Obstacle Avoidance Algorithms for The warrior Matilda robot

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ABSTRACT:

The effectiveness of a warrior Matilda robot's ability to maneuver autonomously is one of the most useful capabilities in to the Army. Testing to see the current turning abilities and control of the Matilda robot were conducted. Knowing the robot's abilities and turn commands, one can then create a lab view algorithm to sum up the area of the obstacle arrays in the different path directions to find the most open direction. First, the manipulated obstacle array algorithm creates an image and finds the most open path. The first algorithm program uses the simple four estimated binary directional commands of forward, right left, and revere that was tested for to travel in the direction of least resistance. Then one can refine the program by integrating under the curve shaped paths to find the path that has the most open area and use the cyclic redundancy check to send a complete unobstructed 16 byte command to travel in. Apply problem solving skills, lab view techniques and calculus; one can explain the steps behind both algorithms refined for the warrior Matilda Robot.

KEYWORDS: Matilda, obstacle array, cyclic redundancy check

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