

# A Ubiquitous Approach for Next Generation Information Systems

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## Abstract

Recently, the spread of mobile technologies and communication infrastructures has made the vision of ubiquitous computing much more realistic and feasible. At the same time, agent technologies have attracted a lot of interest in both academe and industry as an emerging programming paradigm. We present the system, which is being developed as a multi-agent-based approach that lets the users ubiquitously retrieve more relevant information from the distributed Web portals. In particular, we developed agent-based framework, where each agent is autonomous, articulate, and social. We reported methods to embed the autonomous portal agents into the Web portals, to cluster the portal agents into communities, to exploit and adapt the semantic policies by the Web mining agent and the attributes of the Web portal by the portal agent adaptively. In order to investigate the performance of the system, we carried out several experiments and developed a smart query routing mechanism for routing the user's query. Through the experiments, the results ensure that the proposed system promises to achieve more relevant information to the user's queries.

**Keywords:** Parallel and distributed systems, Agent self-organization, Clustering, Routing, Learning and Adaptation.