Automated Feedback Collection and Analysis System

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ABSTRACT

There is a rampant appreciation to the analysis framework which is a mean for drafting a vigorous and fairer educational institution system. In a developing country like India, where higher education is presaged to develop new resources for serving its people, an extremely effectual and fair reliable automated feedback system is essential for assessment. In this article, an automated educator feedback system is proposed. As faculty performance and feedback analysis are essential to facilitate educators find effectual teaching and learning in order to better engage students in classes. This system aimed at holding teacher’s accountability for their performance. The proposed system is based on technologies like PHP, JavaScript, HTML, XAMPP server, MYSQL, and Google APIs. This system will help the institution bureaucrats to write confidential appraisal report. The proposed system analysis the feedback class wise as well as individual faculty wise and provide the analysis in the form of Google charts.

KEYWORDS

Feedback Analysis, Feedback Collection, Feedback Parameters, Google APIs

1. INTRODUCTION

With the advent of industrial revolution 4.0, the popularity of automated systems has also augmented. The proposed automated feedback system has great significance in the teaching and learning process. The inspiration behind the feedback system is to advance the teaching and learning process and to find out areas, where educators are lacking and need to be improved (Van den Boom, Paas, Van Merrienboer, & Van Gog, 2004). This system helps educator’s to better engage the students in the classes by discovering the scarce areas in teaching. This system will also help the institution bureaucrats to carve confidential appraisal reports. In recent years, web-based and soft computing techniques are becoming very popular and can be used in various disciplines. Traditional evaluation systems were extremely planned and take up precise or quantitative data measures. But, they are particularly firm to compute performance dimensions as qualitative data (Bonissone, 1997; Neogi, Mondal, & Mandal, 2011). Further, a manual process of teacher performance evaluation is a very time-intense and tedious task. Automation in the process results in fair and quick analysis in a short span of time (Wang & Wu, 2008). The proposed web-based system collects feedback from a group of students

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based on sixteen parameters. For developing this system PHP, JavaScript, HTML, XAMPP server and MYSQL, etc. are being used. In this system, an average of each parameter is calculated using some arithmetic and statistical formulas and saved in the database and finally, Google APIs are used to showcase the analysis. This system also displays the strength and weakness of individual faculty.

The rest of the paper is organized as follows: Section 2 gives a detailed review of existing feedback systems. Section 3 details the proposed model of the automated feedback system. Section 4 presents the results obtained, and finally, section the 5 presents the conclusion and future directions in this area of research.

2. REVIEW OF AUTOMATED EDUCATOR FEEDBACK SYSTEMS

In the era of industrial revolution 4.0, automated systems are being used in a variety of applications like education, healthcare, aerospace, business and, defense, etc. The various exiting automated educator feedback systems are summed up as follows:

2.1. An Evaluation of Students Performance in Oral Presentation Using Fuzzy Approach:

In 2011, Wan Suhan Wan Daud et al. proposed a technique for student’s academic assessment using fuzzy logic approach (Daud, Aziz, & Sakib, 2011). According to the author, the assessment of students is a judgment making process based on numerous fundamentals such as examinations, assignment, test, quiz, research work and so on. The method of evaluation used till date was not the best because, for student evaluation, we have many panels having a different attitude, experience, and sensibility. This involves fuzziness. In this paper, the author had used the following methodology to handle fuzziness. Firstly, student’s marks are normalized, followed by the plotting of graph on the basis of Fuzzy membership function, the degree of satisfaction is calculated and finally, marks are computed. The constraint of this method is that it can only be applied to evaluate oral presentations.

2.2. Evaluation Criteria for Performance Appraisal of Faculty Members

In 2015, Elena Arnăutu et al. proposed Evaluation criteria for performance appraisal of faculty members (Arnăutu & Panc, 2015). The purpose of the study was to generate a suitable tool for evaluating and appraising faculty members. In this system, Behaviorally Anchored Rating Scales (BARS) method was used. The limitation of this system is its sample size which was inadequate.

2.3. A Soft Computing Model for Evaluating Teacher’s Overall Performance using Fuzzy Logic:

In 2012, O.K. Chaudhari et al. proposed a fuzzy expert system for evaluating faculty performance based on the technique of fuzzy logic containing “vague facts” in the decision making procedure (Chaudhari, Khot & Deshmukh, 2012). It introduces the main beliefs behind fuzzy logic and illustrates the application of these beliefs by educators to assess teachers’ performance. This model was basically built for creating the confidential yearly reports of the teacher. The shortcoming of this system is Fuzzy rules were very less.

In 2017, Javed Alam et al., proposed a fuzzy system, to evaluate teacher overall performance using MATLAB fuzzy toolbox (Alam & Pandey, 2017; Ghosh & Pal, 2015). In this model, the reasoning approach has been used for crafting a fuzzy inference system (FIS). In this model, the author has created two modules. The first module which calculates teaching performance and known as teacher overall performance (module-1) and second module calculate the administrative performance of teacher named as teachers overall performance module. On the bases of these modules, the overall performance of the teacher is calculated.
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