Real-time lecture delivery approach to e-Learning using WebRTC

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Web Real Time Communication (WebRTC) is a new technology in communication introduced by Google Inc. and it is supported by chrome, Firefox, Opera, android, iOS browsers. It is simply plug-in free video and audio transmission between web browsers. In existing e-learning technologies such as Moodle and Blackboard system available in domestic universities, Lecturers can upload study materials, online exams, forum discussions, chatting and some more interactive learning materials. But it seems that, in most cases, they are missing real time lecture delivery. Hence, to add some real time functionalities to e-Learning strategies, We presents a novel approach to build real time e-learning system which can be accessed to make real time lectures through online in a more interactive manner. Our proposed approach includes two components, first one is "Live Lecture" – Lectures can be broadcast live to the students for specified lecture hours. The Second approach is "Video forum" for students to make discussion in real-time. These two facilities are developed by using WebRTC through a single webpage without any software or plug-in installation and enabled with secure server side scripting. The "Live Lecture" approach uses one-way communication that means the students can only view and understand the lecture materials. The "Video Forum" approach has been implemented using two-way communication, that means multiple students or lecturers can have a video chat. Anyhow, the "Live Lecture" approach has some limitations that the students cannot communicate while the lectures going on because of the two-way functionality has been avoided due to lot of two-way connection traffic and bottleneck. The prototype is implemented by simply modifying WebRTC and is assessing by students observation to show the efficiency of the system. Finally, our proposed approach adds some important features in real time lecture delivery to current e-Learning technologies.

Keywords: Live lecture, Video forum, WebRTC