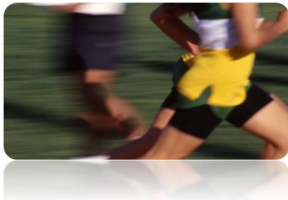


BIOLASERSPORTS. Improved sports performance at the highest level

System for biomechanical analysis of the athlete: real-time information to optimize competitive performance



Contact information

Address: INEF -UPM, c/ Martín Fierro,7, 28040, Madrid

Phone number: 910677930

Website: inef.upm.es

Email: amelia.ferro@upm.es

Technological Offers type

[Technological solutions](#)

Research and innovation areas

- [Digital Technologies, Artificial Intelligence, Cybersecurity, 5G, Robotics](#)
- [Health and Wellbeing](#)



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Where?

Sports and Training

Keywords: | [biomechanics](#)

Brief description of the technology solution and the added value it provides

Researchers from the Faculty of Sciences for Physical Activity and Sport of the Technical University of Madrid, in collaboration with the University Pablo Olavide of Seville, develops Biolasersports, a complete system of recording, analysis and interpretation of biomechanical data of the athlete in motion. Provides real-time critical information to the coach, able to optimize the performance in sports where technical efficiency depends on the velocity, such as football and athletics. Another important characteristic is its reliability in data collection, because the system is capable to integrate the movement of the athlete through a mobile laser system. In sports environments increasingly competitive, Biolasersports is an innovative breakthrough in the application of the latest technologies to the sport.

Description of the technological base

Biolasersports is a kinematic analysis system of competitions and sports training in real time. Based on laser technology, a mobile platform on mechanical rails measures the instantaneous speed of an athlete along their displacement. The biomechanical data captured are processed by a software, which record, analyze and perform an assessment of motor skills and sports technique (applied to distance traveled, speed and acceleration). This accurate information, offered in real time, is very valuable to the coach, who will be able to use biomechanics science as a tool to improve sport performance.

“Biolasersports provides key biomechanic data about the athletes and their movement during the race, for improving their performance”

Market demands

- The Sports Biomechanics is recognized as a key for improving athlete performance. Specifically, the study of the motion of bodies with respect to the speed of movement is critical for a big number of competitions.
- It is needed techniques of sports performance analysis in real time: immediate feedback to the trainer and athlete for effective decision making.
- Nowadays, laser systems are generally adapted and used for measuring the speed of movement, compared to classical techniques such as photoelectric cells or the use of video.
- Current solutions using laser technology to track the athlete require specific conditions to obtain reliable data which are not met in practice: rectilinear movements or without interposition of other elements during the measurement (interpositions probability occurs up to 40% of the measurements real).
- It is needed mobile measurement systems, adapted to the natural motion of athletes without interfering it.

Competitive advantages

- Industrial prototype done, optimization is needed.
- Technological support to the coach for improving effectively the performance of athletes.
- On time biomechanical results: without the data digitization needed in classic techniques of photogrammetry which are time-consuming.
- Application to any sport in which the race is critical to the performance (football, basketball, athletics, cycling, handball, gymnastics ...), both in competition and training.
- No affect the natural motion of athletes thanks to laser technology
- Software tools included for the interpretation of biomechanical data collected and its assessment: reference variables, historical...
- Portable, lightweight and easy to assemble: adaptation to any terrain or sports court.

Development stage

- Concept
- Research
- Lab prototype
- **Industrial prototype**

- Production

Contact

Contacto BioLaserSport

Amelia Ferro Sánchez

e: amelia.ferro@upm.es

CONTACTO UPM

Área de Innovación, Comercialización y Creación de Empresas

Centro de Apoyo a la Innovación Tecnológica – UPM

e: innovacion.tecnologica@upm.es