

REAL TIME MOTION PLANNING FOR MOBILE ROBOT IN DYNAMIC ENVIRONMENT USING POTENTIAL FIELD METHOD

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Abstract

The potential field method is widely used for autonomous mobile robot path planning due to its elegant mathematical analysis and simplicity. However, most researches are focused on solving the motion planning problem in a stationary environment, where both target and obstacles are stationary. This paper proposes a potential field method for motion planning of mobile robot in a dynamic environment where the target and obstacles are moving. Firstly, the proposed potential function and the corresponding virtual force are defined. Then, an online motion planning algorithm based on the proposed potential field method is presented. Finally, computer simulation is used to demonstrate the effectiveness of the dynamic motion planning scheme based on the proposed potential field method.