Bird Collision - Avoidance & Mitigation Strategies

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Abstract

Urbanization and technological advancements in the modern era have led to a conflict between nature and mankind. Safeguarding and protecting the interests of every living being is essential for maintaining the ecological balance of our planet. Avian creatures, with their vibrant colors and stunning patterns, are a beautiful ornament to nature. However, their natural behaviors such as foraging, roosting, and perching often collide with human activities, such as agriculture, windmill operations, and aircraft operations. These collisions result in significant financial losses and, in some cases, even the loss of life for both birds and humans. It is crucial, therefore, to adopt non-lethal methods to control bird activities, considering them as stakeholders in our environment.

Bird management is critical, and over the years, various methods have been tried, tested, and adopted to discourage these avian creatures from interfering with human endeavors, with the intention to safeguard every life involved. The choice of methods depends on the specific problem scenario, geographic location, and bird species involved. Technical support and innovative approaches have proven to be essential in enhancing the effectiveness of both active and passive nonlethal methods. As there is a foolproof effective generic solution for all species, implementing species-specific solutions, can mitigate birds' adaptability to new deterring measures that are adopted. However, the challenge lies in the timely and accurate identification of the species. Recent advancements in Computer Vision and Deep Learning techniques have made it possible to detect and identify objects, including bird species, making this otherwise cumbersome task more manageable.

This paper aims to highlight several active and passive methods that have been utilized over the years to deter birds from critical areas. By employing efficient species-specific actions, birds can be effectively driven away from areas such as farmlands, windmills, and airports, thereby guarding both bird populations and human interests.

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