



## Name of the Organisations Involved

- Farmer Christoph Böhm (Hof Schleiersbach) in Fränkisch-Crumbch, Germany;
- The German Aerospace Center (DLR), the agricultural technology company CLAAS and the Technical University of Munich work together under the leadership of i\_s\_a\_ Industrieelektronik GmbH;
- The joint project is supported by the Bavarian State Hunting Association, and project management is carried out by ZENTEC GmbH, Germany.

## Challenges Identified

Depending on the vegetation and weather, farmers usually only have a small window of opportunity to mow their meadows and bring in the fodder that is so important for their operations. They use modern mowing devices that work ever faster and more efficiently.

At the same time, fawns released in the meadows in this mowing period are difficult to find, even for experienced hunters. This is because during the first two weeks of life, fawns have a so-called "squeezing instinct" and almost no smell of their own. This means they are excellently camouflaged in the tall grass. During this phase of life, the fawns remain in their place continuously and "press" themselves motionless on the ground when there is danger. This means they are not only protected from predators, but also from being discovered by humans. Without aids it is very difficult to track down and save the fawns from the mowers.

Every year, farmers and hunters have to deal with the same problem: fawns cannot escape the mowers and are killed by the machines. And this is very sad and unacceptable! At the same time, as a consequence, there is not only a risk of contamination of the silage (= green fodder stored in the silo) and damage to the hunting tenant, but also an extremely unpleasant situation for the operators of the mowers who are involved directly confront this locally quite common problem of fawn breeding.

#### Goals and solution

It is currently very time-consuming to effectively find and rescue fawns using the previously known methods, so that around 100,000 young animals are fatally injured during mowing every year in Germany alone. Against the background of this problem, the WILDRETTER project was launched, which is funded by the Federal Ministry of Agriculture and Food. The aim was to develop a reliable application system for fawn rescue when mowing agricultural areas.

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# Actions taken

It is the connection of the components and the separation of the search process and rescue that makes the wildlife rescuer "Wildretter" unique (see also image "How it works" below). A central coordination and communication platform (www.wildretter.de) is necessary for planning and implementation within a very limited period of action. The process is most effective when the search operation (in the period before mowing) and the rescue operation (immediately before or during mowing) are decoupled from each other.



Image: How it works: technical components. Source: Wildretter F-C

The standardized control for various carrier systems is the heart of the development. Together with the infrared and digital camera, the GPS route programming and the recognition software, the search areas should be able to be processed very efficiently.

Remote-controlled multicopters (miniature helicopters with 4, 6 or 8 rotors), which can fly for around 15 minutes with a payload of 500-800 grams, are particularly suitable as carrier systems. The research focuses on the most efficient and light technical unit possible. The finding is carried out using GPS-controlled planning (the corresponding meadows are optimally flown overusing this program and recorded with the cameras) and an automated evaluation of the image materials. As a result, you get precise GPS data on which there is a high probability of a fawn lying. The units can be controlled by experienced copter pilots.

## **Benefits and Impact**

- The deer fawns found in this way are marked with an active transponder, which means the animals can be easily found again even after a long time and saved from being mowed at short notice, so that animals and farmers benefit from this process during mowing.
- This will hopefully enable large-scale rescue operations in the near future, which could be done in both portable and machine-based ways.
- The fawns found are carried out of the area immediately before mowing and secured there to prevent them from being brought back to the supposedly safe meadow by the mother animal. After the mowing process they are released and after a short time the deer track them down and lead them away.
- All data, actions and experiences are collected, analysed and evaluated on the platform www.wildretter.de under strict data protection guidelines. This means the project can develop into other regions and improve sustainably.

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Image 1: Starting the drone for search, Source: Wildretter F-C

Image 2: Tagging a rescued dear fawn, Source: Wildretter F-C

• The risk of silage contamination is minimised, as well as the emotional and occupational risk to mower operators.

**Contact information** 

Thorsten Stürmer

Email: stuermer@zentec.de

c/o ZENTEC Zentrum für Technologie, Existenzgründung und Cooperation GmbH

Website: https://www.wildretter.de/home.html

Agricultural technology company CLAAS

Website: https://www.claas.com

Prepared by

Wolfgang Kniejski (INI-Novation GmbH),

based on an interview and presonal contacts with Mr. Thorsten Stürmer

Application Area ☑ Plants ☑ Terrain

 Digital Technology in the Value Chain

 Image: Agronomic Services
 Image: Agricultural Inputs and Services

**Digital Technologies** 

Sensor Technology

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