Robot soccer World Cup kicks off
A football tournament played by teams of robots has kicked off in Germany.

The 10th annual RoboCup, being held in Bremen, will see more than 400 teams of robots dribbling, tackling and shooting in an effort to become world champions.

Machines compete in 11 leagues including those designed for humanoid and four-legged robots.

The organisers of the tournament hope that in 2050 the winners of the RoboCup will be able to beat the human World Cup champions.

"RoboCup 2006 is the first step towards a vision," said Minoru Asada, president of the RoboCup Federation.

"This vision includes the development of a humanoid robot team of eleven players, which can win against a human soccer world champion team."

Emotional game

Teams from 36 countries have flocked to Bremen to take part in the tournament.

As well as providing a visual spectacle on the pitch, some robots will be helping out in other ways.

Live commentary of a number of matches is provided by a pair of robots developed by scientists from Carnegie Mellon University in the US.

Sango and Ami, as the duo are known, will explain the rules of the game and dissect fouls for spectators using synthesized voices.

"They don't talk at the same time," said Manuela Veloso, the Herbert Simon Professor of Computer Science and head of Carnegie Mellon's RoboCup teams.

"But if one is explaining a rule and a nice goal is made, the other has the ability to interrupt."

Sango and Ami also have very different personalities. Sango provides a very sober account of the game while Ami provides a more emotional response to
proceedings.

Both celebrate by pumping their arms when a team scores.

**Future strategy**

As well as having novelty value and, the RoboCup has a more serious side.

It is a chance for 2,500 experts in artificial intelligence and robot engineering to meet and trial their latest ideas.

Football is a useful test for robotics because it has so many different elements including movement, strategy and vision.

Researchers come to assess their sensors, artificial intelligence and software on the pitch.

"After 50 years within artificial intelligence, it has been determined that these things can be better researched using soccer than the game of chess," said Hans-Dieter Burkhard, the Vice President of the RoboCup Federation.

This year all eyes are on a team from Japan who are expected to do well in the humanoid category, while the current world champions from Germany are a force to be reckoned with in the four-legged tournament.

The championships run until 18 June and are then followed by a conference for two days where the teams can dissect their play and work on improvements before the big game in 2050.