Robbie: A Message-based Robot Architecture for Autonomous Mobile Systems

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Abstract: Designing a generic robot system architecture is a challenging task. Many design goals, such as scalability, applicability to various scenarios, easy integration of soft- and hardware, and reusability of components need to be considered. The code has to be kept easy to read and maintainable by developers and researchers. In this paper we describe the message-based software architecture Robbie that was specifically designed to address these goals. It has been successfully applied to fulfill various and complex tasks for different robots and scenarios in the context of autonomous mobile systems. We also examine how Robbie is related to the widely spread robot operating system ROS.