

Video Analytics on Pedagogy Using Big Data

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Abstract : Education is the key to the development of any individual's personality. Today's students will be tomorrow's citizens of the global society. The education of the student is the edifice on which his/her future will be built. Schools therefore should provide an all-round development of students so as to foster a healthy society. The behaviors and the attitude of the students in school play an essential role for the success of the education process. Frequent reports of misbehaviors such as clowning, harassing classmates, verbal insults are becoming common in schools today. If this issue is left unattended, it may develop a negative attitude and increase the delinquent behavior. So, the need of the hour is to find a solution to this problem. To solve this issue, it is important to monitor the students' behaviors in school and give necessary feedback and mentor them to develop a positive attitude and help them to become a successful grownup. Nevertheless, measuring students' behavior and attitude is extremely challenging. None of the present technology has proven to be effective in this measurement process because actions, reactions, interactions, response of the students are rarely used in the course of the data due to complexity. The purpose of this proposal is to recommend an effective supervising system after carrying out a feasibility study by measuring the behavior of the Students. This can be achieved by equipping schools with CCTV cameras. These CCTV cameras installed in various schools of the world capture the facial expressions and interactions of the students inside and outside their classroom. The real time raw videos captured from the CCTV can be uploaded to the cloud with the help of a network. The video feeds get scooped into various nodes in the same rack or on the different racks in the same cluster in Hadoop HDFS. The video feeds are converted into small frames and analyzed using various Pattern recognition algorithms and MapReduce algorithm. Then, the video frames are compared with the bench marking database (good behavior). When misbehavior is detected, an alert message can be sent to the counseling department which helps them in mentoring the students. This will help in improving the effectiveness of the education process. As Video feeds come from multiple geographical areas (schools from different parts of the world), BIG DATA helps in real time analysis as it analyzes computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions. It also analyzes data that can't be analyzed by traditional software applications such as RDBMS, OODBMS. It has also proven successful in handling human reactions with ease. Therefore, BIG DATA could certainly play a vital role in handling this issue. Thus, effectiveness of the education process can be enhanced with the help of video analytics using the latest BIG DATA technology.

Keywords : big data, cloud, CCTV, education process

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