

# Ski or trekking-racket equipped with magnetic-inductive energy harvester

## Abstract

The presented invention allows for generating electricity during the practice of different sports, such as mountaineering, skiing or hiking. The electric current produced by the energy harvester device integrated within the stem of poles can be directly exploited in order to recharge a small battery and therefore power a radio beacon transmitter, which is very often used by rescuers to search for survivors that are buried under the snow in case of an avalanche.



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vibrational energy

supply batteries

ski pole

wireless transmission

avalanche search

# Ski or trekking-racket equipped with magnetic-inductive energy harvester



## Description

The presented invention relates to a ski or a hiking pole equipped with a radio beacon transmitter that is self-supplied by a magnetic-inductive energy harvester. The proposed device comprises a stem, a handle, a shoe, a fixed magnet and a movable one which is placed inside the sliding guide within the tubular cavity, two symmetrical windings made of copper wire, an electronic card that is needed to rectify the current produced, a capacitor and a battery.



## Applications

The presented invention allows for generating electricity during the practice of different sports, such as mountaineering, skiing or hiking. The electric current produced by the energy harvester device integrated within the stem of poles can be directly exploited in order to recharge a small battery and therefore power a radio beacon transmitter, which is very often used by rescuers to search for survivors that are buried under the snow in case of an avalanche.



## Advantages

When subjected to vibration, the proposed device exploits the force of gravity and the vertical position of the pole to generate an electric tension inside the windings and therefore recharge a battery. The asymmetric suspension and a longer stroke of the magnetic element that moves within the sliding guide provide to the invention efficacy and input-to-output ratio of higher generation with respect to the remaining solutions which are currently available on the market.