

According to the game rule, we have compiled the competition software. To win this game, we must compete with other players' AI robots. So, we write the program to let our robot finding water and distributing water on the ground to get the score.

Because water is a chemical substance with the chemical formula  $H_2O$ , and its molecule contains one oxygen and two hydrogen atoms connected by covalent bonds. Moreover, Artificial intelligence (AI) is the intelligence of machines and the branch of computer science that aims to create it. So we call our program HOAI (Hydrogen & Oxygen Artificial Intelligence).

We use C++ language and Microsoft Visual studio 6.0 for the development tool. We provided a new algorithm for solving the problem. The main function includes:

1. Search: Breadth-first search.
2. Graph Theory, Network Flow: Dijkstra, A\*
3. Dynamic Programming
4. Game Theory