to-peer connections that do not require an get admission to factor as it helps Wi-fi Direct as well.



Fig.3. Siren

It is an sound making device which alerts the user by means of producing some beeping sound. It is an electronic device it consists of connectable pins. It consists of pins or ends one is nice and any other one is neagative .normally poor quit is connected to the floor and the nice quit is attached to the statistics voltage pins.

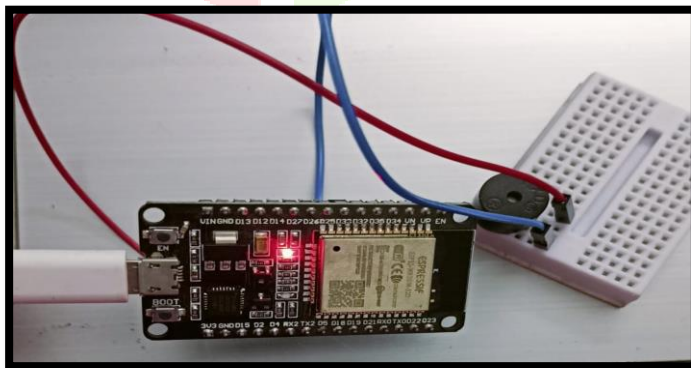
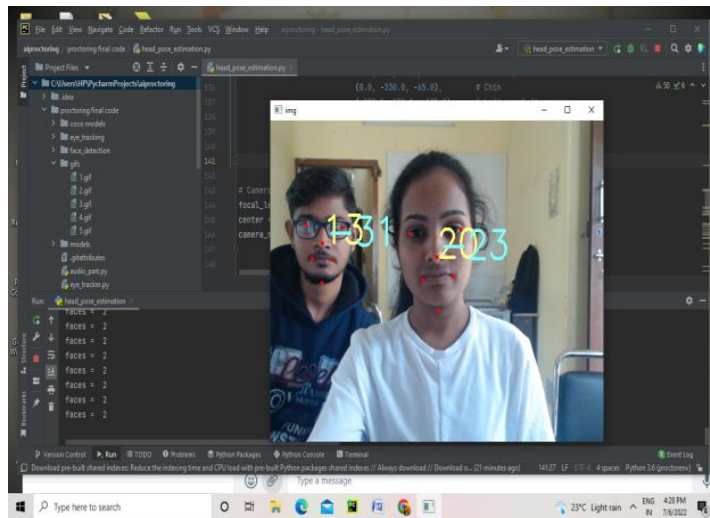


Fig.4. Showing the Connection of ESP32 and Buzzer with the assist of jumper wires to the port.

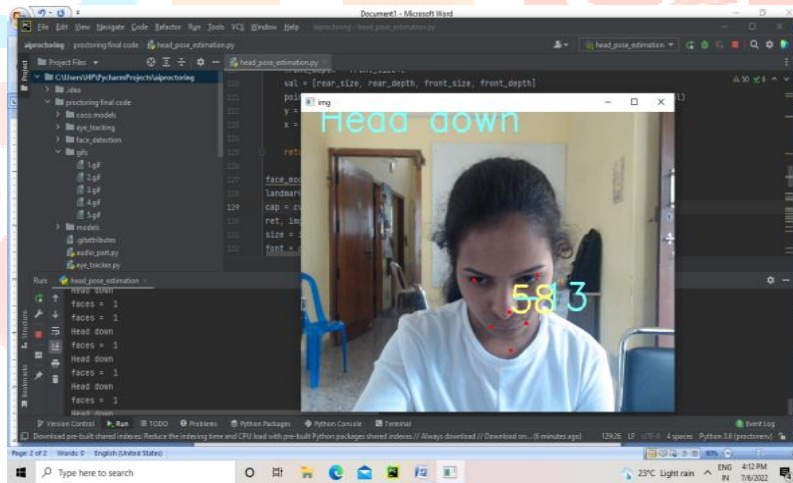
In the fig. four high quality give up of the buzzer is attached to the pin D25 of the ESP32 board and the terrible give up of the buzzer is attached to pin floor of the ESP32 board.





**Fig.5. Multiple faces**

In Fig .5. a couple of faces are detected and offers the alert message with the aid of sound thru the buzzer and suggests the face assume the screen ,that is that if extra than 1 individual is detected .



**Fig.6. Head Pose.**

In Fig.6. actions of head is detected and it became showing that the head is down and signals the person thru the sound.

## Advantages of proposed system

- The proposed venture is beneficial for schools, colleges, and universities, wherein on line examinations are carried out .
- Alerts by using sound quickly after detecting violation of rules
- Detects the presence of more than one humans and applicants searching at every different from afar.

## 4. Result Analysis

The proposed method using tensorflow and opencv has brought the interesting end result through indicating face counts and detecting the pinnacle positions as proven within the Fig.5. and Fig.6 .Fig.5. indicates the a couple of faces this is if a couple of face is detected it offers the face counts 2 and additionally signals through the beep sound .Fig.6. indicates the pinnacle pose estimation this is if the pupil try and malpractice through searching different aspects as opposed to digital digicam or device it indicates or shows the location of head and additionally signals through beep sound .The Fig.4. indicates the relationship of ESP32 and Buzzer thru jumper wires to the port of device. When positive dishonest activities or movements executed through the students, buzzer begins off evolved beeping in order that it signals the invigilator. The workflow of this proctoring device is proven within the Context Diagram Fig.1.

## 5. Conclusion

For the functions of growing an AI version and detecting rule violations in a web exam, the proposed venture will employ AI's Deep Learning concept. If any misconduct is noticed through the webcam, the proposed version desires to inform the user. AI complements the net exam platform's quality, making it extra fun for its users, making it a extra appealing piece of software. AI improves proctoring, specially for on line exams, and makes higher selections primarily based totally on it, making it less complicated for each college students and instructors to use

## 6. Future Enhancement

1. The task might be advanced similarly via way of means of designing a interactive sprint board wherein admin has extra privileges
2. System might be blocked after repeating the identical errors after were alerted
3. Right now face popularity is applied the usage of structures webcam, it may get replaced with committed webcam masking extensive variety of angles



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