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.

DéTAILS

ORIGINE DU BOIS

Forêt

TYPE DE BOIS

--

TYPE DE BOIS CONCERNé

--

IMPACT SUR L'ENVIRONNEMENT ET LA BIODIVERSITé

--

EFFET SUR LE REVENU

--

POTENTIEL D'EXPLOITATION

--

HUB

Centre-Est

IMPACT éCONOMIQUE

--

CONNAISSANCES SPéCIFIQUES REQUISES

--

POTENTIEL DE MOBILISATION

--

POTENTIEL DE DURABILITé - VALEUR

--

FACILITé D'IMPLéMENTATION

--

FACILITé D'IMPLéMENTATION - ÉVALUATION

--

PRéREQUIS CLéS

--

TYPE D'éVéNEMENT Où CETTE ICPE A éTé PRéSENTéE

--

EFFET SUR L'EMPLOI

--

COûTS D'IMPLéMENTATION (EURO - €)

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PLUS DE DéTAILS

DéFI CONCERNé

1. Améliorer la résilience de la forêt et son adaptation au changement climatique

DOMAINE

Inventaire, diagnostic, monitoring

Perturbations forestières, risque, réponse aux calamités

TYPE DE SOLUTION

Capteurs, équipement de mesure

MOTS-CLéS

pests

sensors

forest threats

SOLUTION DIGITALE

Oui

INNOVATION

Oui

PAYS D'ORIGINE

Pologne

ECHELLE D'APPLICATION

Nationale

DéBUT ET FIN D'ANNéE

2018 - 2021

INFORMATIONS DE CONTACT

PROPRIéTAIRE OU AUTEUR

Warsaw University of Technology, Faculty of Physics

Warsaw University of Technology, Faculty of Physics

prozel@pw.edu.pl

https://www.pw.edu.pl/

RAPPORTEUR

Łukasiewicz Research Network - Wood Technology Institute (ITD)

Dobrochna Augustyniak-Wysocka

dobrochna.augustyniak@itd.lukasiewicz.gov.pl

REFERENCES AND RESOURCES

SITE WEB PRINCIPAL

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

SITE WEB DU PROJET

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

RéFéRENCE DU PROJET

Forecasting threats to forest ecosystems through the implementation of an

RESSOURCES

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innovative electronic system for the recognition of odors, co-financed by National Center for Research and Development (BIOSTRATEG III programme), 2018-2021, grant no. BIOSTRATEG3/347105/9/NCBR/2017

LOGO DE LA BONNE PRATIQUE

LOGO DE L'ORGANISATION PRINCIPALE

PROJET SOUS LEQUEL CETTE FICHE D'INFORMATION A éTé CRééE

Rosewood 4.0

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