

ABSTRACT

Various techniques have been developed to overcome the shortage of learning activities that rely on attendance in the classroom. One of the modern teaching methods that can overcome the shortage of learning in the classroom is a synchronous method elearning. Application of synchronous elearning method enables two-way communication in teaching and learning activities at different places in the same time.

In this final project, carried out the design of synchronous elearning applications with web-based video conferencing, chat, and online presentations facilities. To make this application required a server-side web programming using PHP and client-side with dynamic html. To support video conferencing services used by application as a media server with RED5 RTMP protocol. Then, to capture video from a web cam and streaming video use flash media player that in-embed on web pages.

Implementation and testing results show that in order to avoid errors on web application servers can be accessed less than 300 users. The value of response time at each web page loading on the client shows the results of less than one second. Meanwhile, in video applications confernce value of QoS parameters for uplink and downlink delay ranges between 170 up to 200 ms, packet loss values range from 0% to 0.003%, and the throughput of 173.36 Mbps up to 200.02 Mbps. Then the results of the assessment of respondents stated that the application diancang has a value ranging from fairly well and good.

Keywords: synchronous elearning, video conferencing, chat, presentations, RTMP, RED5 media server