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.

DETALHES

ORIGEM DA MADEIRA

Floresta

TIPO DE MADEIRA

--

TIPO DE MADEIRA EM CAUSA

--

IMPACTE NO AMBIENTE E BIODIVERSIDADE

--

IMPACTE NAS RECEITAS

--

POTENCIAL DE EXPLORAçãO

--

HUB

Centro-Oriente Hub

IMPACTE ECONOMICO

--

CONHECIMENTOS ESPECIFICOS NECESSáRIOS

--

POTENCIAL DE MOBILIZAçãO

--

SUSTENTABILIDADE POTENCIAL - VALOR

--

FACILIDADE DE IMPLEMENTAçãO

--

FACILIDADE DE IMPLEMENTAçãO

--

PRE-REQUISITOS CHAVE

--

TIPO DE EVENTO EM QUE ESTE BPI TEM SIDO APRESENTADO

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IMPACTE NO EMPREGO

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CUSTOS DE IMPLEMENTAçãO (EURO - EUR)

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MAIS DETALHES

DESAFIO ABORDADO

1. Melhorar a resiliência e adaptação das florestas às alterações climáticas

DOMíNIO

Inventário, avaliação e monitorização

Perturbações florestais, riscos e resposta a catástrofes

TIPO DE SOLUçãO

Sensores, eequipamentos de medição

PALAVRAS-CHAVE

pests

sensors

forest threats

SOLUçãO DIGITAL

Sim

INOVAçãO

Sim

PAíS DE ORIGEM

Polónia

ESCALA DE APLICAçãO

Nacional

ANO DE INíCIO E FIM

2018 - 2021

DADOS DE CONTACTO

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REFERENCES AND RESOURCES

WEBSITE PRINCIPAL

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

WEBSITE DO PROJETO

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

REFERêNCIA AO PROJETO

Forecasting threats to forest ecosystems through the implementation of an

RECURSOS

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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

LOGOTIPO DA BOA PRáTICA

LOGOTIPO DA ORGANIZAçãO PRINCIPAL

PROJETO NO âMBITO DO QUAL A FOLHA DE DIVULGAçãO FOI CRIADA

Rosewood 4.0

DATA DE ENTRADA

12 Ago 2021

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A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY