

## E-Learning Hub (Online)

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**Abstract-** E-Learning is the use of technology to enable people to learn anytime and anywhere. E-learning is basically the computer and network-enabled transmission of skills and knowledge. E-learning system include Web based learning, computer based learning, i.e. Virtual Education over Web. Content are delivered via the internet or intranet/extranet. It can be self-paced or instructor-led and includes media in the form of text, image, streaming audio-video lectures. Digital Signal Processing and Image Processing will be used to solve the limitations of a limited network bandwidth. Algorithms will attempt to code videos in smaller size thereby reducing the buffering of videos. Adaptive testing will use item response theory to be equitable to the examinees level.

**Keywords-** E-Learning ; Virtual Education ; Adaptive Test..

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### I.INTRODUCTION

The remarkable developments in the information and communication technologies and even growth in the use of internet have brought lots of chances to different fields. Based on the new technologies, learning environments are able to provide large range of educational options for learners. Many educational institution and multi-national companies are accepting e-learning methods for training and development of their employees because this helps to train large number of employees at very low cost. E-learning tools such as e-learning technologies lessens the learning time by an average of fifty percent and maintenance rate of the trainees greater with e-Learning including interactive than with a exclusively classroom based model.

In today's world video compression has an importance because of its use in different field of internet. It eliminates the constraints like buffering time and to be optimistic in the sense of using limited bandwidth of a network. High Definition (HD) video requires a very high bandwidth data rate for streaming. As video compression codecs perform a normal compression factor more over 3, [1] a normal MPEG-4 has a compression factor between 20 and 200. As in all loss of compression there is a compromise between quality of the video and the processing cost of the compression and decompression, and system requirements. Highly compressed video may present visible or distracting artifacts [1]. This video compression technique can be a boon in the world of security in the popularity of video surveillance systems which are now widely installed in places such as airports, banks, public transportation centers and even homes.

When an examinee is giving a test on the computer, the computer can estimate what is the ability of the examinees after each question the examinee attempts. Written test i.e. paper and pencil test are typically consist of fixed questions

and this does not help to test the ability of the examinee. As everyone attempts every questions, all examinees are judged on the questions that are very easy or very difficult for them. These easy and hard questions are like adding constants to someone's score. This provides very less information about the ability of the examinee. Therefore, large numbers of questions and examinees are required to obtain a modest degree of correctness. This problem can be solved with the help of computer adaptive tests, the examinee's capability level relative to the group of questions attempted can be iteratively predictable during the test process and questions can be selected based on the present capability estimation. This tailored question selection can result in less standard errors and more correctness with only a handful of properly selected questions.

### II.RELATED WORK

Many systems are created on E-learning concept and many E-learning management system are also available and one of the best system available is Moodle. Moodle is the system that helps to create E-learning environment, Moodle is an open source system so it can be used design user specific system. Many algorithms are proposed in the literature for the Video compression which requires less computational complexity. Fast search methods such as three step search, square search, diamond search and hexagon search can be used instead of FS algorithm. Square and diamond search is used to determine the BRG of the current block, and this BRG is searched using FS algorithm in literature. In the literature, arithmetic encoding and Run length encoding algorithm is implemented. here, Discrete cosine transform is used to convert each pixel value into frequency domain. RLE algorithm is easy to implement but not gives high compression ratio. In the literature, Multiple reference frame motion estimation is used. This algorithm

uses no's of reference frame for each macroblock and early termination. This hardware has less energy consumption.

Usually the test conducted are of pen and paper format, and the online test conducted are of normal patterns for all students level of test is same for all students.

### III. PROPOSED SYSTEM

E-Learning System is an online web based learning system that helps the students to take the learning in steps by providing the latest available material on the subjects. E-Learning is the concept of flexible learning by giving the user time, resources and scope to learn at his own interest and this will students to enhance their knowledge about various subjects. There will be three modules in the system teacher, students and administration. Administrator will manage all user accounts and illegal activities in the system. Teacher will create courses for students so that student can take course and teachers will even create test on the basis of course. Student will take course and give tests on the courses they have taken and even progress report will be generated on the basis of test. This test courses and test will help the students gain knowledge and enhance their ability.

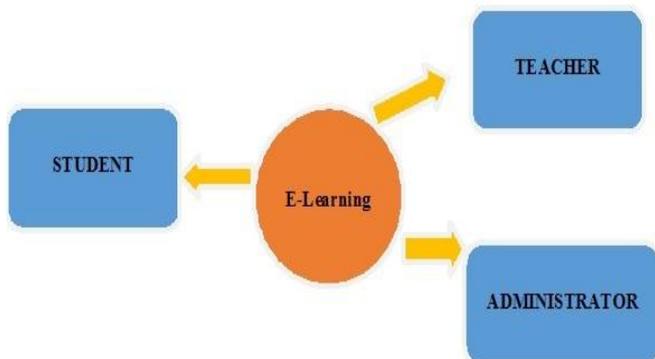


Fig. 1. Block Diagram

#### Contents of the System:

- Student
- Teacher
- Administrator
- Exam module, Adaptive tests
- Group work, debate forums
- Comment/Review a course
- Interactive Class Board
- Editor i.e. Same as Book

The main idea is to represent a video sequence with highly correlated form. Thus we need to expose both spatial and temporal redundancy in video signal. The video cube is the input of our encoder, which is a number of frames. This video cube will decomposed in to temporal frames which will be gathered into one 2D frame. The next step consists of coding the obtained frame. Normally, the variation of the

3D video signal is much less in the temporal domain than the spatial domain, the pixels in 3D video signal are more correlated in temporal domain.

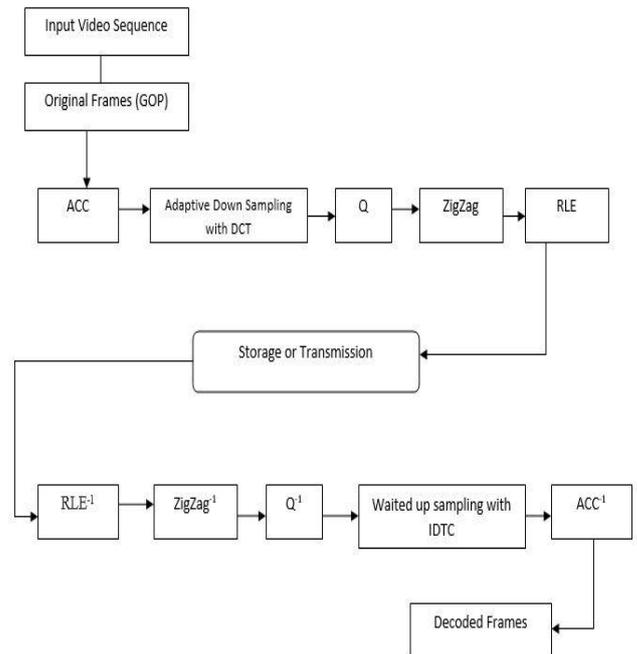


Fig. 2. Video Compression Flow Chart.

### IV. CONCLUSION

The Web-Based E-learning is the emerging technology aiming at web-based information and services that would be understandable easily students. The Web has opened new horizons for internet applications in general and foe E-Learning in particular. This paper discussed the significance of E-Learning content and the use Web technology in developing of E-Learning content. The system will be able to improve enhancement of the current existing systems with the help of video compression algorithm and the adaptive test will help students to nurture their knowledge about the different courses.

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