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The Title of Innovation Must Be Written Succinctly and Clearly

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Abstract

Many studies have been performed to develop climber robots for various purposes, especially for jobs when human access is costly due to hazardous environments or the need for scaffolding. One of the robots that attracts many researchers is the pole climber robot. Many studies have been reported; however, none of the climber robots operated entirely autonomously. Some must be set directly on the poles. Some of the robots have been equipped with wheels for movement on the floor. However, the movement of the robot is still controlled by the operator. In this research, a grasping-based pole-climber robot was developed. The robot can not only climb but also maneuver on the floor. The robot moves autonomously on the floor and is equipped with a camera to find the position of the pole. When the camera detects a red sticker on the pole, the robot moves towards it. The robot uses a gripper mechanism to climb 25-40 cm cylindrical or rectangular poles. Various tests to check the robot's ability were carried out, either for single activities or complex tasks. The ability of the robot to walk on the floor and climb the pole was tested for 100 cm, 200 cm, and 300 cm pole distance and 100 cm and 200 cm pole height. The test demonstrated that the robot could perform the task well. The speed of the robot walking on the floor is about 12.33 cm/s, and the speed of climbing the pole is about 2,14 cm/s.

Keywords: climber robot, camera, pole, autonomous