

A Distributed Multimedia Presentation System with Floor Control Mode Based on Extended Timed Petri Nets

Communication over Internet is growing increasingly and will have profound implications for our economy, culture, society and education. Currently, multimedia presentation technologies among the network are most often use in many communication services. Examples of those applications include video-on demand, interactive TV and the communication tools on a distance learning system and so on. In this paper, we describe how to present different multimedia objects on a web presentation system with floor control mechanism as a result of the distance learning environment indispensably. The distributed approach is based on an extended timed Petri net model. Using characterization of extended time Petri net, we express the temporal behavior of multimedia objects; on the other hand, we introduce the concepts of user interaction. The main goal of our system is to provide a feasible method to represent a schedule and navigation of different multimedia objects with user interaction. In addition, users can dynamically modify and verify different kinds of conditions during the presentation. To verify the structural mechanism, we implement an algorithm using the Petri net diagram, analyzing the model by timeschedule of multimedia objects, and produce a synchronous set of multimedia objects with respect to time duration. Specially, we consider the interactive facilities to support the distance learning requirement. We propose a floor control mechanism, which provides four types of control (free access, equal control, group discussion, and direct contact). These control mechanisms are sufficient to the use of distance learning environment.