

Student Discipline Management through CCTV

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Abstract: The proposed system, “Student Discipline Management System using CCTV and Machine Learning,” is designed to monitor student activities and maintain discipline within educational institutions. The system uses CCTV cameras to capture video footage of classrooms and campus areas. The captured video is processed using digital image processing and machine learning techniques to analyze student behavior. The system automatically detects unusual or undisciplined activities and records them for monitoring purposes. The collected data can be used by faculty or administration to improve discipline and ensure a better learning environment.

Key Words : CCTV Monitoring, Machine Learning, Student Discipline System, Image Processing, Video Surveillance

1.INTRODUCTION

Maintaining discipline in educational institutions is important for creating a productive learning environment. Traditional monitoring methods require constant supervision by teachers or security staff, which can be inefficient and time consuming. The Student Discipline Management System using CCTV provides an automated solution to monitor student activities.

By using CCTV cameras along with digital image processing techniques, the system can analyze video frames and detect suspicious or undisciplined activities. Machine learning algorithms help in identifying patterns in student behavior. This automated monitoring system assists the institution in maintaining discipline and improving campus security.

2. METHODOLOGY

2.1 CCTV Surveillance System

Closed Circuit Television (CCTV) is used to capture real-time video from classrooms and campus areas. The cameras continuously record video which is sent to the processing system. The captured footage acts as the primary input for detecting student activities and behavior..

2.2 System Architecture

The system architecture consists of both hardware and software components. CCTV cameras capture video footage and send it to the processing unit. The system extracts frames from the video and processes them using image processing algorithms. Machine learning models analyze the frames to detect activities such as excessive movement or suspicious behavior. object in the form of a tag. An RFID reader module (MFRC522) reads these tags and sends information about object tags to the software part of the system architecture. In this project, a microcontroller (Arduino Uno) is used in the hardware part of the system architecture.

2.3 System Workflow

The working process of the proposed system is as follows:

1. CCTV cameras capture real-time video footage.
2. The video is divided into frames for analysis.
3. Image processing techniques are applied to detect objects and movements.
4. Machine learning models analyze the detected patterns.
5. If unusual behavior is detected, the system records the event and stores the information in the database

2.4 System Implementation

The system is implemented using Python and computer vision libraries such as OpenCV. The machine learning model processes video frames and detects patterns in student activities. A database system is used to store detected events and generate monitoring reports.

The system interface allows administrators or teachers to view recorded events and analyze student behavior.

3. CONCLUSIONS

The Student Discipline Management System using CCTV provides an automated method for monitoring student activities within educational institutions. By integrating CCTV surveillance with image processing and machine learning techniques, the system helps detect unusual behavior and maintain discipline. The system reduces manual monitoring efforts and improves campus security. It can also assist administrators in analyzing student behavior and maintaining a better learning environment. Additionally, the system offers valuable information on sales and product performance through the data analytics module. Overall, the system improves business operations and offers customers a more satisfying shopping experience.

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