

WorldSkills Mobile Robotics

Official Collection for the WorldSkills Shanghai 2022 Mobile Robotics

Available Exclusively at Studica



Features:

- **Everything you need to build your robot for the WorldSkills Mobile Robotics competition in Shanghai 2022**
- **All new structure which is bigger, stronger & more versatile**
 - o 48mm x 48mm anodized aluminum U-Channel, 3mm thick
 - o More channel, including low profile, and flats
 - o More aluminum brackets for creating various shaped robots
 - o Standard 6mm axles
 - o Create gear trains or mount motors within the channel
 - o Flanged bearings for smoother applications
 - o Mount motors using clamps or mounts
 - o Larger rack and pinion system
 - o All metric including fasteners
- **All new VMX-Titan Controller improves on speed, connectivity and expands programming options**
 - o Highly-integrated, WiFi-enabled, multi-core Linux computing platform with lots of USB IO for expansion
 - o 32-bit ARM Microcontrollers incorporating sophisticated I/O and digital communications engines
 - o Powerful software providing rich libraries and tools for developing robot software in C++, Java, with open source options for LabVIEW, Python, and ROS
 - o No software licensing required
 - o CAN bus for high-speed, real-time communication between devices
 - o A powerful, 4-channel CAN-based motor controller with built-in fuse-box (for DC motors up to 20A)
 - o 4 x Hardware encoder ports – one for each motor
 - o 2 limit switch ports for each motor
 - Fuse box to set manual current limits
 - 2x Power extension ports to power other 12VDC devices. I.E.
 - o Servo Power Module
 - o Built in LED Controller
 - o USB-C to better support today's cable standards
 - o Power up to 8 Servo Motors
- **Improved Motors**
 - o 4 DC gear motors with increased torque and PP45 connectors
 - o 3 Smart Programmable Servo motors with up to 20KG.CM Stall Torque
- **Sensors and Camera**
 - o 2 IR Range Sensors
 - o 2 Ultrasonic Distance Sensors
 - o Line Follower Sensor
 - o 4 Limit switches
 - o SR-Pro Camera – 8mpixel wide area lens with faster processing speed
 - o Enhanced 9-axis inertial/magnetic sensor and motion processor (IMU)

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Electronics & Accessories:

- 1- VMX Robotics Controller
- 1- Titan Quad Motor Controller
- 2- SR-Pro Ultrasonic Distance Sensor
- 2- Ultrasonic Distance Sensor Bracket
- 1- VMX Cable Pack
- 1- Titan Cable Pack
- 1- Cobra Line Follower Sensor
- 1- Analog Module w/JST-SH to JST-GH Cable
- 1- SR-Pro Camera
- 2- Sharp IR Range Sensor (10 cm to 80 cm)
- 2- IR Range Sensor Bracket
- 4- Short Lever Limit Switch
- 1- Power Control Panel
- 2- 12V 3,000 mAh NiMH Battery Pack, PP45
- 1- NiMH Battery Pack Charger, PP45
- 2- Powerpole 45 Extension Cable, 14AWG, 50cm
- 1- Remote Control Device
- 1- PWM cable Set - TJC8 3 pin, 22AWG, F-F - 12 pcs
- 1- 2.5mm Hex Ball End Screwdriver
- 1- Hex Key Metric 9 Piece Set
- 1- Combination Wrench, 5.5mm
- 100- Zip Ties, Blue, 150mm
- 1- Robotics Toolbox
- 1- USB Cable, Type A to Type C, Blue, 2M

Motors, Servos and Mounts:

- 4- Maverick Motor w/61:1 Spur Gearbox and Encoder
- 3- Multi-Mode Smart Servo
- 1- Servo Power Block
- 1- Smart Robot Servo Programmer
- 1- 6V DC AA Battery Holder w/TJC8 Female, 22AWG

U-Channel:

- 3- 336mm U-Channel
- 4- 288mm U-Channel
- 2- 144mm U-Channel
- 2- 96mm U-Channel
- 8- 48mm U-Channel
- 2- 288mm Low U-Channel

Mounting Plates:

- 4- Motor Mount Plate
- 4- Motor Mount Clamp Kit
- 8- End Piece Plate
- 3- Servo Standard Front Mount
- 3- Servo Mount Flat Plate
- 3- Servo Mount Offset Plate
- 3- Servo Horn 25T
- 3- 6mm D-Shaft Servo Hub 25T

Flat Brackets:

- 2- 288mm x 40mm Flat Bracket
- 2- 192mm x 40mm Flat Bracket
- 4- 144mm x 40mm Flat Bracket
- 6- 96mm x 40mm Flat Bracket
- 9- 192mm x 96mm Flat Bracket

Irregular Brackets:

- 6- 120 Degree Bracket
- 8- 90 Degree Bracket
- 2- 135 Degree Bracket
- 4- 96mm Adjustable Flat Bracket
- 2- T Bracket
- 2- X Bracket
- 4- Inside U Bracket
- 8- L Bracket
- 2- Battery Clip
- 8- Inside L Bracket

Flat Beams:

- 4- 288mm Flat Beam
- 4- 96mm Flat Beam

Gears, Sprockets, Pulleys and Belts:

- 4- 32 Tooth Gear
- 4- 64 Tooth Gear
- 4- 13 Tooth Bevel Gear, 6mm D-Shaft
- 4- 26 Tooth Bevel Gear
- 2- 24 Tooth - Sprocket
- 2- 32 Tooth Sprocket
- 1- #25 Chain with Master Links, 5 feet(152cm)
- 2- 6mm Timing Pulley, 10 Tooth
- 1- 10mm Timing Belt (1 meter)

Axles, Slides, Rack and Pinion:

- 6- 6mm x 35mm D-Shaft
- 6- 6mm x 70mm D-Shaft
- 6- 6mm x 96mm D-Shaft
- 2- 6mm x 432mm D-Shaft
- 2- Rack & Pinion Set
- 1- 250mm Linear Slide Kit

Wheels:

- 4- Omni Wheel (100mm, Double Plastic, w/ integrated 6mm Hub)

Bushings, Bearings, Coupling, Collars and Spacers:

- 16- 6mm Shaft Hub
- 12- Bushing Bronze 6mm ID x 8mm OD
- 12- Bushing Bronze 6mm ID x 14mm OD
- 12- Flange Bearing 6mm ID, 14mm OD, 15mm Flange
- 4- Coupling 6mm ID D-Shaft, 12mm OD
- 12- Collar 6mm ID D-Shaft, 12mm OD
- 24- Shaft Spacer Plastic 6mm ID x 10mm OD x 1mm L
- 24- Shaft Spacer Plastic 6mm ID x 10mm OD x 2mm L
- 12- Shaft Spacer Plastic 6mm ID x 10mm OD x 5mm L
- 6- Shaft Spacer Plastic 6mm ID x 10mm OD x 20mm L

Screws, Nuts and Standoffs:

- 200- M3 x 8mm Socket Head Cap Screw
- 200- M3 x 10mm Socket Head Cap Screw
- 200- M3 x 12mm Socket Head Cap Screw
- 50- M3 x 10mm Button Head Cap Screw
- 200- M3 Kep Nut
- 100- M3 Nyloc Nut
- 12- 42mm Standoff
- 12- 48mm Standoff
- 12- 25mm Standoff