INTERNATIONAL JOURNAL OF LATEST TECHNOLOGY IN ENGINEERING, MANAGEMENT & APPLIED SCIENCE (IJLTEMAS)

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIII, Issue VIII, August 2024

AI Based Smart Supervision System

Ms. Harshada Vijay Mandlik, Ms. Vaishnavi Tukaram Dorik

RCPET's Institute of Management Research and Development, Shirpur.

DOI: https://doi.org/10.51583/IJLTEMAS.2024.130808

Received: 13 August 2024; Accepted: 20 August 2024; Published: 04 September 2024

Abstract: The integrity and fairness of examinations are continually compromised by deceptive practices such as whispering, head movements, and unauthorized hand contacts. These unethical activities pose a serious threat to the credibility of examinations, necessitating the development of a robust model for real-time supervision and control. This research aims to introduce an innovative model designed to detect and prevent such unethical behaviour during examinations, there by upholding the principles of fairness and impartiality. The suggested monitoring system can be used in colleges, universities, and schools to identify and observe students engaging in suspicious activities. By implementing this monitoring system, we aim to stop and address cheating issues since it goes against ethical standards. The proposed invigilation model can be implemented in colleges, universities, and schools to detect and monitor student suspicious activities.

Hopefully, through the implementation of the proposed invigilation system, we can prevent and solve the problem of cheating because it is unethical. Each exam room needs a head invigilator to make sure the exams are honest and address any issues that may arise. That's why we implement the AI Base Smart Supervision System.

Keywords: Attendance management system, Facial recognition, Machine learning, Artificial Intelligence, Attendance tracking.

I. Introduction

Traditionally, exams required human invigilators to monitor students in the examination hall. As the number of students increases, more invigilators are needed, resulting in greater demands on labor, time, energy, effort, and cost. This traditional system can be quite burdensome. An effective invigilation system is necessary to prevent cheating in exams, as cheating can directly impact a student's moral character. Traditionally, exams required human invigilators to monitor students in the examination hall. As the number of students increases, more invigilators are needed, resulting in greater demands on labor, time, energy, effort, and cost. This traditional system can be quite burdensome. An effective invigilation system is necessary to prevent cheating in exams, as cheating can directly impact a student's moral character. Traditionally, exams required human invigilators to monitor students in the examination hall. As the number of students increases, more invigilators are needed, resulting in greater demands on labor, time, energy, effort, and cost. This traditional system can be quite burdensome. An effective invigilation system is necessary to prevent cheating in exams, as cheating can directly impact a student's moral character. Traditionally, exams required human invigilators to monitor students in the examination hall. As the number of student's increases, more invigilators are needed, resulting in greater demands on labor, time, energy, effort, and cost. This traditional system can be quite burdensome. An effective invigilation system is necessary to prevent cheating in exams, as cheating can directly impact a student's moral character.

In order to maintain the integrity of exams and prevent cheating, this paper propose is AI based smart supervision system.

They are the some Objectives:

- Objective of this project is **monitoring** and **enhancing security**, **Physical scanning**, **Biometric attendance scanning**, Each and every **bench checks** and **motion detection** on basis of **AI** Camera.
- This camera specially designs in various environments for the **exam hall**.
- In this paper to investigate which students are **cheating** in the exam hall.
- Real time alert notification.
- To reduce the burden of staff member.

II. Methodology

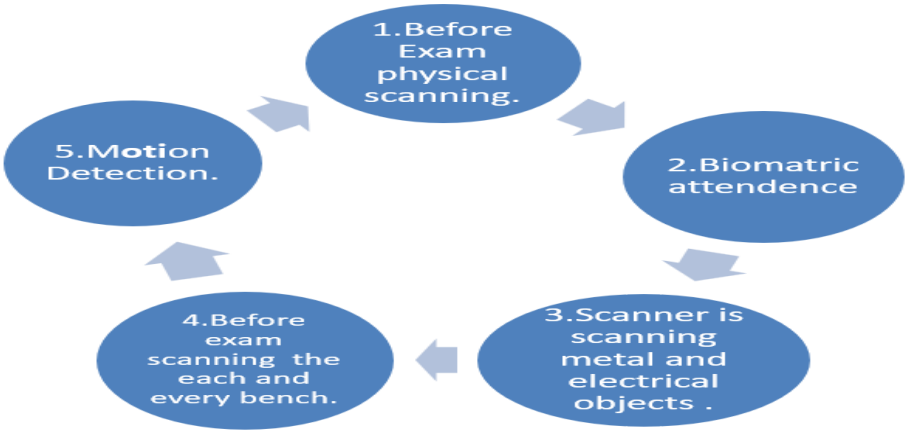
n order to maintain the integrity of exams and prevent cheating, this paper proposes a computer vision-based system. n order to maintain the integrity of exams and prevent cheating, this paper proposes a computer vision-based system. n order to maintain the integrity of exams and prevent cheating, this paper proposes a computer vision-based system. n order to maintain the integrity of exams and prevent cheating, this paper proposes a computer vision-based system. n order to maintain the integrity of exams and prevent cheating, this paper proposes a computer vision-based system **Methodology:** n order to maintain the integrity of exams and prevent cheating, this paper proposes a

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIII, Issue VIII, August 2024

computer vision-based system. n order to maintain the integrity of exams and prevent cheating, this paper proposes a computer vision-based system. n order to maintain the integrity of exams and prevent cheating, this paper proposes a computer vision-based system. and prevent cheating, this paper proposes a computer vision-based system. n order to maintain the integrity of exams and prevent cheating, this paper proposes a

computer vision-based system. This project is monitoring and enhancing security, Physical scanning , Biometric attendance scanning , Each and every bench checks and motion detection on basis of AI Camera. This camera specially designs in various environments for the exam hall. In the examination hall, teachers face difficulties in figuring out which students are cheating. It becomes really hard to pinpoint the exact student involved in such activities. Artificial Intelligence camera will be useful to solve this probl **Methodology:**

In the proposed methodology an Automatic investigation System is designed and implemented to capture Student unethical activities during an offline examination. The new system is for keeping an eye on students during exams. Cheating is identified by looking at how students move their heads. If the head moves left, right, up, or if they peek at another paper, it's considered cheating. If the head moves down while they're working on their exam, it's not considered cheating.



Door scanner:

Firstly scan the student face if the face, ID card or any one match attendant will be marked automatically.

It is scanning the student whole body if any students are carrying any cheating materials/electronic device.

Bench scanner:

Before exam first the camera check each and every bench whatever student the writing or not.

If any type of writing is detect the camera is activated. When any form of writing materials is present the camera capture the image and analysis it. If the image match predefined criteria, the camera activates and sends the alert message to supervisor.

Motion detection:

This camera is equipped to detect student’s movements and monitor the behaviour within the exam hall. If any movements or behaviour match the predefined criteria, it also activates an alert. If the head moves left, right, up, or if they peek at another paper, it's considered cheating. If the head moves down while they're working on their exam, it's not considered cheating. The camera used for live video recording of student in the exam hall.

Experimental Work:

We tested this system with students at IMRD College, where it demonstrated significant effectiveness. The project's objectives include enhancing security and monitoring through physical scanning, biometric attendance verification, and AI-driven motion detection, with comprehensive checks at each bench. The camera system is specifically designed to adapt to various examination environments. This paper investigates the system's capability to detect cheating and provides real-time alert notifications, ensuring a secure and fair examination process.

Table:

Seat no.	Name	Address	Mob no.	Present	Absent
290874	Raj	Shirpur	91XXXXXXXX	No	Yes
390769	Mitali	Dhule	96XXXXXXXX	Yes	No

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIII, Issue VIII, August 2024

290875	Ram	Shirpur	89XXXXXXXX	Yes	No
290876	Sham	Shirpur	91XXXXXXXX	Yes	No
301254	Sanika	Dhule	98XXXXXXXX	No	Yes
301458	Vaishnavi	Dhule	80XXXXXXXX	No	Yes
245013	Harshada	Shirpur	98XXXXXXXX	Yes	No
120304	Dipak	Shirpur	89XXXXXXXX	Yes	No

Stack:

Photo 8
Photo 7
Photo 6
Photo 5
Photo 4
Photo 3
Photo 2
Photo 1

Algorithm…

Student =30

Step 1: Start

Step 2: for (s=1; s<=30; s++)

If the condition is true the student name, Seat no, mob no. will be stored, and there attendance will be automatically marked.

This code represents a simple “for” loop in a programming language. It initializes a variable “s” to 1, and the loop continues as long as “s” is garter than or equal to 30.in each iteration, the value of “s” is incremented by 1. This loop is commonly used for repetitive tasks, and it will execute the code block within its scope 30 times.

This for loop is stop the condition is (31<=30), because the 31 is greater than 30 but the criteria is (s<=30) so that’s why this for will be stop.

Step 3: Bench scanning camera

When the student’s enter the classroom, then bench scanning camera is activated.

Criteria =A to Z, a to z & 0 to 9.

When any writing appears on the bench, an image is captured and compared to a predefined criteria image. If a match is detected, an alert message is promptly sent to the supervisor.

Step 4: Motion Detection Camera

During the exam period, this camera is activates.

Criteria = Head moves left, right, up or if they peek at another paper then it will consider to Cheating.

If (anybody cheating)

Then

Automatically send images to exam co-ordinator or COE of Exam department.

Step 5: if (Paper time is over)

Then

Stop all cameras working and send those data in the proper database.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIII, Issue VIII, August 2024

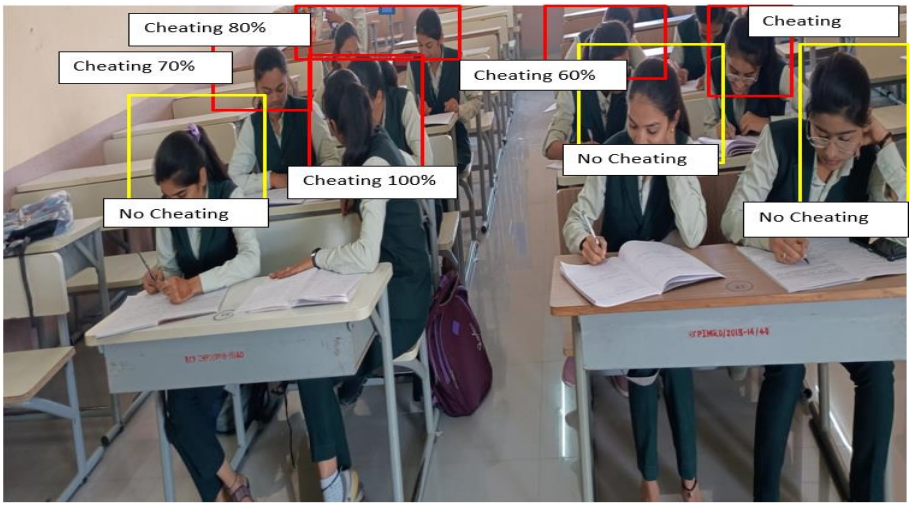
Otherwise

Loops continued

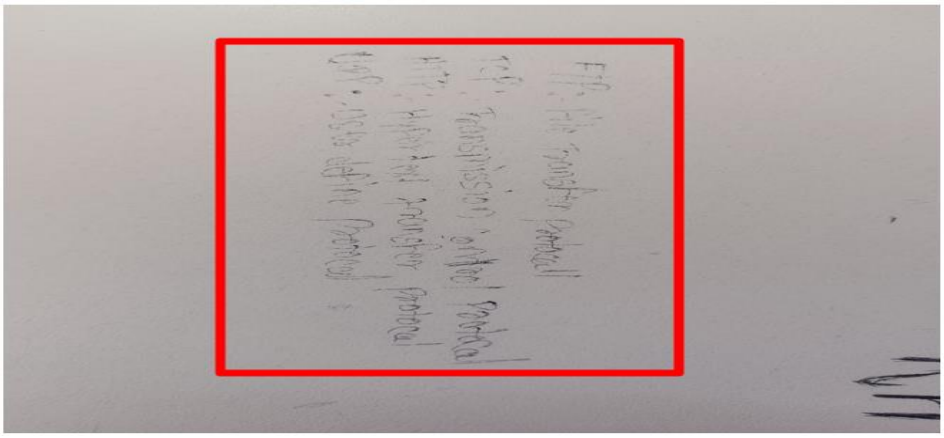
End if

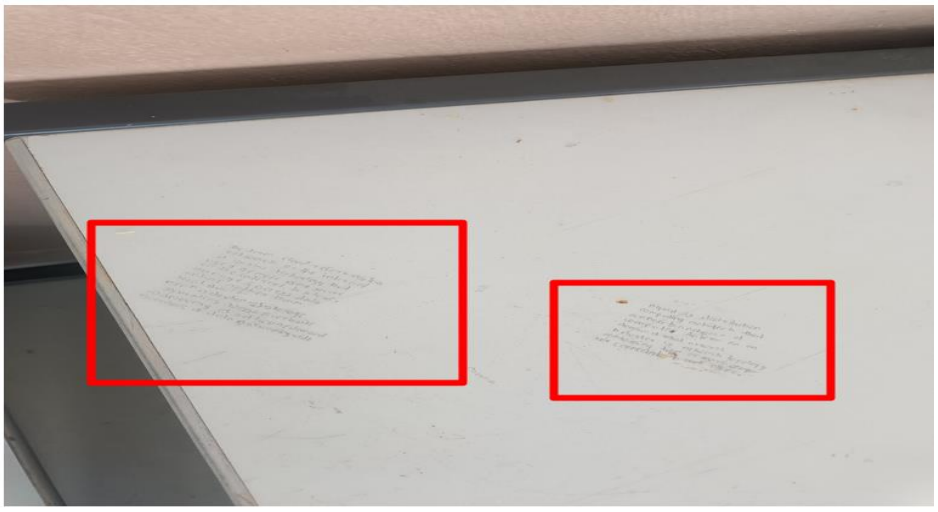
III. Result

As per our study, smart supervision model produces the following result by images. Some Students are solving the paper without cheating and some students are trying to copy the data or cheating from different sources, these students are shown in red colour boxes.



The model second camera captured and produces the images those students write something in the bench just like,





ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XIII, Issue VIII, August 2024

IV. Conclusion

- In this paper as per our study we conclude that, Smart Supervision System in Exam halls is an effective way to prevent cheating and maintain the integrity of the examination process. By using cameras, motion sensors, and AI algorithms, this system can detect and flag any suspicious behaviour in real –time.
- It is observed that, the system is a fair & secure environment for all students. It's amazing to see how technology being utilized to ensure a level playing field in exams.
- We are investigating that our system is useful for **students** and **teachers** in the special examination hall.
- It is examined that is manpower, cost and the burden on the Invigilator staff members are reduced using the current system.

References

1. Singh, A.K., Bansal, V.: SVM Based approach for multiface detection and recognition in static images. J. image Process. Artif. Intell. **4**, 17 (2018b)
2. Artificial Intelligence: A Modern Approach
3. https://paperpile.com/g/what-is-research-paper/
4. https://www.linkedin.com/advice/1/how-can-you-write-algorithm-research-paper-easy
5. chatgpt.
6. Yan, B.; Mei, L. Design of intelligent invigilator system based on artificial vision. J.
7. Phys. Conf. Ser. 2021, 1881, 042054. [Google Scholar] [CrossRef].
8. https://typeset.io/questions/how-to-describe-an-algorithm-in-paper-34tozuyppc.
9. https://en.wikipedia.org/wiki/Motion_detection.
10. Kulkarni, R. Real Time Automated Invigilator in Classroom Monitoring Using Computer Vision. 2019. Available online: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3367715
11. Hoque, M.J.; Ahmed, M.R.; Uddin, M.J.; Faisal, M.M.A. Automation of Traditional Exam Invigilation using CCTV and Bio-Metric. Int. J. Adv. Comput. Sci. Appl. 2020, 11, 392–399.
12. Fundamentals of Machine Learning for Predictive Data Analytics: Algorithms, Worked Examples, and Case Studies – *By John D. Kelleher, Brian Mac Namee, Aoife D'Arcy*
13. https://www.researchgate.net/publication/367376895_AI_Based_Smart_Surveillance_System
14. A. Bedagkar-Gala and Shishir K. Shah, A survey of approaches and trends in person re-identification, Image and Vision Comput ing 32 (2014) 270-286.
15. Malhotra, M.; Chhabra, I. Automatic Invigilation Using Computer Vision. In Proceedings of the 3rd International Conference on Integrated Intelligent Computing Communication & Security (ICIIC 2021), Bangalore, India, 6–7 August 2021; pp. 130–136.
16. Adil, M.; Simon, R.; Khatri, S.K. Automated Invigilation System for Detection of Suspicious Activities during Examination. In Proceedings of the 2019 Amity International Conference on Artificial Intelligence (AICAI), Dubai, United Arab Emirates, 4–6 February 2019; pp. 361–366