

Cyclope

Performance measurement

• Embedded sensors - monitoring

> Description

Cyclope is a low-cost system for evaluating in real time the power developed by a cyclist.

The system calls for only one accelerometer in addition to a traditional speedometer.

Cyclists can thus evaluate their sporting performance more accurately.



Associated research topics

- Embedded sensors
- Motion capture
- Information processing

Presentation

At present, the systems for measuring the power developed by a cyclist (for sensors under pedals) are expensive and difficult to install and therefore restricted to professionals.

The cyclope system does not measure power output directly, but rather it estimates it from a speed sensor and accelerometer used as an inclinometer.

The simplicity of the planned components is such that the cost will be suitable for sale to the general public.

The process involves two stages:

First, when the cyclist does not produce any power (he stops pedalling), the mechanical and aerodynamic friction coefficients of the forces applied to the cyclist + cycle system can be calculated in real time by summing the external forces: friction and gradient.

In addition to the information provided by a conventional cycle meter (instantaneous speed, average speed, distance travelled and possible pedalling frequency, heart rate), the power would enable a racer to moderate his efforts.

Its also offers the possibility of carefully evaluating the total energy expended during training.

Technologies developed

- Miniaturization
- Embedded processing

Potential fields of application

- Technologies for sport and health
- Sport (e.g. fitness)
- Health. (e.g. staying in shape, monitoring one's weight)