

CommuniCATor - A Smart Audio Recorder for Long-Term Monitoring of Animal Behavior

Fields of use:

Research on wildlife.
Biodiversity monitoring.
Nature conservation.

Current state

of technology: prototype
(TRL 5-6)

Intellectual property

Patent application:
P-202600135

Developed by

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**Background.**

Research into the behaviour, communication, and ecology of wild animals is often limited by the difficulty of directly observing animals in their natural habitats. Existing stationary acoustic devices can only record sounds within a limited area, while portable recorders designed to be attached to animals are rare, technically limited, and typically operate for only a few weeks. A key limitation of existing solutions is continuous sound recording, which causes rapid battery drain, generates a large amount of unusable data, and increases the costs of storage and analysis. Consequently, long-term monitoring and analysis of animal behavioural patterns is difficult or even impossible.

Description of the solution.

CommuniCATor is a smart audio recorder designed to be attached to animals, combining advanced acoustic detection with motion monitoring based on selected parameters. The device is based on energy-efficient microelectronic technologies and enables programmable long-term operation, expected to last at least one year. The key innovation is that data is recorded only during relevant events, as the device analyses the captured audio data in real time. In addition, the device is recording animal movement with the three-axis accelerometer.

The solution allows for flexible configuration of sound detection parameters, the definition of recording time intervals, and the simultaneous collection of data on animal activity. The device is designed for integration with existing GPS telemetry collars, and other methods of attachment to animals are also possible.

**Main advantage.**

- exceptionally long operating life (at least one year) without the need to replace batteries, use a large battery, or install solar cells,
- smart recording based on advanced sound analysis, which significantly reduces energy consumption,
- significantly less useless data, which shortens analysis time,
- programmable detection parameters allow for adaptation to different animal species and research objectives,
- simultaneous collection of acoustic and movement data for a comprehensive analysis of animal behavior,
- ability to focus on key periods, such as mating, feeding, or seasonal migrations,
- high robustness and operational reliability even under challenging field and weather conditions,
- compatibility with GPS telemetry systems, enabling the spatial localization of detected behaviors and events.

Offer of cooperation:

We are looking for a development partner

