

Abstract

Rubik's Cube is a mechanical puzzle game, has been discovered by Professor Ernő Rubik in Hungaria, in 1974. There are two method that can be used to solve the 3x3x3 Rubik's Cube.

There are conventional method and heuristic method can used for it. In this project, the conventional method and heuristic method will be analyze, how the conventional method and heuristic method can solve the Rubik's Cube. F2L algorithm as a conventional method can produce a systematic solution that easy to learn user. DWA* algorithm as a heuristic method can produce an optimal solution, but it's not easy to learn by user. In implementation of DWA* and F2L on Rubik's Cube 3x3x3, will be analyzed comparison of time complexity of the both algorithm, the execution time and memory used by the both algorithm, and size of the solution that the both algorithm produce.

The execution time and memory used by DWA* algorithm will be increase when size of input grow up, and F2L algorithm will still stable. The time complexity of DWA* will be exponential, and F2L will still contant. But the result of DWA* have more optimal solution than result of F2L.

Keyword : Rubik's Cube 3x3x3, DWA*, F2L