Fakultät für Elektrotechnik und Informationstechnik

Autor(en) des Beitrags:
Diewald, Stefan; Roalter, Luis; Möller, Andreas; Kranz, Matthias

Titel des Beitrags:
Simulation of Tangible User Interfaces with the ROS Middleware

Abstract:
Prototyping is an important part in research and development of tangible user interfaces (TUIs). On the way from the idea to a working prototype, new hardware prototypes usually have to be crafted repeatedly in numerous iterations. This brings us to think about virtual prototypes that exhibit the same functionality as a real TUI, but reduce the amount of time and resources that have to be spent. For that reason, we have created a toolkit that can be used for developing and testing fully functional implementations of a tangible user interface as a virtual device. The entire interaction between the TUI and other hardware and software components is controlled by a middleware, while the human interaction with the TUI can be explored using a 3D simulator and 3D input/output technologies. We argue that by simulating parts of the hardware-software co-design process, the overall development effort can be reduced.

Stichworte:
TUI prototyping, middleware, virtual TUI, Gazebo, ROS

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