

4. Model Training and Evaluation: Training machine learning models (e.g., Support Vector Machine, Convolutional Neural Networks) and evaluating their performance using metrics like accuracy, precision, recall, and F1-score.
5. Deployment: Developing a web application using Flask that allows users to upload audio recordings and receive real-time bird species predictions.

Significance of the Project

This project demonstrates the potential of integrating machine learning techniques with audio processing to enhance the accuracy and efficiency of bird sound recognition. By automating the identification process, the system can provide valuable insights for researchers, conservationists, and bird enthusiasts, contributing to wildlife monitoring and biodiversity conservation efforts. The development of a user-friendly web application further extends the project's impact, making advanced bird sound recognition technology accessible to a broader audience.

Through this project, we aim to showcase the practical applications of machine learning in environmental monitoring and conservation, highlighting the importance of technological advancements in supporting ecological research and protecting biodiversity.