MOBILE ROBOT NAVIGATION USING GPS TO SOLVE TARGET LOCATION ACHIEVING PROBLEM

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ABSTRACT

In mobile robot navigation, Global Positioning System (GPS) plays a major role in providing and finding the best path for the robot to navigate. Navigation is very crucial due to the robot ability to adapt and sustain to its environment and find it path to the target location. This research proposed mobile robot navigation using GPS to cope for the navigation problem in reaching the target location. The data received from GPS is processed and hence the decision is made for the robot navigation path by the algorithm applied in the microcontroller. The path finding algorithm will basically finds the best path and instructs the robot to moves to its location by keep on refreshing its positions. Certain rules need to be applied in the microcontroller to utilise its decision thoroughly. The hardware consists of two DC brushless motor with four rear wheels to provide motion to the robot. The hardware design that has been chosen is basically based on military tank concept and used different drives system to trigger the motion. The PIC microcontroller is used as the brain to perform all the control action and GPS act as the main sensing unit for the robot. The short distance test has been made to evaluate the mobile robot path finding performance. The result showed the average of 6.34 meter for the error in radius. Improvement in the mechanical design as well as the path finding algorithm might improve the accuracy in the future.

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