**Digital Attendance Monitoring System**

**(An Deep Learning Model for Attendance System)**

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ABSTRACT

In the fast-growing technological world, humans are opting to adapt themselves with digitization and automation to keep up with time. Having that in mind, the Digital Attendance Monitoring System is developed. In this, attendance in Organisations is monitored digitally and stored in a database. In this system attendance for each individual of the Organisations is marked by monitoring them through CCTV cameras while they are inside the class. The concept of the system is based on Facial Recognition. This method involves collecting the recent photographs of every individual student of the Organisations and the photographs are collected periodically so that recognition is made accurate. The camera compares the face of the individual with the preloaded photograph in the database. Attendance is marked and updated for that individual when the preloaded photograph matches the face of the individual. This concept is based on the algorithm called CNN (Convolutional neural network) and the entire coding is done in Python programming language. The attendance for every session of the day is marked and updated in the cloud (e.g. Google Firebase) and the list will be obtained in a spreadsheet(e.g. Google Spreadsheet) for the reference. The Camera is fitted in the classroom in such a way that it covers all the individuals in the classroom. The schedule of every classroom is fed into the monitoring system. The attendance is marked both in the beginning and at the end of the session to make sure that every individual is in the class till the end. An alternative power source is connected to this system to make it keep running even if there is a power failure. By this Digital Attendance Monitoring System system, the time for taking attendance manually is eliminated.

PROBLEM STATEMENT

Attendance Monitoring System is essential in all organizations for checking the presence of students and it is not an easy task to check each and every student is present or not. In all organization, attendance is taken manually by calling their register numbers or names and noted in attendance registers. This method makes more complex to track all the student's attendance and difficult to monitoring the individual student attendance in a big classroom atmosphere.

PROPOSED SOLUTION

So, our solution to this problem is to build a system improve the attendance record using artificial intelligence models by marking the attendance of each student by monitoring them through CCTV cameras which is present inside all the classrooms and the report will be delivered to the respected members.

WORKFLOW

Marked as Present

Images stored in the database and trained using Deep learning Algorithms

Camera captures the user image

Compares with the dataset image

Marked as absent and name is included in absentees list

Spreadsheet is generated

Uploaded in the cloud

Initially, The image will be captured by the classroom camera at regular intervals. Then, the list will be combined. Now, the images taken by the camera will undergo the facial recognition process with the help of the datasets linked to the particular classroom. At first, it will detect the human faces and it compares with the available dataset. If it matches, then it will include the name in the list or else it will include the absentee list. The list is stored in the spreadsheet. The spreadsheet may be google spreadsheet or any other. The same will be uploaded in the cloud. Here, we will be using Google Firebase, which is Open-source and also easily accessible by all google users. We can also use the cloud used by our Institution. Any changes in cloud usage can be done in the future.

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