

P1872

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Type of Project: New IEEE Standard

PAR Request Date: 15-Sep-2011

PAR Approval Date: 09-Nov-2011

PAR Expiration Date: 31-Dec-2015

Status: PAR for a New IEEE Standard

1.1 Project Number: P1872

1.2 Type of Document: Standard

1.3 Life Cycle: Full Use

2.1 Title: Standard for Ontologies for Robotics and Automation

3.1 Working Group: Ontologies for Robotics and Automation (RAS/SC/ORA)

Contact Information for Working Group Chair

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3.2 Sponsoring Society and Committee: IEEE Robotics and Automation Society/Standing Committee for Standards (RAS/SC)

Contact Information for Sponsor Chair

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Contact Information for Standards Representative

None

4.1 Type of Ballot: Individual

4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 04/2013

4.3 Projected Completion Date for Submittal to RevCom: 10/2013

5.1 Approximate number of people expected to be actively involved in the development of this project: 20

5.2 Scope: This standard defines an overall ontology that allows for the representation of, reasoning about, and communication of knowledge in the robotics and automation domain. This ontology includes key terms as well as their definitions, attributes, constraints, and relationships. Sub-parts of this standard include a linguistic framework, generic concepts (an upper ontology), a methodology to add new concepts, and subdomain ontologies.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: The purpose of the standard is to provide an overall ontology and associated methodology for knowledge representation and reasoning in robotics and automation, together with the representation of concepts in an initial set of application domains. The standard provides a unified way of representing knowledge and provides a common set of terms and definitions, allowing for unambiguous knowledge transfer among any group of human, robots, and other artificial systems.

5.5 Need for the Project: A robot can only achieve tasks and perform missions based on what it knows, which is primarily captured within the robot's internal knowledge representation. This representation is usually very specialized to the individual robot and often very loosely defined. With the growing complexity of behaviors that robots are expected to perform as well as the need for multi-robot and human-robot collaboration, the need for a standard and well-defined knowledge representation is becoming more evident. The standard knowledge representation methodology and terminology that is being developed in this group will 1) more precisely define the concepts in the robot's knowledge representation, 2) ensure common understanding among members of the community, and 3) facilitate more efficient data integration and transfer of information among robotic systems.

5.6 Stakeholders for the Standard: Robot manufacturers, system integrators, robot end-users (part manufacturers,

automotive industry, construction industry, service and solution providers, etc.), robot equipment suppliers, robot software developers, and researchers/developers.

Intellectual Property

6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No

6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

7.1 Are there other standards or projects with a similar scope?: No

7.2 Joint Development

Is it the intent to develop this document jointly with another organization?: No

8.1 Additional Explanatory Notes (Item Number and Explanation):