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Indoor SLAM using laser and camera with closed-loop controller for NAO humanoid robot.

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Summary: We present a SLAM with closed-loop controller method for navigation of NAO humanoid robot from Aldebaran. The method is based on the integration of laser and vision system. The camera is used to recognize the landmarks whereas the laser provides the information for simultaneous localization and mapping (SLAM). K-means clustering method is implemented to extract data from different objects. In addition, the robot avoids the obstacles by the avoidance function. The closed-loop controller reduces the error between the real position and estimated position. Finally, simulation and experiments show that the proposed method is efficient and reliable for navigation in indoor environments.

MSC:

68-XX Computer science

93-XX Systems theory; control

Software:

[MonoSLAM](#)

Full Text: [DOI](#)

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