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Integrated Applications End-to-End Solutions (2)

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RECOGNITION AND LOCATION OF PEOPLE IN DANGEROUS SITUATIONS IN DISASTER AREAS FOR RESCUE TASKS USING EMERGING TECHNOLOGIES.

Abstract

Floods, earthquakes, tsunamis, fires, hurricanes, landslides are examples of disasters that occur around the world due to various factors, whether anthropogenic and/or natural, the lives of people in these cases are compromised by being in dangerous situations. and it is necessary to carry out search and rescue tasks by trained personnel, during these tasks the life of the support personnel is also compromised and they could be part of the people affected by the disaster. Therefore, the support of technology is necessary to reduce the risk to humans and speed up the search and rescue processes in the critical hours after the event. The applications of a drone as an exploration robot are immense due to its intrinsic characteristics such as; a field of vision more extensive than a terrestrial vehicle and for having the ability to explore areas that are difficult for humans to access. Combining the drone with emerging technologies such as Deep Learning to perform target detection and trajectory tracking control tasks is interesting, it helps to provide autonomy to the drone, they make the process of target recognition and tracking control robust after training in various scenarios the system. By merging these Deeplearning techniques on board a drone to carry out exploration/monitoring tasks in natural disaster areas, the search process can be optimized autonomously without the need for any operator to be monitoring the drone while carrying out search tours, in case of detection of any possible survivor, the drone could approach the target, recognize it and estimate its position to alert the rescue teams. The results could not only be limited to these tasks but to various fields that involve target recognition and trajectory tracking tasks in which the drone can even take food/medication to places that are difficult to access to increase the life time of people at risk while rescue personnel reach them.