A Road Map of Autonomous Software Agent Architectures

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ABSTRACT
The field of software agents is an expansive and rapidly developing area of research, which encompasses a diverse range of topics and interests. In order to study the various Autonomous Software Agent Architectures for agent design, a comprehensive classification of architecture is required. This paper identifies the key aspects of different architectures of software agents and then provides an overview of design issues regarding the Autonomous agent. Finally focus on different Modelling Norms for Autonomous Agents. These research results are helpful to clarify which architecture will be suitable for today's growing information eras.

KEYWORDS
Software agent, Agent Classification, Autonomous software agent architectures, Modelling Norms, Agent design issues.

DESIGN ISSUES OF AUTONOMOUS AGENT
Following are the some design issues regarding the functionality of autonomous agent [22].

- Autonomous agents are decision maker: the agent would review the context and make a decision about what to do, when to do them and what kind of information to communicate to whom.
- Autonomous agents are reactive to contextual element of environment: Agent may need to monitor contextual element (like location, delivery time, user's role etc) to provide the information and service to users. For this agent need the mechanism to perceive, recognize disseminate different type of context information.
- Autonomous agents should communicated with each other or directly to user and service: For this agent should need the platform of communication that enable them to convey information to other agent, user and information resource by using some protocol of communications.
- Autonomous agents act as proxies to devices: Agent represent the device such as public display can be aware of presence of other agent and user available in the environment. These agents enable allowed users and other agent to use the devices.
- Autonomous agents need a mechanism for authentication: It needs a mechanism for authenticating users and agent that want to access them.

- Autonomous agents need to communicate different types of message: Agent needs the communication language that enables them to convey message for requesting the information from devices or services and responding to such request notifying the information to user and devices and requesting from other agent the execution of an action.
- Autonomous agents may have a reasoning algorithm as complex as the logic of its functionality:

CONCLUSION
This paper describes a proposed classification for Autonomous agent architecture. It draws upon several existing ontologies, but provides an all-inclusive classification that takes into account the various aspects of agent research. Due to the wide variety of approaches toward software agents, a simple classification method that assigns each agent to a single grouping is insufficient. Determining which types of agents work well with others will be of increasing importance as large-scale multi-agent systems become more widespread across the Internet. This will also become an issue when designing standardized agent architectures. As a consequence, analyzing issues relating to security and certification of agents are very important.

FUTURE SCOPE
Future work needs to be done on refining the categories, and reaching consensus on ontology for agent-based systems, the next approach of research to develop such type of architecture that should be generic for all.

REFERENCES
[1] Mr. Gopal Sakarkar, Dr.V.M. Thakare,” A Survey of Various Software Agent Architectures and Agent Communication Languages”, first International Conference MNGSA’08,Dec.2008 CSIR and IACSIT,India  

REFERENCES


