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Use of Big data to Measure Attentiveness of the Student

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ABSTRACT

There many traditional techniques to any techniques we were failed to get the attention of the students and every time the teacher is failing to get whether the student is clear with content or not. This paper discusses how to differentiate the students based on attentiveness. Results of this paper can be used to improve teaching methodologies and learning systems. Different behaviors of the students can be stored in the data base and these data can be used by the teacher for the valuable feedback to improve their teaching abilities. And students also get benefited by achieving improved learning.

Key words: Attentiveness, teaching ability, feedback, Teaching methodologies

1.INTRODUCTION

Education is one of the place where the term "data" is appeared first time. Here the data can be transferred from teacher to students. And finally the student's data can be stored as grades in the schools/ colleges. With the use of Big data we can store or retrieve huge amounts of data. In this paper, we'll look at some hypothetical uses for big data in education as well as some ways that it's being used right now.

As someone who has spent more than a little time at the head of a classroom, one of the worst things you can do for student achievement is start to lose a child's attention. However, when you've got a large number of faces behind those desks, it may not always be apparent who's still focused on your lesson. That's why some big data advocates want to start to apply biometric data to students. By tracking things like heart rate, facial expressions, and even other objects that are touched, the data can be analyzed in real time and sent back to the teacher so that he or she can do something to regain engagement. The really interesting thing is that these measurements can be taken via a camera on the ceiling or a watch-like device, so if you've got a mental image of each student wearing a bunch of electrodes, you can be relieved!

Many of these same measurements can be applied to not only maintaining engagement, but also finding confusion. Think

about it - if a teacher had a bookmark indicating when a student's biometric data indicated confusion, the teacher could then review that particular part of the lesson. There's no need to try to figure out where a child was lost because the information is staring right back at the instructor. While this use of biometric data as a real-time classroom tool for the individual teacher is interesting by itself, the far-reaching benefits can really come into play when this and other information is gathered and analyzed as big data [1].

2. DESIGN

2.1 Tracking Heartbeat using Biometric:

Heartbeat signal has developed as biometric methodology appropriate for remote confirmation for its protection and aliveness property. So as to improve adequacy of this methodology, we propose a technique for biometric layout extraction from a heartbeat signal caught from fingers as shown in the Figure(1). A solo anomaly discovery technique is utilized to choose the most customary pulses from an example. So as to alleviate the impact of heart rate variability (HRV), morphology of the chose heartbeat is adjusted by a piecewise-uniform strategy. At that point, a layout is framed by averaging adjusted pulses and introduced in a lower dimensional space by the vital segment investigation. Verification execution of the layout was assessed utilizing a database gathered from 112 people in different meetings by a handheld ECG gadget. We additionally executed four cutting edge layouts and tried them by a similar database.

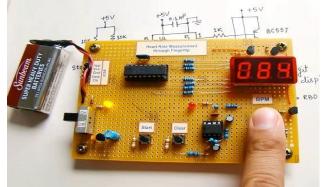


Figure 1: Calculating heart rate through fingerprint

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2.2 Tracking Facial Expressions

By using Facial Imaging software we can check for the human expressions including all emotions [2]. To track this facial expression different queries are needed to operate on data and a variety of data management tools are required. These data techniques used in this and the different environments used are called as "zones" [3].

The facial imaging software analyzes different expressions of students as shown in the figure (2)[4]. After getting these data we may get different questions in our mind like what is the reason for this expression of a student? Whether the students are clear with the concept or not? To get answers for these questions we need to work out on the data using some queries and the data to be structured differently to "zone" concept comes into picture and data can put in. A data ingestion or operational data zone made up of different advancements that can best serve this kind of analysis [5].

- 1. A continuous investigation zone that distinguishes and follows up on results as they are occurring
- 2. An investigation, arrival or chronicle zone
- 3. An information stockrooms or information store zone monitored by different investigation machines

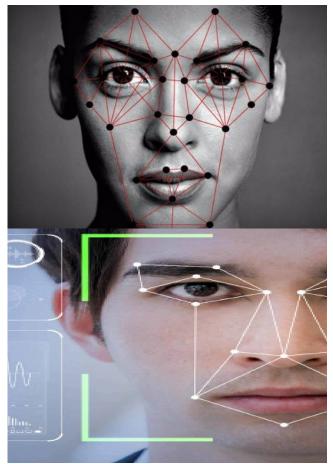


Figure 2: Analyzing Student's Facial Emotions using Facial Imaging Software

2.3 Analyzing Student's State of Mind:

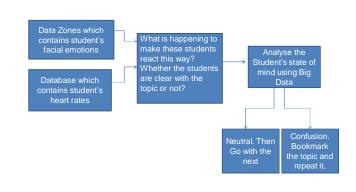


Figure 3: Analyzing the student's mind of state using data zones

Based on the facial emotions stored in the data zones and the heart rate of the students we can estimate the student's state of mind using Big Data as shown in the figure(3)[6]. If the majority of the students are in confusion state bookmarks the topic and explain it again. It may sometime depend on the academic performance of the student [7].

3.RESEARCH METHOD

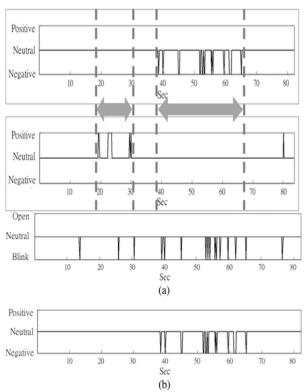


Figure 4: Screen with student's results

If the graph from figure (4) shows neutral then students are clear with the topic.

If it shows negative at that point of time students are not clear with the topic.

If the majority of the stude1nts are having negative map the teacher has to bookmark the topic and repeat the topic [8].

Using the clustering methods available in Big data analysis we can identify the behavior of the students [9].

Once if we identify the behaviors of students we can link them with the facial expressions.

4.CONCLUSION

As we can see Big data and IOT can really improve the education. Most of the students get benefited by using this approach. Teachers also have so many tools to improve the teaching and can implement different techniques.

Big data solves problems in various fields including education. As the difficulty level is very less we can improve the education system by implementing new techniques.

But the only problem with this is the people are not aware of using this they may face some difficulties. Teachers should practice well and should make the students to use this tool.

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