Review on multi-agent system collaboration in learning management system domain by deploying wireless sensor networks for student location detection

ABSTRACT

Student location detection in Learning Management System (LMS) by utilizing Multi-Agent System (MAS) which contains sensor nodes is a new area of research. This study reviews several studies to ascertain the potential of integrating these two technologies to automate students' class attendance in Higher Learning Institutions (HLIs). Currently, the HLIs are using paper-based process to record students' attendance in the class, that is time consuming and is not possible to monitor students all the time, that they suppose to be in learning environment. Introducing the sensor networks and MAS in LMS system is to enable the instructors or lecturers to be aware of the presence of their students once they reach the system's domain. The collaboration using MAS facilitates the retrieval and recording of students' details from the sensors and then sends them to LMS servers through Cluster Head Sensor. The information that is collected and recorded by the agents include the signal strength of the students' device and their profiles which can facilitate to know the exactly locations of the students, by comparing such information with the information already stored in LMS database. Therefore, a system architecture that comprises MAS with sensor networks in LMS is presented in this study for monitoring students' attendance in the classes and labs. This type of system architecture with improved LMS features is more focused and intended for HLIs that follow the blended learning system. This proposed system has potential of boosting learning process in HLIs by providing new feature in LMS that monitor students' activities in blended systems, that support classroom and online teachings.