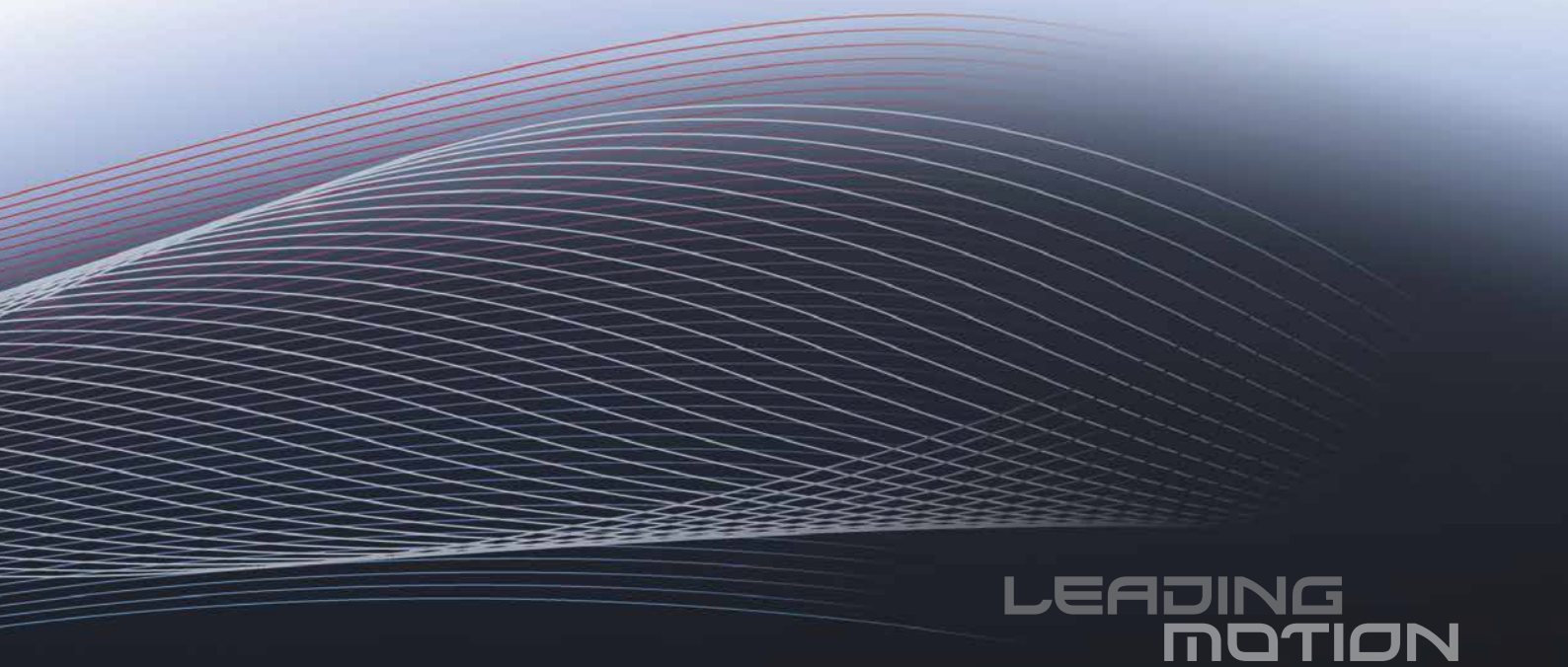
TECHNAID

Innovative human-centered technologies
to simplify your daily work.



LEADING MOTION

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About Technaid

Who We Are?

Technaid is a technology company devoted to develop innovative human-centered technologies to simplify daily work in areas such as biomechanics, rehabilitation, sport performance, ergonomics, robotics or VR.

What We Do?

Technaid is actively involved in some National and European research projects with recognized universities and research institutions that allows us to improve our products:

Motion Capture System: Tech-MCS
Inertial Measurement Unit: Tech-IMU
Exoskeletons for rehabilitation: EXO-H3
Tremor Filters for the mouse: TechFilter

Why Choose Us?

Because we do much more than just sell our products. Technaid offers a complete service experience getting directly involved in our customer's projects.
Contact us and start a new profitable professional relationship

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TECHNAID

The Inertial Motion Capture System Tech-MCS is a complete motion analysis solution with high capacities. Its outstanding performance allows up to 500Hz sample rate making the Tech MCS ideal for high-speed sport performance analysis; such as tennis, cycling, running, among others.

Therefore, its compact and light configuration will allow you to capture movements with the highest velocity anywhere you need. Accuracy, wireless, portability, versatility and simplicity are its main features.

Tech-MCS

Tech MCS Features

- Portable and Compact
- Ultra-small, Very Light and Robust Tech IMU Sensors
- Highly Configurable

Data output

- 3D RAW Data (Acceleration, Angular Velocity and Magnetic Field)
- 3D Physical Data (Calibrated)
- 3D orientation in Quaternions
- 3D Orientation in DCM (Direct Cosine Matrix)
- 3D Angles (Joints)
- 3D Angular Velocity
- Rate Frequency Up to 500 Hz
- Internal Update Rate to 1000 Hz
- Synchronised Video Frame Recording

Communication Features

- 4 Tech IMU Ports for 1-16 Tech IMU V4/CV4
- USB Port
- Wireless Communication (Bluetooth® or Wifi)
- 150 m. Wireless Range (Line-Of-Sight)
- 50 m. Wireless Range Indoor
- MicroSD Recording (PC Offline Mode)
- In/Out Trigger Port for Synchronization
- Tech Wireless External Trigger (Optional)

Export formats

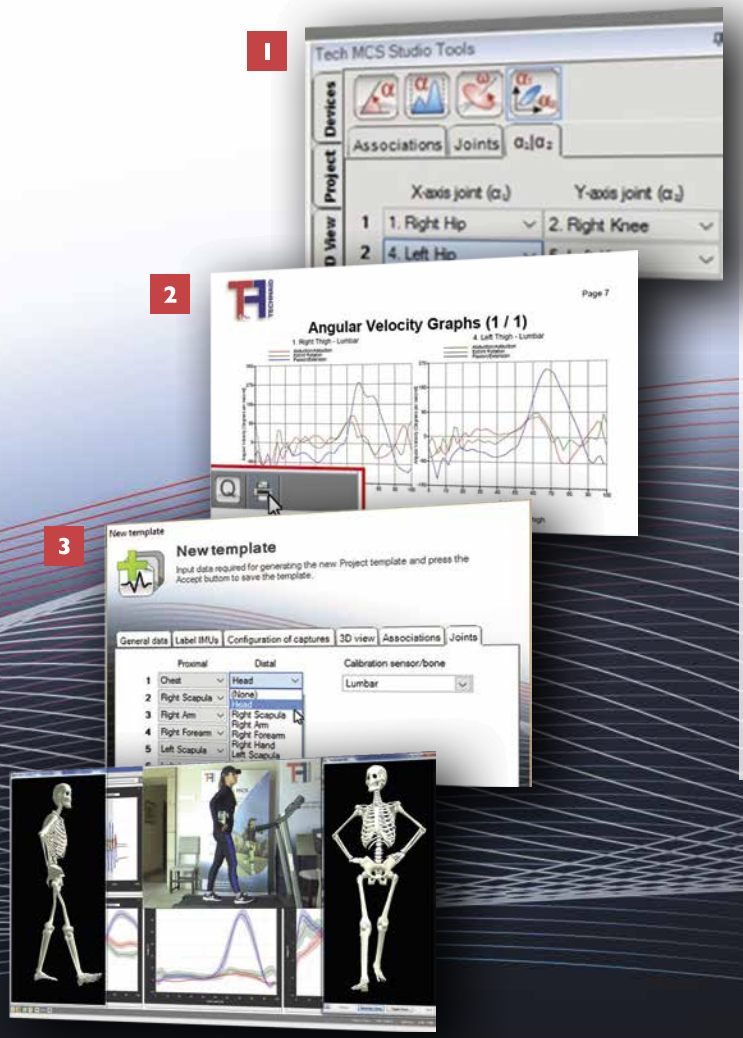
- Plain text file (Excel or Matlab compatible)
- One-click Report Generator (PDF).
- FBX
- BVH

Tech MCS Studio is specially designed to make daily work easier to specialists. Its project-orientation approach is plenty useful in clinical and research environments where many tests are made during the working day. Its main characteristic is its wide customization possibilities.

The whole human performance is recorded and visualized in real-time on your PC through the 3D avatar.

Tech-MCS Studio 4 exports recorded data (Range of Movement, angular velocity, linear acceleration etc.) to ASCII files compatibles with Matlab or Execel.

Tech-MCS Studio



Visual Interface

- Intuitive GUI (Graphical User Interface)
- Real-Time Data Visualization and Recording
- 3D IMU and Avatar Visualization
- Dynamic Visualization of Selected Data
- Adaptable Work Area

Playback Tools

- Playback, Slow and Fast Motion
- Time-Line Selection Playback, Playback Loop
- Graphics' Zoom IN/OUT
- Graphic Representation Through 3D Avatars
- Synchronised Video Frame Recording

Angle Measurement Tools

- Several Options to Set Up Measurement Session
- Joints Selection, for Human Body's Angles Measurement
- Open Choice for Limb Relationes (Real or Virtual Joints)
- Graphical Relations Between Joint Angles
- Automatic Gait Cycle Detection

Export Formats

- Plain Text File (Excel or Matlab Compatible)
- One-Click Report Generator (PDF)
- FBX
- BVH

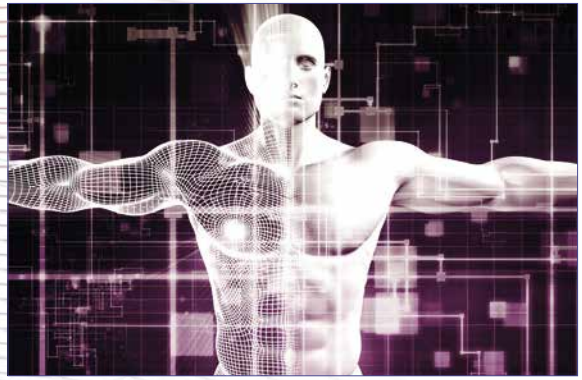
1. Biomechanical Analysis Tools
2. One-Click Report generation
3. Multiple joint configuration
4. High-Speed Camera Synchronization

Physiotherapist and **ergonomists** can obtain valuable statistics on patients movements (ROM, velocities, acceleration, etc.)

Researchers and engineers can measure motion variables and export RAW and processed data to plain text files.

Applications

Sport performance specialists can monitor the improvement of athletes and compare result over the time.



Artists and developers can track human motion for their 3D or VR developments.

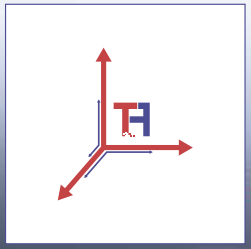
IMU V4 series represents the lastest version of inertial sensors developed by Technaid. This series incorporates cutting-edge inertial technology inside compact inertial measurement units, allowing to collect kinematic, dynamic and orientation data accurately.

Tech-IMU CV4

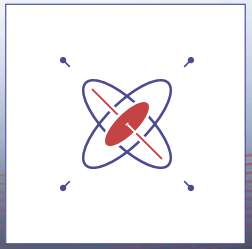
Tech IMU CV4 represents the Technaid's excellence approach to technology. On it, the most carefully designed electronics, for an extremely accurate measurement, is encapsulated inside the strongest and durable materials in order to obtain a robust and compact motion sensor, ready to perform efficiently whatever the circumstances are, even under water.

Tech-IMU V4

Lighter than CV4 version, Tech IMU V4 is delivered by default on each Tech MCS package. Its on-box-connection allows customization in order to fit user's needs. It maintains the same high performance than Tech IMU CV4.



Acceleration: m/S^2



Angular velocity: rad/S

Magnetic field: μT

Each Tech IMU integrates three different micro mems sensors, a 3D accelerometer, a 3D gyroscope and a 3D magnetometer. Their sophisticated and robust algorithms are designed to deliver accurate and reliable estimation of 3D orientation, even in changing environmental conditions and under other perturbations.
They are the heart of our motion capture system Tech MCS.

Tech-IMU

Physical Features

- Tech IMU V4 Size (LxWxH): 36x26x11 mm.
- Tech IMU V.4 Weight: 10 gr.
- Tech IMU CV4 Size (LxWxH): 36x26x8 mm.
- Tech IMU CV4 Weight: 14 gr.
- Built in a Compact Solid Body for Waterproof Applications (Tech IMU CV4)

Electrical Features

- Supply Voltage: 3.3 – 4.0 VDC
- Current Consumption: 70 mA

Communication Features

- Standard CAN Communication or Tech HUB CAN Communication
- Output Rate Frequency Up to 500 Hz
- Internal Update Rate to 1000 Hz

Measured variables

– 3D Gyroscope
  - Angular Velocity: ± 2000 °/s
  - Angular Velocity: ± 34.9 rad/s
  - Resolution: 0.06 °/s

– 3D Accelerometer
  - Acceleration: ± 4, 8, 16 g.
  - Acceleration: ± 39.22 – 156.88 m/s2
  - Resolution: 0.122 mg

– 3D Magnetometers
  - Magnetic Field: ± 8.1 gauss
  - Magnetic Field: ± 810 µT
  - Resolution: 0.092 µT

Data output

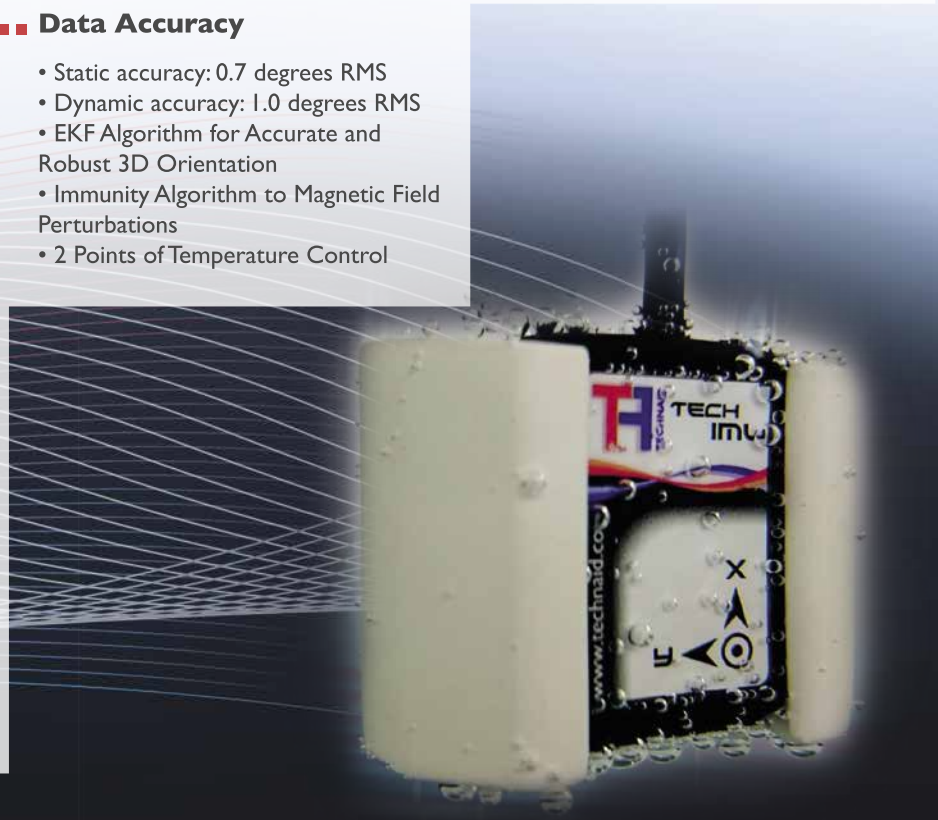
- 3D Acceleration RAW Data at 16 bits
- 3D Angular Velocity RAW Data at 16 bits
- 3D Magnetic Field RAW Data at 12 bits
- 3D Physical Data (Calibrated)
- 3D Orientation in Quaternions
- 3D Orientation in DCM (Direct Cosine Matrix)
- Physical and Orientation Data Simultaneously

Data Accuracy

- Static accuracy: 0.7 degrees RMS
- Dynamic accuracy: 1.0 degrees RMS
- EKF Algorithm for Accurate and Robust 3D Orientation
- Immunity Algorithm to Magnetic Field Perturbations
- 2 Points of Temperature Control

Customer support

- Free Upgrade of Firmware
- International Guarantee for Manufacturing Defects
- Adaptable to Customer Specific Needs (customization)
- Specialized Technical Support
- Support for Customer Applications
- User Technical Information



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*For research use only

Exoskeleton

The Exo-H3 is the third version of Technaid's lower limbs robotic exoskeleton. On it we have put all our expertise and previous knowledge to bring you a **versatile, robust and reliable platform for your research.**

Exo-H3 can completely emulate the process of human walking replicating the previously introduced gait pattern through its six actuated joints in the sagittal plane. Thereby it can assist to people that have partially lost the capacity to walk after suffering a stroke, contributing to the current **neurorehabilitation research.**

The main advantage of the Exo-H3 is that, having been designed specifically for research, it allows the implementation of own algorithms as well as the application of different robotic control strategies. This, together with its ability to adapt to different sizes gives you a wide range of possibilities when carrying out our research
The Exo-H3 also has an **Android App** as interface to operate the basic functions of the exoskeleton such us gait speed, motor assistance or stand up and sit down commands.

Exo-H3 has been the result of many years of research of Technaid together with the Bioengineering Group of CSIC.

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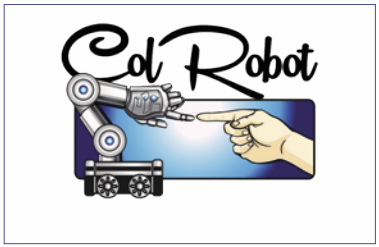
Research

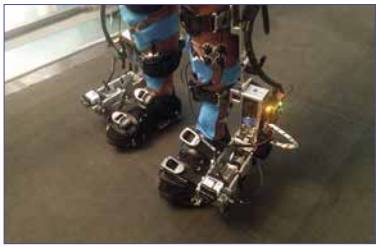


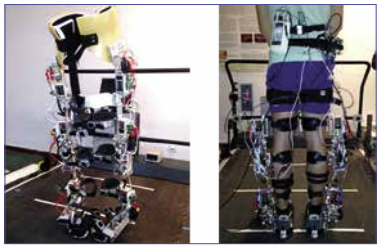
ColRobot

Collaborative Robotics for Assembly and Kitting in Smart Manufacturing.

ColRobot combines European cutting-edge robotics and end-user requirements for assembly processes to create an integrated system for collaborative robotics in which a mobile manipulator acts as a "third hand" by delivering kits, tools, parts, and holding work pieces while the operator works on it.

Funded by the European Commission under Grant Agreement: H2020-ICT-2015-688807





BioMot

Smart Wearable Robots with Bioinspired Sensory-Motor Skills

The main objective of the project is to improve existing wearable robotic exoskeletons exploiting dynamic sensory-motor interactions and developing cognitive capabilities that can lead to symbiotic gait behavior in the interaction of a human with a wearable robot.

Funded by the European Commission under Grant Agreement: FP7-ICT-2013-10-611695

To know more about our Research Projects use this QR code:

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