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Project Algorithm Report

This project uses A star to compute the fastest path from the start to finish. The A star algorithm is solved using a heuristic function F(N) = G(N) + H(N). The number of tiles touched using this algorithm is 158. This may be off by a few do to an unsolved logic error however it is close to a perfected a star algorithm. The algorithm was designed using 3 arrays. pathArr contains all paths that have not been visited on the board. openArr contains all of the paths that have been visited. By checking which paths that openArr can touch among the available paths in pathArr we are able to see where the bot can go, this is the G(N) in the heuristic function. From there we compute the H(N) of our heuristic function which is the manhattten distance from every square to the endpoint. This gives us the predicted shortest distance to the end. After using both G(N) and H(N) we get the best possible move the heuristic function has calculated the most likely best possible move. Using this information the function continues until it reaches the end square. Although the back path was not implemented it is easy to see what the best path is once the function has been completed. Below is an image of the output of our function and below that is the traced best path.



