Chair of Automatic Control

FAU

Team Project Autonomy Technologies

Human-Robot-Interaction and Motion Planning using Boston Dynamics Spot

Motivation

Spot, an autonomous quadrupedal robot developed by Boston Dynamics, features a programmable software interface that enables automation of tasks like mapping and navigating unfamiliar terrain. These skills are essential for autonomous robots to become practical tools. However, intuitive human-robot interaction interfaces are still lacking, which are crucial for simplifying robot control.

Task Description

In this group project, your team will utilize Spot's onboard sensors to create a map for autonomous navigation.
Beyond this foundational task, various approaches to human-robot interaction, such as gesture or voice commands [1,2], will be explored. Based on these interfaces, the robot should perform tasks like collision-free point-to-point navigation, human following, and other relevant functions.

Requirements

You must be enrolled in the master's program in Autonomy Technologies and possess programming experience in Python along with a basic understanding of robotics.

References

[1] Lv, Xiaoling, Minglu Zhang, and Hui Li. "Robot control based on voice command." 2008 IEEE International Conference on Automation and Logistics. IEEE, 2008.

[2] Deuerlein, Christian, et al. "Human-robot-interaction using cloud-based speech recognition systems." Procedia Cirp 97 (2021): 130-135.

Contact

Please send an email with a short letter of motivation and a transcript of records until 21st of October to

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