

## Germany wins the Robot Football World Cup. maxon motor helped power the moves.

The Germany team won the 2010 Robot Football World Cup in Singapore. The name of the goalkeeper who played in the 6:1 win was not Thomas Müller but Nao; A robot. Rather than being powered by strong muscles, he draws his energy and flexibility from dynamic electro-motors provided by maxon motor.

Over 500 teams from 40 countries took part in RoboCup 2010. The tournament was won by the B-Human team of the German Research Center for Artificial Intelligence (DFKI) of the University of Bremen. They scored a resounding 6:1 victory over the Australian "rUNSWift" team in the Standard Platform League which is the top league. The RoboCup is the most important competition in the artificial intelligence and robotics world. The Standard Platform League's ambitious aim is for a team of autonomous humanoid football robots to beat the incumbent (human) world champions in 2050.

The football-playing robots in the Standard Platform League, a true programmer competition, were developed by the French company Aldebaran Robotics. The small but agile Nao is 58 cm high, weighs 4.3 kg and has 25 flexible joints that are all driven by precise maxon DC motors. He also has two cameras and a large number of sensors to enable him to find his way around. With this basic configuration, defenders, strikers and goalkeepers can (depending on their programmed DNA) recognize the infrared ball better or worse, plan moves and shoot at the goal.

Nao was designed not just for research purposes, but so that it can also be used as a home help in future.

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Nao in action.