

Abstract

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This work is presenting FIN algorithm, which is developed to assist the human operator in the teleoperation of AutoMerlin mobile robot. It enables the efficient teleoperation of the robot in the presence of random time delay and helps the operator in safe navigation through ill structured environment having scattered obstacles. It is an auxiliary intelligence which has been added to already existing speed controller to avoid obstacles autonomously.

FIN algorithm takes the control of robot when certain obstacle at a specified distance is detected by ultrasonic sensors and the robot gets the command from the human operator to move in forward direction or connection is lost between human operator and the mobile robot. Then, this algorithm detects the position of obstacle relative to robot and diverts the robot in the appropriate direction to avoid collision. The robot listens to the operator only for backward movement, when the obstacle is within specified range and ignores the forward motion command and avoid obstacle autonomously and shifts back the control to human operator. Servo control has been provided to steer the robot for 2D navigation. The presented results show the performance and effectiveness of algorithm during the teleoperation of AutoMerlin.