

Research on some shortest path finding algorithms and their application in building a Robot trash collector game.

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Abstract: This topic focuses on researching shortest path algorithms, thereby developing a game system for a trash-collecting robot. The practical context requires automation of waste collection in industrial and urban environments. The objective of the topic is to build an optimal model for the movement of the trash-collecting robot, reducing operational costs and improving cleaning efficiency. The research method includes theoretical analysis of Dijkstra, A*, and genetic algorithms, combined with experimentation to select the most suitable solution for the robot trash-collecting game. The expected result is that the topic will provide a flexible design platform for automation systems in the field of environmental cleaning.

Keywords: shortest path algorithm, garbage collection robot, automation technology