International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056
Volume: 04 Issue: 03 | Mar -2017 www.irjet.net p-ISSN: 2395-0072

Web Application for Pre-assessment of Cognitive Development

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Abstract - *Education is ingrained in every country, but it is value education that distinguishes a country's standard in education. India lacks in value education which provoked us to develop a web application. The web application focuses on identifying and assessing a student's memory power, focus and their creativity. The results are then shared to the respective class in-charge, parents, etc. From these results the parents and teachers can know the strength and weakness of a particular student. The web application employs various mini-games to make the assessment process fun and interactive. From the result of this application, career guidance is given to the students based on their skill and strengths.*

Key Words: Memory Power, Focus and concentration, Creativity.

1. INTRODUCTION

Education in India is provided by the public sector as well as the private sector, with control and funding coming from three levels: central, state and local. The central and most state boards uniformly follow the "10+2+3" pattern of education. In this pattern, study of 10 years is done in schools and 2 years in Junior colleges, and then 3 years of graduation for a bachelor's degree. The first 10 years is further subdivided into 4 years of primary education, 6 years of High School followed by 2 years of Junior colleges. The National Council of Educational Research and Training (NCERT) is the apex body located at New Delhi, Capital City of India. It makes the curriculum related matters for school education across India. The NCERT provides support, guidance and technical assistance to a number of schools in India and oversees many aspects of enforcement of education policies. Other curriculum bodies governing school education system are state government boards, Central Board of Secondary Education (CBSE), The Council of Indian School Certificate Examination (CISCE), The National Institute of Open Schooling (NIOS) etc.

2. NEED

Academic Pressure is one of the student's biggest causes of stress. These pressures mainly come from peer and parental expectations and from fear. All this pressure on the students may lead to negative side effects. These may include acts such as cheating on tests and rash coping strategies of depression such as suicide or drugs.

A recent study in 2010 from the Rutgers Management Education Center stated that 75 percent of students that were interviewed admitted to cheating. Another study stated that the amount of student suicides has tripled over the past forty years. This is possibly due to that in the past, academics were undervalued and given little to no importance to one's capacity.

3. INTENT

The main objectives of this project are:

- It helps in understanding a student's weakness at an early stage to provoke improvement.
- To aid the teacher in knowing his/her students better for providing quality education.
- It can help in shaping career path suitable to an individual skill.
- It can also reduce misunderstandings, depression, and suicides that result from the incapability of a student to compete with the academic race.

4. LITERATURE SURVEY

This paper presents an empirical study that assesses the experience of 50 participants (i.e. 25 children and 25 adults) during brain games play [1]. This paper research is on multi-user brain-computer interfacing applications and look in particular at 'multi-brain games [2]. This paper deals with National and supra-national initiatives, as well as the launching of associated journals and postgraduate courses [3]. Brain Games can be help people "train" And Maintain cognitive ability over people, this area has also been researched [4].

5. PROPOSED SYSTEM

In this section we discuss the modules in the proposed system and its related functions.

5.1 Modules

The major modules in the proposed system,

- Homepage
- Memory Power mini-game
- Focus mini-game
- Creativity mini-game

- Result analysis
- Career Guidance

5.2 Overall Function

The web application is mainly focused for school students. It comprises of three key areas of diagnosis:

- Memory Power
- Creativity
- Focus
- Guidance for career paths

These key areas are calculated based on mini-games and threshold value (varies depending in age).The results are shared with the authorities in school to identify each student's strength and weakness. Corresponding training, teaching, and career guidance can be given in the field where each student lacks.

5.3 Methodology

Our project uses the method adaptive learning, it is an educational method that uses computers as interactive teaching devices. Student model is the simplest means of determining a student's skill level is the method employed in CAT (computerized adaptive testing). In CAT, the subject is presented with questions that are selected based on their level of difficulty in relation to the presumed skill level of the subject. As the test proceeds, the computer adjusts the subject's score based on their answers, continuously fine-tuning the score by selecting questions from a narrower range of difficulty.

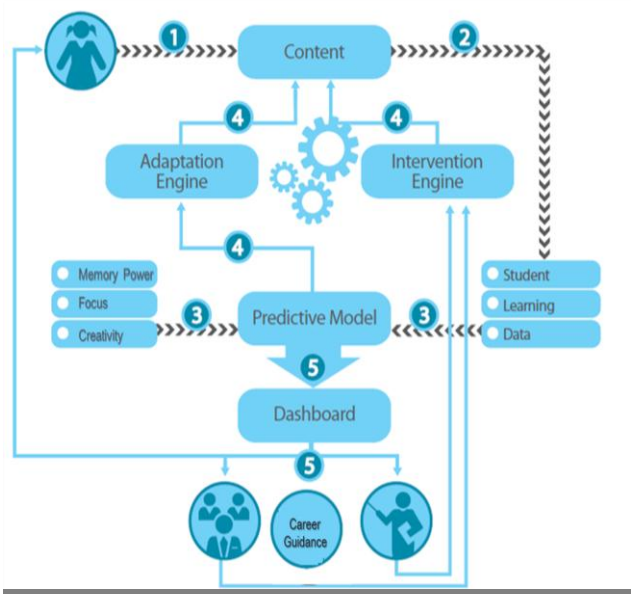

Fig-1 The overall diagram of the proposed system.

6. RELATED SYSTEMS

The related systems involved in the proposed system are described in detail as follows.

6.1 Apache Tomcat 7

Apache Tomcat, often referred to as Tomcat Server, is an open-source Java Servlet Container developed by the Apache Software Foundation (ASF). Tomcat implements several Java EE specifications including Java Servlet, Java Server Pages (JSP), Java EL, and Web Socket, and provides a "pure Java" HTTP web server environment in which Java code can run.

6.2 Java

Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented,[14] and specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere" (WORA).

6.3 CSS

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media.

6.4 MySQL

MySQL is an open-source relational database management system (RDBMS). The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements.

6.5 Java Server Pages

Java Server Pages (JSP) is a technology that helps software developers create dynamically generated web pages based on HTML, XML, or other document types. Released in 1999 by Sun Microsystems, JSP is similar to PHP and ASP but it uses the Java programming language.

7. HARDWARE AND SOFTWARE SPECIFICATION

- Java 1.7
- Apache Tomcat 7
- HTML/CSS
- Java Server Page
- Servlet
- MySQL 5.0
- 20GB Hard Disk
- 2GB RAM
- Processor core i3 and above

8. CONCLUSIONS

This project provides value education to students thus reducing the pressure on the students regarding academics. It allows students to choose the career options suitable for them. The project facilitates to determine each student's skill based on memory power, focus and creativity.

9. FUTURE WORK

The future enhancement for this project is that more parameters can be incorporated in order to assess the student in various parameters. Also percentile score can be incorporated and classified based on age.

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