Dolya – mine detecting drone

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ABSTRACT:

“Dolya” is a drone with an innovative sensor system aimed at real-time PMF1 and 9N235 landmine detection. It combines four RGB cameras and one thermal camera for identifying colour, shape and temperature differences between the mines and their surroundings.The sensor module is equipped with an onboard computer NVIDIA Jetson Orin NX 16GB with a custom carrier board designed for drones, allowing for real-time object detection.

PfM1 and 9N235 mines are common munitions used in the Russo-Ukrainian war - a conflict which rapidly escalated after Russian troops invaded Ukraine in 2022. Since then, Ukraine has been progressively more contaminated with explosives, making it the most mine-polluted country in the world.

Plastic-based land mines pose significant challenges for traditional detection methods, such as metal sensors, as they contain only traces of identifiable metal. “Dolya” addresses this issue, presenting a new, faster and safer technology for mine detection in areas affected by war.

Currently, the project is conducted by 6 Aalto University students and has received the support of the Saab company as well as The Demine Foundation.

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