

**Name / Title Of The Project:**

**"AI Based Smart Exam Proctoring System"**

**Type:**

**Website/WebApp**

✓ **ABSTRACT:**

- Massive open online courses and other forms of remote education continue to increase in popularity and reach. The ability to efficiently proctor remote online examinations is an important limiting factor to the scalability of this next stage in education. Presently, human proctoring is the most common approach of evaluation, by either requiring the test taker to visit an examination center, or by monitoring them visually and acoustically during exams via a webcam. However, such methods are labor intensive and costly. In this paper, we present a multimedia analytics system that performs automatic online exam proctoring. The system hardware includes webcam for the purpose of monitoring the visual and acoustic environment of the testing location. The system includes basic components that continuously estimate the key behavior cues: active window detection, gaze estimation, and phone detection. By combining the continuous estimation components, we design higher level features to classify whether the test taker is cheating at any moment during the exam.

✓ **EXISTING SYSTEM:**

- The existing system was manual in which college take pen-paper based examination.

✓ **PROPOSED SYSTEM:**

- The proposed system come with automation features of checking whether the student is doing any unfair means or not. Instant Results to the students. User-friendly UI & UX for both student and professor. Professor can create the number of tests and publish the results.

✓ **MODULES:**

- System will Detect the student when it is using mobile using YOLO predefined model [Warning will be issued]
- Taking screenshots of the user movements and storing inside the database using OPENCV
- Professor can create the test and in which he/she can add, delete update the questions & answers [in the format of MCQ]
- Embedding a calculator for mathematics related tests.
- If student tries to open another application or it tries to new tab then it will be notified both professor and the student [Warning will be issued]
- Results will be published for student and all marks will be in csv format.
- All student movements activities will be shown to the professor.

- Basic Authentication on both side Student and Professor [Login, Register, Forget Password, Change Password]
- Student can check results, give test
- Professor can create test, monitor students and publish results
- Disabling the copy paste function in the exam
  
- ✓ **AI COMPONENTS / ALGORITHMS:**
  - Convolutional neural network [CNN Deep Learning Algorithm] for detecting the unfair means of the students.
  - OpenCV library is used for image processing.
  
- ✓ **MODELS:**
  - Predefined YOLO model
  - Predefined Caffee model of Deep Neural Network [opencv]
  
- ✓ **HARDWARE REQUIREMENTS:**
  - Processor – i5
  - Hard Disk – 480 GB [SSD]
  - Memory – 8 GB RAM
  
- ✓ **SOFTWARE REQUIREMENTS:**
  - IDE USED: VS CODE
  - OPERATING SYSTEM: WINDOWS 10
  - PYTHON 3.6.2 AND HIGHER
  - FRONT END: HTML, CSS, JAVASCRIPT, BOOTSTRAP, ETC
  - BACK END: PYTHON [FLASK FRAMEWORK]
  - TENSORFLOW
  - DATABASE: MYSQL
  
- ✓ **TECHNOLOGIES USED:**
  - PYTHON 3.6.2
  - FLASK
  - TENSORFLOW
  - MYSQL DATABASE
  
- ✓ **ADVANTAGES OF THIS SYSTEM:**
  - Helping in situation like covid-19, flood like conditions, etc
  - It enables organisations to eliminate the need to arrange in-person invigilators and test centres, which removes a huge administrative burden. This is especially true when trying to run test centres in more remote locations around the world.
  - Online invigilation enables the organisation to scale worldwide – to run more exams and with a greater geographical reach.
  - There is also the benefit of increased security, as it is very hard to cheat when an unseen invigilator is viewing you constantly via a large video screen.

- The benefit of reducing pressure on exam hall space at key times of the year is very important to universities, so remote invigilation is becoming more popular as a way of running faculty exams.
  
- **DISADVANTAGES OF THIS SYSTEM:**
- Need an strong internet connection.
- If user base increases, the server load also increases, and so there is chance of system failure.
  
- ✓ **BIBLIOGRAPHY/REFERENCES:**
- <https://stackoverflow.com/>
- <https://ieeexplore.ieee.org/>