Press Release

EtherCAT soccer robots are world champions again!

The Tech United team from Eindhoven has done it again: the autonomous EtherCAT-based soccer robots won the world championship for soccer robots, the RoboCup, in the Middle Size League, the most powerful league in robot soccer. At the RoboCup in Bordeaux, France, the team of 5 autonomous robots defeated the Falcons from the neighboring city of Veldhoven with a 6-2 result, making the final a local derby!

Tech United is a multidisciplinary team which currently numbers 46 (former) students, PhD students, and employees of the Eindhoven University of Technology, who are all working on robot development. Their expertise, gleaned from the fields of mechanical engineering, electrical engineering, and computer algorithms, is used to solve problems. The RoboCup stadium on the university campus is Tech United's home base.

Tech United participates in tournaments around the world. The RoboCup is an annual world championship for robots that can communicate and respond to an ever-changing environment. The RoboCup is an open-source competition. After each tournament, all of the knowledge gained is shared among the teams. The rules of the game also change every year to challenge teams to constantly improve and innovate their technologies.

This is the sixth time that the Tech United team has won the RoboCup. This year, the fifth generation of soccer robots, named "TURTLE" (Tech United RoboCup Team: Limited Edition), was competing: this was the first time that no omnidirectional wheels were used. Instead, newly developed drives with swivel axles, which allow the orientation of each wheel to be controlled individually, were implemented. This gives better traction, which significantly improved the acceleration of the robots. Tech United relies on EtherCAT for its communication technology, as they have done since they brought out their first generation in 2005.

The software for controlling the robots consists of four modules: Vision, World Model, Strategy and Motion. The Vision module processes data from the vision sensors, such as omnivision images, to determine the positions of the ball, opponents, and the robot itself. This position data is fed into the World Model. Here, image data from all team members is combined to create a unified representation of the environment. The Strategy module makes decisions based on this generated world model. Finally, the Motion module translates the Strategy module's instructions into low-level control commands for the robot's actuators.

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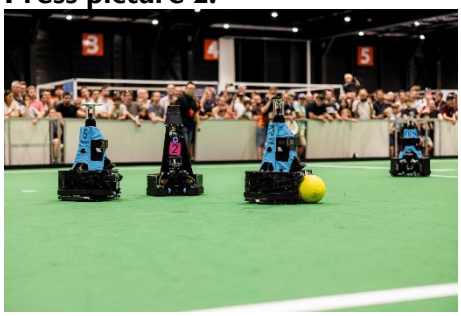
Press picture 1:

Picture caption: Tech United Team wins RoboCup 2023
Link: www.ethercat.org/images/press/etg_032023_1.jpg

Press picture 2:



Picture caption: In the blue jersey: Tech United's EtherCAT robots in the final of RoboCup 2023
Link: www.ethercat.org/images/press/etg_032023_2.jpg

About EtherCAT Technology Group (ETG):
The EtherCAT Technology Group is an organization in which key user companies from various industries and leading automation suppliers join forces to support, promote and advance the EtherCAT technology. With over 7.200 members from 72 countries the EtherCAT Technology Group is the largest fieldbus organization in the world. Founded in November 2003, it is also the fastest growing fieldbus organization.

About EtherCAT®:
EtherCAT is the Industrial Ethernet technology which stands for high-performance, low-cost, easy to use with a flexible topology. It was introduced in 2003 and has been an international IEC standard and a SEMI standard since 2007. EtherCAT is an open technology: anyone can implement or use it.

➔ For further information please see: www.ethercat.org

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