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.

PODROBNOSTI

IZVOR LESA

Gozd

TIP LESA

--

VRSTA OBRAVNAVANEGA LESA

--

VPLIV NA OKOLJE IN BIODIVERZITETO

--

VPLIV NA PRIHODKE

--

POTENCIAL IZKORIŠČANJA

--

VOZLIŠČE

Srednje-vzhodno vozlišče

GOSPODARSKI VPLIV

--

POTREBNO SPECIFIČNO ZNANJE

--

POTENCIAL ZA MOBILIZACIJO

--

TRAJNOST - VREDNOST

--

ENOSTAVNOST IZVEDBE

--

ENOSTAVNOST IZVEDBE - OCENJEVANJE

--

KLJUČNI PREDPOGOJI

--

VRSTA DOGODKA, NA KATEREM JE BIL PREDSTAVLJEN TA BPI

--

VPLIV NA DELOVNA MESTA

--

STROŠKI IZVEDBE (EURO - €)

--

VEČ PODROBNOSTI

IZZIV

1. Izboljšava odpornosti gozdov in prilagoditev na klimatske spremembe

DOMENA

Inventura, ocena, monitoring

Motnje, tveganja, odziv na naravne nesreče

TIP REŠITVE

Senzorji, merilna oprema

KLJUČNE BESEDE

pests

sensors

forest threats

DIGITALNE REŠITVE

Da

INOVACIJA

Da

IZVORNA DRŽAVA

Polska

OBSEG UPORABE

Nacionalni

ZAČETNO IN KONČNO LETO

2018 - 2021

KONTAKTN PODATKI

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REFERENCES AND RESOURCES

SPLETNA STRAN

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

SPLETNA STRAN PROJEKTA

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

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REFERENCA PROJEKTA

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LOGOTIP DOBRE PRAKSE

LOGOTIP GLAVNE ORGANIZACIJE

PROJEKT, V OKVIRU KATEREGA SO BILI ZBRANI OSNOVNI PODATKI

Rosewood 4.0

DATUM OBJAVE

12 Aug 2021

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A TOOL FROM ROSEWOOD 4.0, DESIGNED AND DEVELOPED BY