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HUMAN TO ROBOTS COMMUNICATION USING ONTOLOGICAL NETWORK SYSTEM

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Abstract. *We researched the communication between human and robots, and the sharing of human intention and environmental information among robots. And so, we propose ontology for an agent communication with human and other agents according to environmental information (situation). Nowadays we use various types of information tools. Moreover, robots are developed and used. However, these tools or robots aren't able to build an interaction between humans. Users need to understand how to make use of the system. The electronics for solving these problems are called "Humatronics". Advanced Humatronics are mostly needed for natural communication between human and system. Therefore, We focus on ontology technology. Humans can communicate with other combined with a situation and body language. This is because humans have the ontology. The agent created the ontology from observed human motion and situations, and communication with humans or other agents using ontology. In this paper, we show the composition of ontology from the interaction between humans and agent, and experiments of the communication with robots using ontology. We use two types of robots, small size robot and human vehicle type robot, in this research. The user uses the same commands for robots. Each robot judges its own role by the user's face direction and situation.*
Keywords: Robot, Ontology, Networked robot

1. **Introduction.** Recently, we used various types of information tools, PC, PDA (Personal Digital Assistant), car navigation systems, and so on. Moreover, various types of robots are developed and used. These tools have a specific interface. So, the user has to understand how to use each system. To obtain outputs, a user has to put correct inputs. However, informations and systems are becoming increasingly complicated, we need more knowledge and skills to obtain outputs. Frantic effort is needed to make full use of these systems. These systems are far from knowing intuitively. Recently, interface using gesture (hand motion, bodily movement and so on) is researched. This interface provides an operation which is easy to understand intuitively compared with present interface such as mouse, keyboard and so on. However, interface using gesture needs to