Automated Speech Recognition System for Handouts

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ABSTRACT

Based on the studies many countries are facing problems in the development of the educational system. But still some governments are showing their interest in developing their educational standards. Great deal of research has been done on identifying the factors that affects the performance of student at different educational levels and also I introduced an approach for improving the educational system where Instructors and questioners voice are converted into textual format and stored in database in the form of Documents. Data mining is the process of extracting useful information from the database. Educational data mining (edm) deals in developing and discovering the knowledge with the help of data's from educational domain. Therefore edm is an efficient way in developing the Educational System. This new area of research focuses on the development of methods to better understand students and the settings in which they learn. This study proposes to predict instructor's performance by using data mining and the materials taken by the instructor's in the class.

Keywords: *Instructors, Educational system, Educational data mining and Speech regognition.*

1. INTRODUCTION

Some of the factors which make the educational system to drop back are diversification of boards, privatization of education, politics, under qualified teaching staffs, lack of study material and infrastructure. Hence to make the educational learning a more interesting and useful for both government and student's carrier this application plays a major role. Nowadays mobile phones are being virally used by everyone across the world. In 1980's mobile phone was introduced which made people to get and share many information and as the technology increased the evolution has made from Hand Phones to Smart Phones. These phones are used for games, email, browsing the internet and other functions of computer. A mobile phone is also called as radio telephone. Thereby to introduce an interest in the education instead of pen and paper we can use mobile with WiFi connection in this application where all the information thought by the faculty will be stored in the server database which can be used for future reference. Since mobile phones became user friendly not only for higher education even in school we can use this application. It is available in the market at a reasonable cost and therefore economically backward people also will be able to use it. Therefore this application will be an initial step to develop the education standard in all developing countries.

2. RELATED WORK

In 2016, Joanne Reid et al. [1] proposed a study to compare the preference and acceptability of computer-based testing and a student response system for completing multiple choice questions in undergraduate nursing education with a limitation of having only one group of students which contains around 300 students. The main motive of this study was to know whether of computer-based testing or a student response system is easy for the

student to answer the multiple choice questions. After undergoing the first year undergraduate nursing and using both computer-based testing and a student response system to complete multiple choice questions, students were rated for their preferences and attitudes towards using computer-based testing. This study is related to the quantitative data collection and analysis. In 2015, Anwar Muhammad Abaidullah et al. [2] proposed an idea to improve the educational environment with the help of k-means clustering. Since student assessment are not enough to find the issues in the educational system they came up with the idea that based on the student's feedback the educational programs and the quality of the education are calculated. All such hidden patterns serve as a feedback for instructors, curriculum planners, Academic managers and other stakeholders in making informed decisions for evaluating the method to improve student's performance in their respective lagging area. In 2015, R. Eric Landrum [3] proposed a brief overview of the current literature, review the research about clickers influencing student performance, provide an overview about how clickers are used in additional contexts, and close with recommendations and thoughts about the optimal use of clickers. As with any pedagogical intervention, instructors will need to be prepared for unexpected events, such as software failures. It is clear from this brief teacher-ready research review that the clicker, when coupled with careful planning and specific, appropriate pedagogical goals, can be an effective tactic for increasing student engagement in the course, and in some cases, is linked to improved student performance. In 2015, Solomon A. Adepoju et al. [4] proposed a study to improve on the quality of education, there is a need to be able to predict academic performance of the students. The IBM Statistical Package for Social Studies (SPSS) is used to apply the Chi-Square Automatic Interaction Detection (CHAID) in producing the decision tree structure. A questionnaire was also distributed to students to collect data about the other factors considered in the prediction such as the students‟ financial strength and motivation to study. The data collected from the result sheet was entered into SPSS Version 20 for analysis. In 2014, Mohammad Awedh et al. [5] proposed a study in which the primary objective is to investigate the effect of Socrative with combination of smart phones on student learning performance and also observed the benefits of interactivity between the teacher and the students and among classmates, which positively influences collaborative learning of students in the class. The results of the study reveal that collaborative learning and engagement of student in the class improves student learning performance. To determine this answer pattern has five different options such as strongly agree, agree, undecided, disagree and strongly disagree. In 2014, Adam P Sawatsky et al. [6] developed an ACTIVE teaching format structured around the following steps: assemble (A) into groups, convey (C) learning objectives, teach (T) background information, and inquire (I) through cases and questions, verify (V) understanding, and explain (E) answer choices and educate on the learning points. They conducted a prospective, controlled study of the ACTIVE teaching format versus the standard lecture format, comparing resident satisfaction, immediate knowledge achievement and long-term knowledge retention. In 2013, A.F.ElGamal at al. [7] proposed an educational data mining model for predicting student performance with the help of variables that predict student programming performance may help educators. The study engages factors like students' mathematical background, programming aptitude, problem solving skills, gender, prior experience, high school mathematics grade, locality, previous computer programming experience, and e learning usage. Programming aptitude test was conducted to investigate the relationship between programming skill acquisition. In 2012, Md. Hedayetul Islam Shovon et al. [8] proposed data clustering technique named k-means clustering is applied to analyze student's learning behavior. The student's evaluation factor like class quizzes, mid and final exam assignment are studied. Based on the GPA three classes were groped HIGH, MEDIUM and LOW. This study will help the teachers to reduce the drop out ratio to a significant level and improve the performance of students. In 2012, Lin Ding [9] proposed a model were they have created coherent sequences of clicker questions; within each sequence 3-4 seemingly disparate questions are systematically crafted to address the same underlying key concept but are embedded in different contexts. Empirical results from real classroom implementation and testing show our clicker materials have significantly increased students' conceptual understanding—measured by concept inventories—as well as enhanced their learning interest. In 2010, Suzanne de Castell at al. [10] proposed a model in which review of gender and game play research over the past three decades documents a set of persistent methodological repetitions that have systematically impeded its progress since the inception of this trajectory of research.

3. EXISTING METHODOLOGY

The system that is currently in existence for the student's classroom learning is pen and paper model where they are concentrated only on evaluating instructors and students performance. This will not be useful for students in any of their educational curriculum. Here all the notes are hand written by the students in the form of running notes taken at the time of lectures. And also the doubt clarification is done only through book material and the running notes.

4. PROPOSED WORK

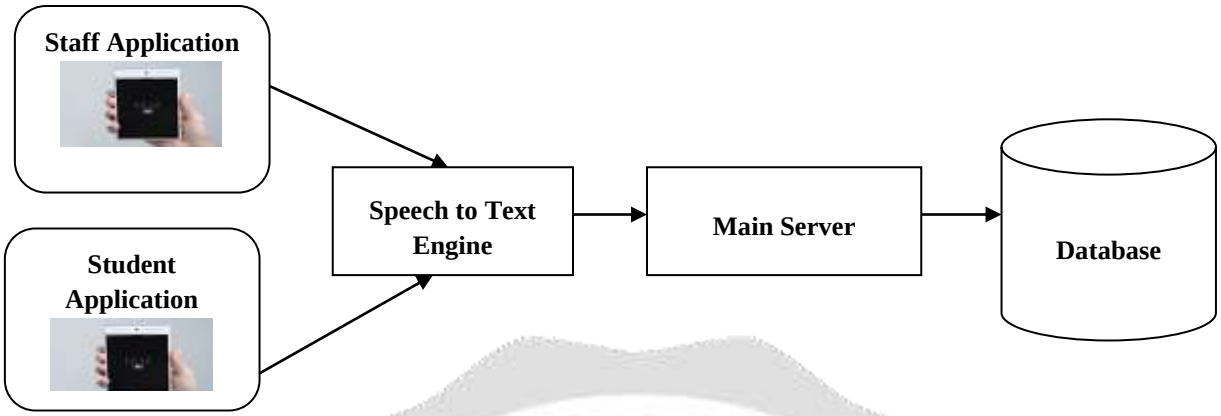

Fig 3.1 Model of the system

Fig. 3.1 shows the pictorial representation of this system. The application is installed in both staff and student's Android mobile. While the staff starts their lecture his/her voice are converted into textual format with the help of Speech to Text engine. The text got from the previous component is sent to main Server and they are stored in the database. The student's query asked to the staff related to the subject is converted into textual format and stored in the database through the server. In this way the student's and staff's interaction are stored in the database for every sessions.

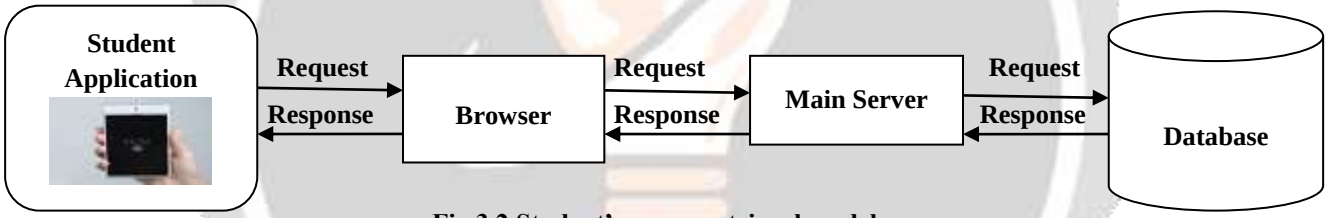

Fig 3.2 Student's query retrieval model

Fig. 3.2 shows how the students retrieve the documents stored in the database. Student searches for an item by giving a query either a single word or a statement. That query is then forwarded to the main server which uses k-nearest algorithm to search for that item in the database which is in the form of request pattern. As a result the entire question containing the keyword will be displayed in the form of response of the system to the student through the server. The student will open the query which they are needed.

5. MODULE DESCRIPTION

5.1. Faculty Application

The new staff will initially register their details by giving a unique identifier, password, their name, department and mail id. Before starting the lecture they login their page by providing the user name and password. The staff enters the session number before staring the lecture. The voice is converted into text using speech recognition algorithm. Entire lecture will be stored in question answering format. When the students ask questions, which will be stored in the separate question tag space and the answer for that will be stored in the answer space which is present in the faculty application. All the data's are stored in the database only when the DONE button is pressed which is present in the bottom.

5.2. Student Application

The new students will initially register their details by giving a unique identifier, password, his/her name, department and mail id. Before the lecture starts the student also give the same session identifier which the staff gave. The voice is converted into text using speech recognition algorithm. While lecture in going on the student may ask some questions which will be stored in the allotted space for the questions. The staff will respond to the question

which will be stored in the answer space in staff application. All the data's are stored in the database only when the DONE button is pressed which is present in the bottom.

5.3. Data Filter

The students will be provided with a url by with the can read all the notes given in the class. There will be a security mechanism by which the authorized student alone can browse the notes. Student will provide the query in the search bar all using the k-nearest algorithm the entire document which contains the keyword will be displayed in the monitor. This algorithm act as a data filters which sorts only the list of required documents which act as user friendly. This will help the student to get the document within a minute.

6. CONCLUSION

In this paper I have proposed a new way of teaching and learning technique which will be useful for both staffs and students. This will also be helpful in raising the educational level to a higher standard. Data mining is a technology used to get a required number of data's from bundle of data's. Here it is used to retrieve a specific topic from a set of topics. This paper will bring a evolution from pen and paper technology to smart phone technology in the upcoming educational field. It also pays a path for the development in the education. Hence as Technology grows Education field also grows.

8. REFERENCES

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