CIBot Ball agent Description

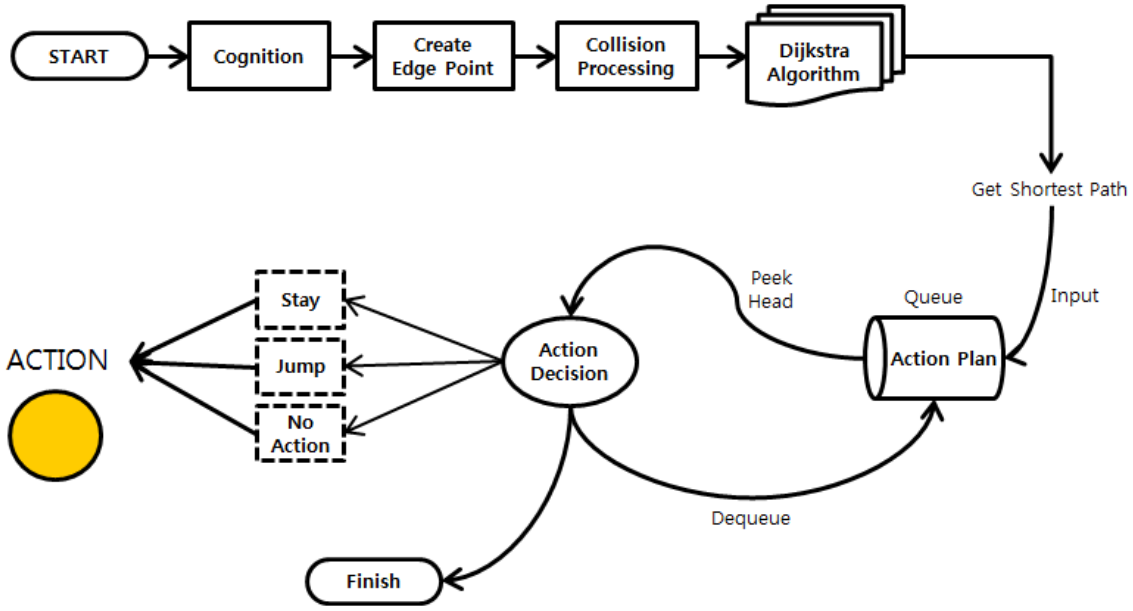

Figure 1. Agent Flow Diagram

The ball agent has a very wide range of action by jumping. Therefore, we need methods to move efficiently and accurately. Dijkstra Algorithm is used for finding path in complex routes. The basic concept of path-finding is as follows. At first, it recognizes all platforms that the agent is able to move platforms like obstacles, lands, hills, floors, and etc.

As shown Figure 2, we make the ends of these platforms (can stand area) action point. Each action point lines each other for making one graph. If the agent recognized that the line is not able to go in connected lines, this line should remove. So, the agent performs collision processing using recognized platforms like obstacles. The collision parts with platforms among lines are removed. And then, lines remain only section where the agent can go.

The agent performs Dijkstra Algorithm using a graph created along the lines. The agent realizes the shortest path to the diamond through Dijkstra Algorithm. Next work is that agent follows the path using given path. But, this work is uneasy. If the ball agent works only rule-based systems, it causes many problems. So, our agent use Dijkstra Algorithm and acquired action point from previous work.

The acquired path divides many action nodes. And action nodes are put into a queue called Action Plan. The agent performs each action node in Action Plan in series. If this action node is

done, Action node which is located on the front end of the Action Plan is dequeued . By repeating this circle process, the agent clears the map.

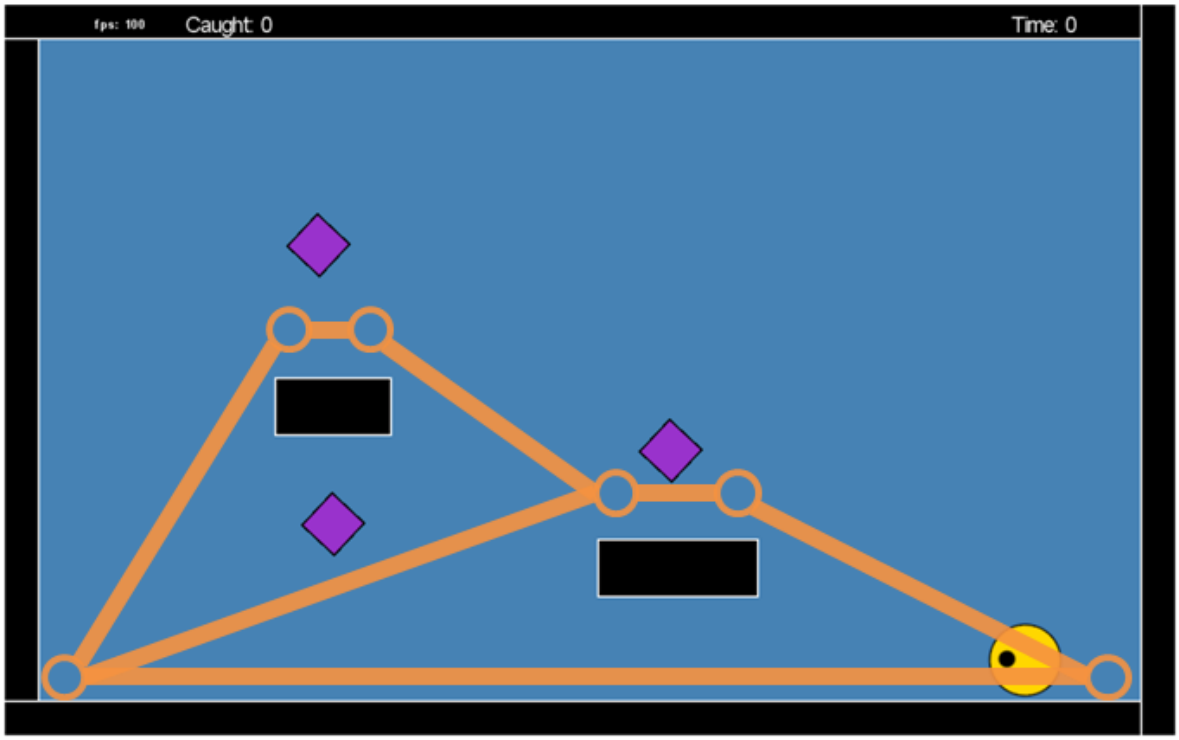

Figure 2. Concept of Path Finder