Traditional Solution to Identify College Uniform Using CNN: Review

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Abstract — The purpose of this paper is to develop an AI-managed system that automatically automatically enforce the enforcement of university dress code policies using a tool, teachable machine, a device for training machine learning models. The system uses camera-based technology to monitor students as they enter the premises, ensure compliance with the dress code of the institute without the need for manual supervision. AI analyzes students' dress in real time, recognizing whether the required items such as formal shirts, tie, jackets or ID cards are present. If a violation is detected, the system immediately sends a notification to the student, which specifies the missing items (s), as well as a photo of the student for accurate time and record-keeping. By automating the process, the system reduces the capacity for human error, prejudice and inconsistent enforcement that is often accompanied by manual checks. This ensures fairness and fairness in the monitoring process, as AI depends only on visual data to assess compliance. Additionally, the system continuously operates, providing 24/7 surveillance without the requirement of brakes or supervision shifts. The AI-manufactured approach also increases efficiency by reducing the required time and effort from employees to manually check each student's dress. Real -time notifications enable students to fix any violations immediately, reduce the classroom disruption and improve the overall learning environment. With the required minimum human intervention after the setup, this automated system ensures a transparent, consistent and reliable method to maintain dress code compliance to benefit both students and university employees.

Keywords *— College discipline, AI, computer vision, teachable machines, machine learning, and automated monitoring ,AI-based discipline monitoring ,Machine learning in education, Dress code violation detection, Computer vision for compliance , Automated student surveillance , Complex monitoring system , Real -time image recognition, AI-Interactive Notification System*

I. INTRODUCTION

These project aims the development of the AI-Interested College disciplinary system, using the accessible machine learning platform, teachable machine to automate and enhance the project dress code compliance. The main objective is to create a camera- based system that immediately assesses the student dress in the college campus, identifies the violation from the prescribed uniform.The purpose of this system is to streamline disciplinary processes, reduce human error and ensure frequent enforcement of college dress code policy. Traditional dress code enforcement methods often depend on the faculty spection by the employees, which are naturally subjective and disabled.In large institutions, it is impractical to maintain constant monitoring, which leads to anomalous discrepancies and unseen violations. This manual process also consumes the time of valuable employees that can be allocated better for educational activities. In addition, manual checks can create perception of infiltration, potentially promoting mistrust between students and employees. The proposed AI-based system addresses these challenges by providing an objective and strong mechanism for dress code enforcement. With its user friendly interface, the teacher allows the manufacture of machine learning models without comprehensive programming knowledge.The system will be trained to accurately identify various similar components, such as formal shirts, ID cards, relationships and jackets. A comprehensive image will be used to ensure the accuracy and reliability of the system ,including dataset, diverse angles, lighting status and student demographics.

II. ARCHITICTURE

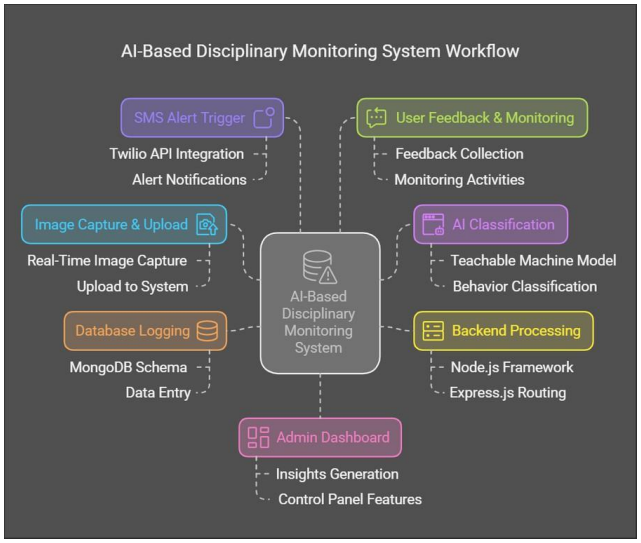

Fig.1. Block diagram of system

III. LITERATURE SURVEY

Crowd Detection, Monitoring, and management

Crowd management is one of the most important step in preventing disasters at large-scale public events. According to Haider et al. (2023), a significant improvement in management and monitoring of crowd has been done, which ensure public safety. These studies done by them gives us a understanding review of crowd management techniques, also AI driven monitoring system for handling large crowd of people or a huge group of people. Hence the techniques provided by him are used to make a effective crowd control mechanism.[1]

Real-time Crowd Density Estimation

Devis and Kumar in 2023 these two individuals developed a deep-learning system that can help in monitoring huge crowd in real time which also focuses on various application of social distance and also focuses on public healthcare. Their research gives the understanding of AI powered crowd identification using computer vision, which helps in decision-making during large public events. [2]

Thermal Imaging for crowd congestion detection

Nguyen and Adeel in 2023 both of them make to a conclusion that using thermal technology for detecting crowding in most populated areas. This method enable

effective crowd management by identifying those high-populated zones, using thermal technology there is no need of visual inputs. This technique improves surveillance in low-light environment and in bad weather conditions. [3]

AI-Powered Overcrowding Detection in Public Transit

Brown and Singh in 2023 both these individuals proposed an AI System for overcrowding detection in public transit. By using artificial intelligence, and computer vision, this model identifies crowds in transportation setting, such as train, busses. This system is especially automated for crowd monitoring in public transit. [4]

Predicting crowd flow using deep learning

Two individuals known as Cooper and Li in 2023 both introduced a framework based on deep-learning which helps in predicting crowd flow in urban areas. This model makes prediction based on historical and real-time data, to make future patterns, which helps in planning a better infrastructure and crowd control. [5]

Hybrid Models for Advance Crowd Management

This models were reviewed by Gutierrez and Rahman in 2023 which combine AI and IoT for efficient crowd management. Here multiple technologies are used for real-time monitoring, such as machine learning, IoT sensors, and cloud computing, this works together to improve crowd detection and exponentially improve response mechanisms.[6]

Wearable Sensors for Health Monitoring in crowds

Lee and Khan in 2023 saw potential in detecting medical emergencies by wearable sensors in crowded environments. Theirs study showed that real-time monitoring of health issues such as distress, heat exhaustion in overcrowded areas, can improve emergency response system by identifying above factors.[7]

Ethical concerns in AI powered crowd monitoring

Tan and Brooks in 2023 both how ethical and privacy concerns are associated with Ai-driven crowd monitoring technologies. Their study identified potential issues such as data collection, face recognition, which need for legal regulatory frameworks to make sure AI implemented is safe in public areas.[8]

Predictive Analysis of crowd movement patterns

Zaman and Chen in 2022 developed a machine learning model that monitors and predicts future movements of crowd patterns in urban areas. Their study shows that the model analyses past data, trends to predict crowd patterns, which helps city planner and event organizer to take preventive measures accordingly.[9]

Emergency Response System in crowd environments

Johnson and Reynolds in 2022 both noticed the role of face recognition and wearable devices in improving response mechanisms during highly dense gatherings. Their study tells that by applying both biometric identification and real-time monitoring technologies, can help locate certain individuals those are in more distress efficiently.[10]

IV. Methodology

The proposed college discipline system is designed to effectively monitor and manage human behaviour using modern technology. The system ensures a well-established and reliable process for planning incidents, monitoring hard-ware and soft-ware incidents, detecting rule violations and enforcingdiscipline.

System Design and Architecture

To build an effective system, we first identify the key hardware and software components. This also includes RFID readers and AI powered cameras to monitor environmental activities. In software terms, we need a data system, analytics tools, and a reporting system to process and manage the collected data.

Hardware Integration

We'll place RFID readers in important areas to automatically track students' uniforms and help monitor their behaviour. Cameras will observe the students' activities and quickly detect any violations and reducing the need for constant supervision while ensuring a safer and more organized environment.

Software Development

We will create a smart and reliable system for managing student data using secure data such as MySQL, PostgreSQL or MongoDB. The system

will track behaviour patterns and produce useful reports. A simple and easy to use dashboard will be created for school staff and administrators to help them easily monitor and manage student records.

Data processing and analysis

System will gradually collect and store data from all over the world safely. With the help of other learning machines, it will identify opportunities, anticipate possible research-related issues and improve rule enforcement over time. It will also detect common activities, such as running or pushing, which will keep the school environment safe.

Communication and Alerts

Whenever there is an unusual violation on campus, the system will send immediate notifications through messages, messages and in-app alerts. Departments and administrators will have access to report, take action and handle unusual matters. It will also ensure prompt communication during emergency situations.

Testing and Verification

Before launching the system, we will test each part to make sure it works properly. The RFID reader and monitoring system will be tested separately to make sure that they communicate accordingly. Feedback will be collected from the students and faculties to improve and validate the system.

Deployment and Maintenance

Once the system is fully functional, we will be deployed across the campus. In order to meet the standards of the future and to develop the principles of discipline, a plan will be developed to solve the problem and make measurable improvements.

Performance Optimization

To run the system in an informed manner, we will improve the way details are worked on, improve the machine learning model and enhance automatic rule recognition. This will help make the system faster, more accurate and efficient, while also ensuring that any rule violation report is done without delay

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By using technology to monitor household behaviour in a structured way, this will make the management an honest, transparent and efficient process. In the long run, this will help promote a more responsible and well-disciplined family environment.

V. CONCLUSION

In conclusion, this assignment introduces an revolutionary AI-pushed machine to streamline the enforcement of university get dressed code guidelines the use of Teachable Machine and camera-primarily based era. The gadget addresses key demanding situations together with human error, inconsistencies, and administrative burdens via automating get dressed code tracking. Through real-time image analysis, the AI evaluates pupil apparel as they input campus, detecting violations and right away notifying college students with precise information, allowing for brief corrections. This approach fosters a culture of responsibility and transparency, selling equity and duty. By decreasing human involvement, the system relieves workforce from manual assessments, enabling them to recognition on greater critical duties. The impartiality of the AI guarantees that all students are dealt with equally, free from biases. Additionally, the device is scalable, adaptable to various campuses, and constantly improves as new records is incorporated. It offers a greater consistent and efficient method for dealing with subject whilst minimizing discrepancies which could get up from fatigue or subjective judgment in traditional strategies. While privacy and statistics safety are essential issues, the machine is designed with strict safeguards to protect student information. This AI-based disciplinary answer represents a considerable breakthrough in modernizing campus management, ensuring green, fair, and obvious enforcement of get dressed code regulations. As instructional institutions include AI answers, this system

showcases the potential of technology to enhance operational efficiency and preserve a professional campus surroundings .

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