PROZEL | Forecasting threats to forest ecosystems using an innovative system for the recognition of odours

Innovative R&D project developing odor-based system (electronic nose) based on sensors with high sensitivity and AI to monitor selected, particularly dangerous forest pests.

The threat of forests by various harmful microorganisms is growing due to changing climate conditions and spreading of non-native pathogens and pests.. Simultaneously the relevance of biological methods of monitoring and preventing forest degradation is increasing in the face of the chemical's use restrictions. The main aim of the project is the development of an innovative device (electronic nose/ e-NOS), based on a matrix of broad-band electrochemical sensors and neural networks that would detect and analyse the odor-based signals e.g. pheromones of certain insect species. The examples of pathogens and pests addressed in the project include Dendrolimus Pini (L.) and Phytophthora oomycetes.

The developed system delivers comprehensive and complex information which allows to create a neural classifier (using artificial intelligence). The dedicated software was developed to perform the analysis of the data and create a database – library of signals, which will allow to detect the analytes sought in the field. For each application foreseen in the project (analysis of specific smells), dedicated sensory matrices were prepared.

DETAILS

HERKUNFT DES HOLZES

Wald

ART DES HOLZES

--

ART DES BETROFFENEN HOLZES

--

AUSWIRKUNGEN AUF UMWELT UND BIODIVERSITäT

--

EINKOMMENSEFFEKT

--

VERWERTUNGSPOTENZIAL

--

NABE

Drehscheibe Mitte-Ost

WIRTSCHAFTLICHE AUSWIRKUNGEN

--

SPEZIFISCHES WISSEN ERFORDERLICH

--

MOBILISIERUNGSPOTENZIAL

--

POTENZIAL FüR NACHHALTIGKEIT - WERT

--

LEICHTE IMPLEMENTIERUNG

--

LEICHTE IMPLEMENTIERUNG - BEWERTUNG

--

WICHTIGE VORAUSSETZUNGEN

--

ART DER VERANSTALTUNG, AUF DER DIESE BPI VORGESTELLT WURDE

--

ARBEITSPLATZEFFEKT

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KOSTEN DER IMPLEMENTIERUNG (EURO - €)

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MEHR DETAILS

ANGESPROCHENE HERAUSFORDERUNG

1. Verbesserung der Widerstandsfähigkeit der Wälder und ihrer Anpassung an den Klimawandel

DOMäNE

Bestandsaufnahme, Bewertung, Überwachung

Waldstörungen, Risiken, Katastrophenschutz

ART DER LöSUNG

Sensoren, Messgeräte

SCHLüSSELWöRTER

pests

sensors

forest threats

DIGITALE LöSUNG

Ja

INNOVATION

Ja

HERKUNFTSLAND

Polen

UMFANG DER ANWENDUNG

National

ANFANGS- UND ENDJAHR

2018 - 2021

KONTAKTDATEN

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REFERENCES AND RESOURCES

HAUPT-WEBSITE

http://prozel.fizyka.pw.edu.pl/

RESSOURCEN

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PROJEKT-WEBSITE

http://prozel.fizyka.pw.edu.pl/

PROJEKT-REFERENZ

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LOGO DER BEST PRACTICE

LOGO DER HAUPTORGANISATION

PROJEKT, IN DESSEN RAHMEN DIESES FACTSHEET ERSTELLT WURDE

Rosewood 4.0

BEITRAGSDATUM

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A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY