MRL 2004 Coach Team Description

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1. Introduction

One of the most important and attractive concepts of RoboCup domain is coaching, in a way that its role and importance in soccer simulation league is felt more. The 12th agent, coach, receives complete information of the field from soccer server and can advice own players in a special language called CLang [1].

In 2003, our team titled "Avan" got the sixth place between thirteen participants in coach competition MRL uses UVATrilearn as low-level code with some modifications. The most outstanding specification in our team is using CLIPS shell as an embedded "Expert System".

2. Coaching and Dynamic Multi-Behavior

Like last year, the main approach of MRL Coach is Opponent's Modeling. In order to model the behavior of opponent team we have focused on detecting the sequence of actions. All coach activities such as Sequence detection, analyzing and decision making can be divided to two main parts:

- Detection: A tracking method to predict the opponent's behavior such as shoot, sequence of pass (pass graph), and recognize high aggregate of field.
  Actuation: react appropriately.

- Detection: opponent's formation and strategy.
  Actuation: present appropriate formation against of opponent team and suggest a suitable positioning to the players.

In the other hand, MRL coach analyzes its own player's behavior during the game, and recognizes their individual abilities, then puts each player according to its ability in its proper position

An expert system is a computer program intended to embody the knowledge and ability of an expert in a certain domain [2]

Expert System receives needed information from the coach during the game and by the knowledge base and predefined rules as inference engine delivers a suitable strategy to the coach.

For example it receives information about field such as opponent formation, current result of the game and current cycle and presents suitable formation for own players.

Exam:

IF Cycle > 4000 AND oppGoal < ourGoal AND oppFormation is offensive THEN Change teammate formation to defensive mode.
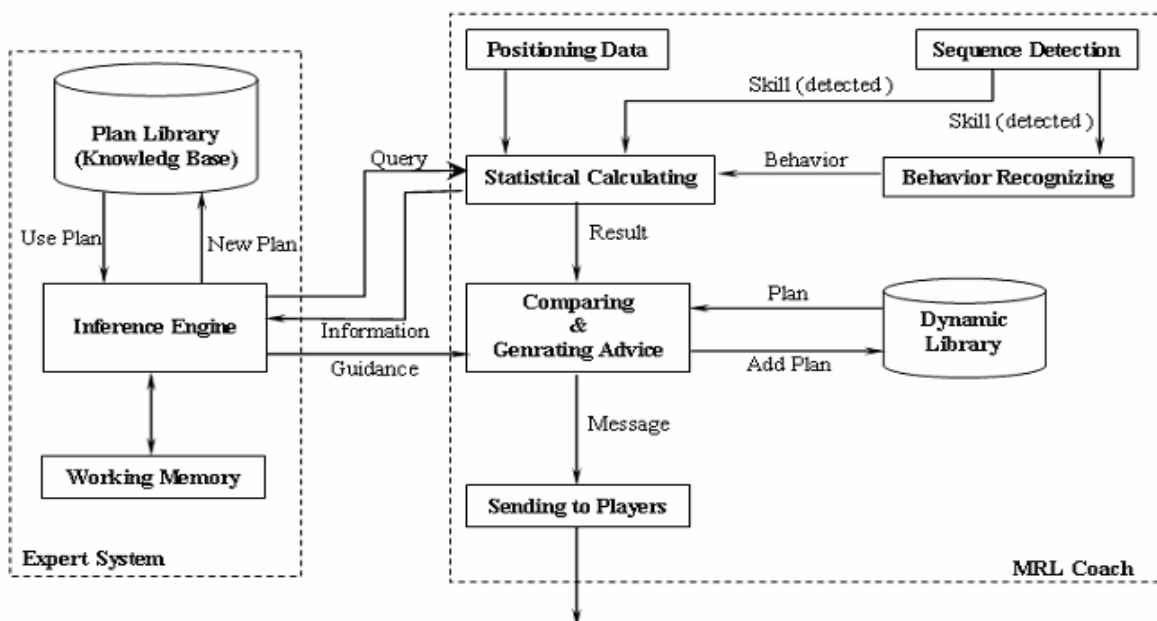
Reference
1. Murray, J., Noda, I., Obst, O., Riley, P., Stiffens, T., Wang, Y., Yin, X., RoboCup Soccer Server User Manual: for Soccer Server 7.07 and later, 2002.

2. McCarthy, J, "SOME EXPERT SYSTEM NEED COMMON SENSE", Computer Science Department Stanford University Stanford, CA 94305, 1984