INCREASING THE FLIGHT SAFETY OF RESCUE DRONES AND HELICOPTERS WITH A DEVICE TO PREVENT BIRDS FROM GETTING INTO THE ENGINES

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Abstract - The use of modern drones, or unmanned aerial vehicles (UAVs), is rapidly increasing in both civilian and military fields. Drones are used for topographic surveying, infrastructure monitoring, emergency rescue operations, and many other important tasks. The successful operation of these mechanisms largely depends on increased flight safety, their aerodynamic stability, engine power, flight route selection, and many other factors.
One of the serious risks when flying at low altitudes, in cities, in rural areas, especially along coastlines or near forests, is bird strikes. Bird strikes between drones and birds are a growing threat that not only cause damage to the drone itself, but can also result in bird fragments being thrown by the propeller onto a person or structure, creating potential for harm.

To reduce such risks, innovative protective technologies and materials are being developed every day. Modern drones are already equipped with sensors that warn the operator of the danger of approaching a bird or autonomously change the flight trajectory to move to a safe zone. In addition, engineers create special, very simple lattice structures around the propellers, which significantly reduces mechanical damage from collisions.
There are other innovative approaches, such as using reflective surfaces on the surface of the drone, which are irritating to birds, scaring them away and forcing them to fly away from the drone. Scientific research is also aimed at using designs similar to biomimicry, where the drone's visual shape or sound signals match the signs of natural predators and scare the birds away accordingly.

Keywords - Drone, Helicopter, Engine, Nets.

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