

Impact of MSRP protocol integration in e-learning platforms of universities

Khalifa SYLLA*, Massamba SECK**, Samuel OUYA**, Gervais MENDY**

*Virtual University of Senegal, Department of Applied Mathematics and Computer Science

**Laboratory LIRT, University Cheikh Anta DIOP (U.C.A.D.), Senegal

khalifa.sylla@uvs.edu.sn, massamba.seck@uadb.edu.sn, samuel.ouya@gmail.com, grvmendy@gmail.com

Abstract— This paper discusses a solution for digital universities to extend the functionality of their e-learning platforms to improve, not only their delivery model of instructional content, but also their way of assessing the knowledge of the students. Indeed, this paper proposes a solution for the platform of Moodle, allowing to create virtual classes, integrating the sharing and the control of screens, the transfer of files independently of their type and their size, the video, the audio, chat, different actors. This solution integrates an audio and video knowledge assessment tool for language lesson modules and enables learners to learn to communicate.

Our solution is built around MSRP and WebSocket protocols, is used directly with current browsers as well as computers, smartphones and tablets.

Our solution has allowed, among other things, language teachers and STEM to perform work online and face-to-face as it should without necessarily resorting to the MCQ or be obliged to modify the tests to take into account the difficulties related to the evaluation of programming and networking lessons.

Keywords— E-learning, STEM, evaluation, Learning Management System, Virtual classroom, MSRP, WebSocket



Khalifa SYLLA is currently a PhD student in Computer Science at the Cheikh Anta DIOP University in Dakar.

Graduate Master of Research in Modeling and Simulation Complex Systems, a Computer Engineering Design Engineer Diploma from Cheikh Anta Diop University of Dakar, he is currently a teacher-researcher, trainee assistant at the virtual university of Senegal. His research interests include applications and services of distance learning platforms.



Massamba SECK is currently a PhD student at Computer, Network and Telecom Laboratory (LIRT) at University Cheikh Anta DIOP of Dakar.

Holder a Master's degree in Applied Mathematics, a Diploma of Aptitude in Secondary Education, a degree in Computer Engineering, and a Master's Degree in Computer Modeling Research from Cheikh Anta DIOP University of Dakar, he is currently assistant lecturer-researcher and Director of the IT Resources Center of Alioune DIOP University of Bambey. His research interests are in innovative telecom applications and services for e-learning, service learning, and community service.



Pr. Samuel Ouya is currently the Director of Computer, Network and Telecom Laboratory (LIRT) at University Cheikh Anta DIOP of Dakar. He was from 2013 to May 2017 the first Director of Infrastructure and Information System of the first virtual university of Senegal (UVS).

Holder of a Thesis in Applied Mathematics from the Gaston Berger University of Saint-Louis in Senegal and a Telecommunications Thesis from the Cheikh Anta Diop University (UCAD) in Dakar-Senegal, he is interested in Applications of innovative telecom services to virtual organizations



Pr. Gervais MENDY is a researcher-scientist at the Polytechnic School of Cheikh Anta DIOP University of Dakar where he was head of the IT department from 2012 to 2016.

Holder of a PhD in Computer Science from Paris-Sud XI University, his research interests are in Computer Combinatory, Social Network Analysis, Internet of Things (IoT) and IT Security.

He is a member of the Laboratory of Computer Science, Networks and Telecoms (LIRT) of Cheikh Anta Diop University of Dakar.