STEM Coding Competition
Facts

250 Components

Includes TXT 4.0 Controller, 3 ultrasonic Sensors, powerful encoder motor, servo motor, Ackermann steering, differential gear, battery + charger, ft camera & kit for customized vehicle chassis

Item No.	571099
EAN	4048962510447
Dim. (mm)	465x80x320
Weight (g)	1653

About fischertechnik education
Hands-on learning solutions for the core classroom

fischertechnik education offers innovative digital and analog STEM learning solutions for cross-curricular use from preschool throughout K12 up to higher education.
The hands-on learning approach helps students understand STEM (Science, Technology, Engineering, Maths) concepts in a playful and tangible way and allows them to develop essential future skills such as complex problem solving, creative thinking and many emotional and social skills.

The fischertechnik education portfolio covers a broad range of curriculum-aligned STEM contents from robotics, artificial intelligence and agile production simulation to renewable energies, electronics and mechanics and many more.

Our learning solutions for lessons come with specific construction kits, technical components such as motors, sensors and controllers, free lesson plans incl. building and coding instructions, task and solution sheets as well as curriculum references and professional development.

For more than 55 years, our solutions have been successfully implemented and used in schools, universities, educational programmes and industrial companies around the world.

More about fischertechnik education: fischertechnik.de/en/schools

STEM CODING COMPETITION | SECONDARY SCHOOL

STEM CODING COMPETITION
Made for participating in official robotic competitions

The new fischertechnik STEM Coding Competition comes with everything you need to build a robot with a steering drive that can drive around a track autonomously. The construction set for a customised chassis contains the powerful TXT 4.0 Controller, three ultrasonic sensors, a powerful encoder motor, a camera, a differential gear, double-pivot steering including servo motor and a rechargeable battery and power adapter. The set is suitable for taking part in robotic competitions such as the Future Engineers category in the World Robot Olympiad.

WHERE TO USE

Please note this building kit was designed for participating in **robotic competitions** and does not include any teacher support material or lesson plans.

The kit allows learners to **develop, build and code** their own individual autonomously driving robotic vehicle.
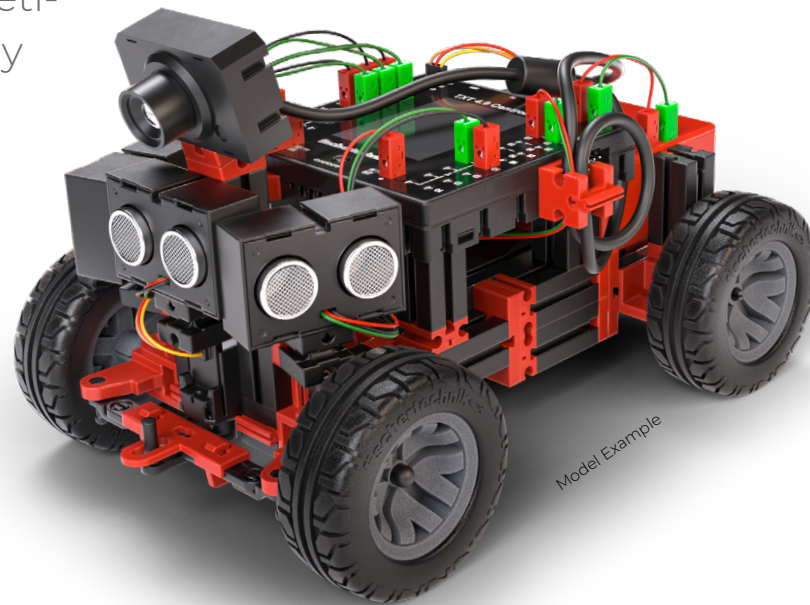
STEM Coding Competition was developed for use in the **World Robot Olympiad category Future Engineers** (read more about WRO on wro.association.org).

STEM
SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

WRO®
WORLD ROBOT OLYMPIAD ™

designed for
WRO Future Engineers

Build, code & win!

Build your own vehicle for successful participation in robotic competitions. Overview of the perfectly coordinated components.

Model Example

Ultrasonic Sensors - Safely navigate through the track
- Provide values for obstacle detection or field boundaries.
- With the help of the three ultrasonic sensors, for example, an autonomously driving vehicle can orient itself within a confined space and interpret the distance to objects in front of it.

Encoder Motor - Gives you the necessary power
- Powerful geared motor with a built-in magnetic encoder.
- Especially suitable for robotics competitions.
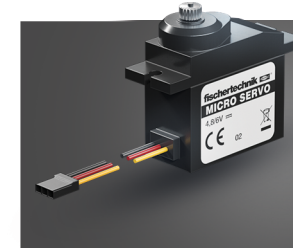- Encoders enable precise and fast driving over distances.

USB Camera - Your eye on the field
- TXT Controller can process images, enabling it to recognize movements, colors and tracks, for example.
- Used for object and color recognition.
- The camera can be focused by adjusting the camera lens.

TXT 4.0 Controller - Controls your robot
- 8 Universal Inputs
- 4 Counting Inputs
- 4 Motor Outputs, alternatively 8 Individual Outputs
- 3 Servo Outputs
- Touch Display
- Additional 3.3V sensors can be added via the I²C interface.
- Programming can be done both graphically and with Python using Robo Pro Coding software.

Ackermann Steering with servo motor - Swiftly around every corner
- An ackermann steering system is used as the wheel carrier, allowing the wheels to pivot around a common center point during turns.
- This prevents the vehicle from slipping during motion.
- The steering is precisely controlled by the included servo motor.

Differential Gear - Ensures proper drive
- Allows the drive wheels to rotate at different speeds while maintaining the same propulsive force.
- This equalizes the rotation speeds of the wheels, especially during turns.

Battery and Charger - Recharges the batteries
- Powerful NiMH Battery Pack
- Short circuit protection
- 8.4V 1800mAh

Robo Pro Coding App

The TXT 4.0 Controller is programmed through the Robo Pro Coding App. The software, in its multilingual environment, offers a graphical programming option as well as a text-based alternative using Python. Users can choose from different learning levels - beginner, advanced and expert - to work at the appropriate difficulty level. Program examples are available and user-created programs can be saved locally on the device or online in the cloud. This allows for versioning and exchange of created programs among users in the cloud storage. The interface test allows for quick testing of actuators and sensors. The software is compatible with Windows, Linux, macOS and mobile devices (Android or iOS).

Built on Blockly   python

WRO & Future Engineers

The goal of these competitions is to inspire young people for computer science, robotics, STEM (science, technology, engineering and mathematics) and the future while also helping them learn essential social skills. Interested children or teenagers form teams, find a coach, work on the tasks of the respective season and participate in regional and global competitions. The WRO competition offers four categories for participants aged 8 to 19. Participants in the Future Innovators and Future Engineers categories are free to choose their robotics materials/manufacturers. The tasks range from programming a robot to robots that contribute to solving a real-world problem (Future Innovators) to autonomously driving robots that must complete a specific course in the shortest possible time and compete against other teams on the competition day (Future Engineers).