



A Distributed MIS based Agent Technology under JADE Platform

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Abstract

Actually, the Information Technology (IT) has an all-important function in healthcare organizations. The Medical Information Systems (MIS) are in fast development. The main purpose is to convert paper-based practices into computerized processes in order to ensure the health care delivery and enhance service's quality. Medical Information Systems can provide better coordination between health professionals, allowing the reduction of the number and incidence of medical errors. In addition, it enables cost reduction of care and can provide a means to improve hospital management. In light of the internship conducted in the "Ibn Zohr" hospital in Guelma city, there is no computer-based hospital information system worthy of this name in a public hospital in Algeria. The hospital IT system is reduced to a few isolated initiatives focused mostly on accounting and hospital administrative management rather than medical data management. Conventional health care systems built on traditional computation paradigms fall short when trying to model an environment with a large number of users and complex interactions. Agent-based systems are one of the new analysis, design, development, and deployment paradigm for designing complex, real-time and distributed system. The use of multi-agent systems in healthcare domain has also opened the ways to find out new applications. The aim of this paper is to propose a conceptual model for the development of a Hospital Medical Information System operating in a distributed environment, and based on Multi-Agent Systems and allows intelligent patient monitoring. Our goal is to design an MIS based on the agent technology, in which each subsystem is dedicated to the realization of part of the overall task autonomously to satisfy its own local objectives. To demonstrate the feasibility, we developed a prototype under JADE (Java Agent DEvelopment Framework). The system helps physicians with data collection and diagnosis formulation. The key function of our system is to facilitate the information sharing by allowing different actors the access to a medical data. This also allows improving caregiver working conditions and increasing the care quality level.

Keywords : Medical Information System, Multi-Agents System, Medical Patient Record, Patient monitoring, Platform Jade.

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