

**CSE623: Machine Learning: Theory and Practice****Group: 5 Project no.:11**

## Weekly Report 2

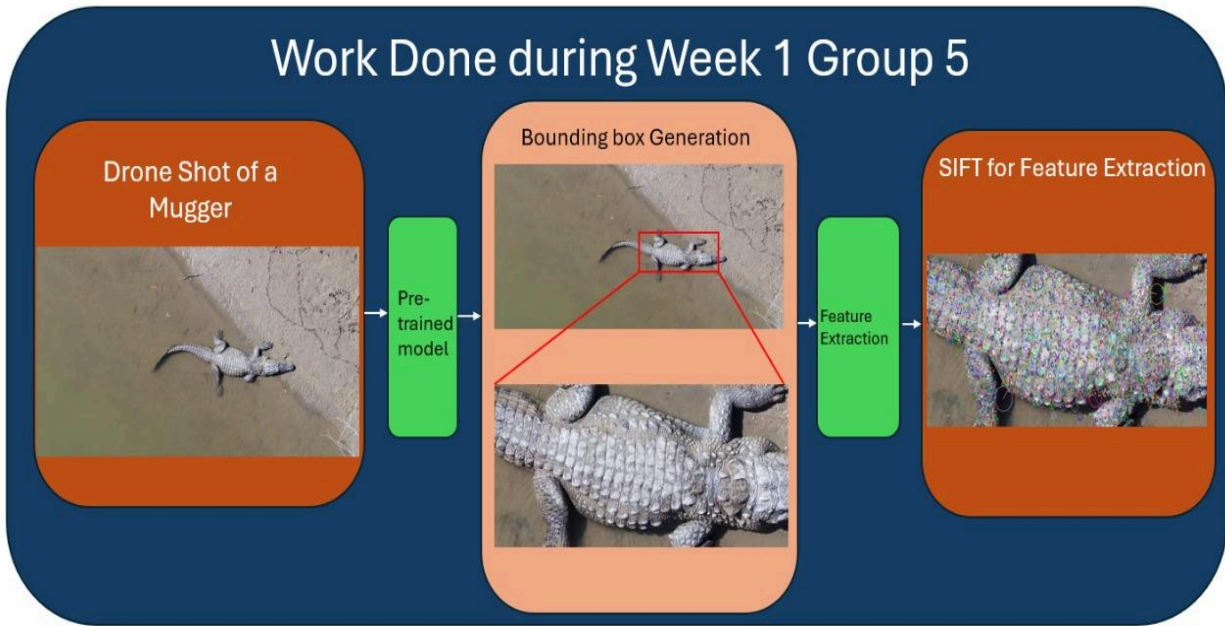
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**Summary:**

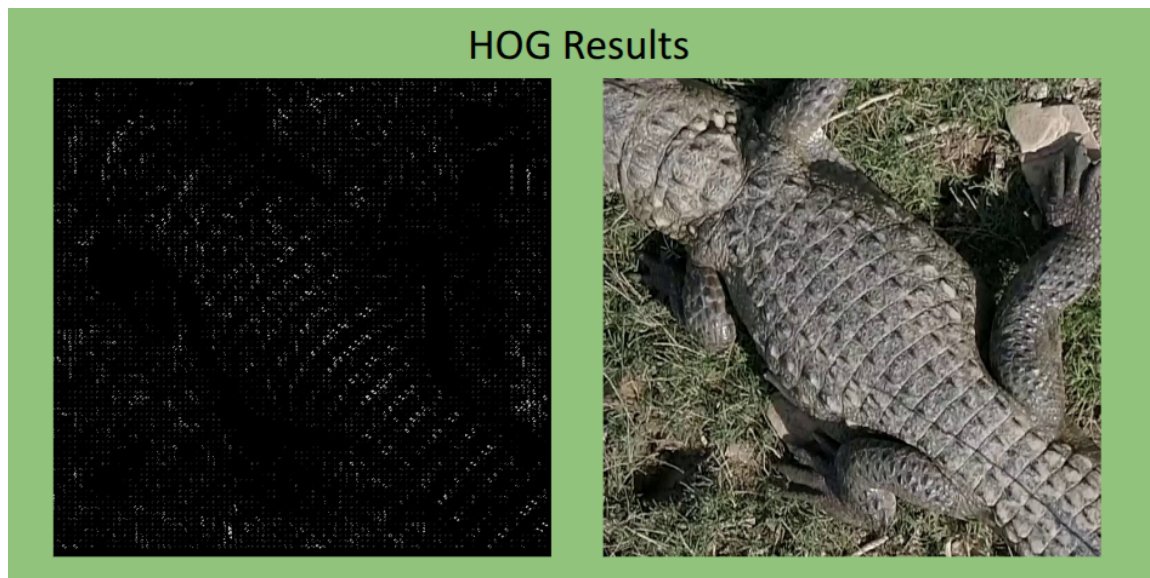
Using Unmanned Aerial Vehicle (UAV) drone images the project works to detect wild mugger crocodiles (*Crocodylus palustris*). Research on mugger crocodiles requires individual identification because this species faces vulnerability which means population dynamics need monitoring along with behavioral pattern analysis. The current identification practices depend on invasive tagging methods that create stress in addition to disturbing natural environments of wild animals. The system provides solutions to identification challenges through the deployment of distinctive scute patterns for non-invasive identification processes. Various high-resolution imaging analysis methods now let researchers detect both specific animal subjects and separate different wildlife species effectively. Our system utilizes the YOLOv8 model which creates bounding boxes to establish exact location detection in addition to giving wildlife population monitoring both speed and scalability capabilities. Our system makes use of the model to identify wildlife effectively without dependency on human interaction and generates precise results for classification. This project design features flexibility which allows its use for multiple species dealing with similar conservation threats. The system brings substantial progress to ecological research by connecting automated identification capabilities with advanced image analysis systems.

### Flow Chart:

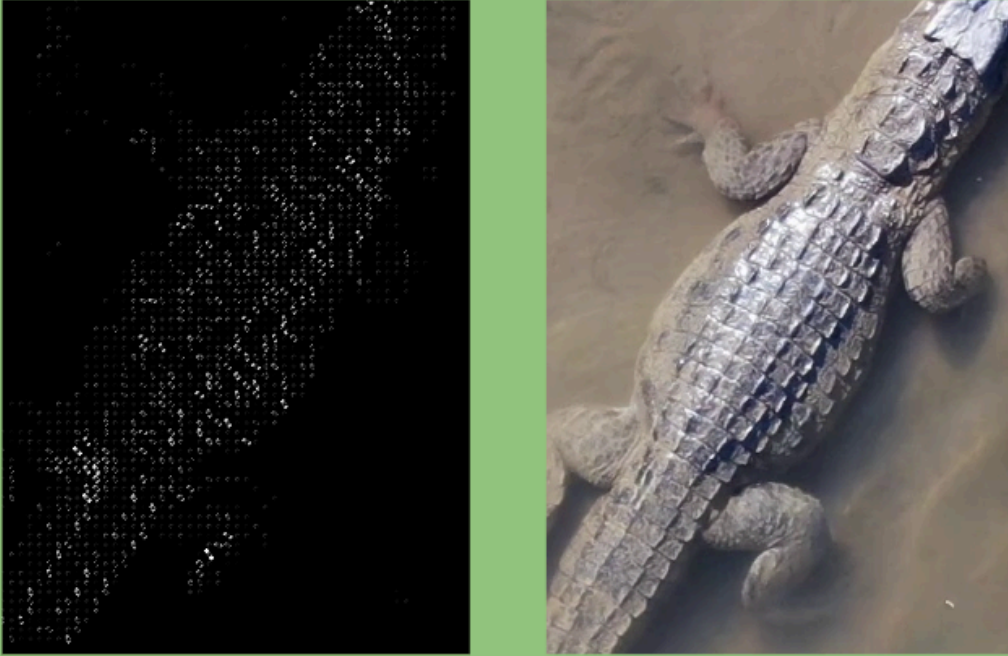


### Task completed this week:

- **Feature Extraction** - Implemented feature extraction using methods like SIFT, HOG, LBP (Local Binary Patterns) and GLCM (Gray level Co-occurrence Matrix).



## HOG Results



- **Model training** - Looked for different model training techniques

### Goals for Next week:

1. **Feature Extraction Using Various Methods like PCA, ICA** – Use the results of this implementation for best and efficient model training
2. **Model Training** –Train the model and store image paths, extracted feature maps, and relevant metadata in a structured CSV file for efficient analysis.
3. **Identification of classes** - Use the trained model for identifying different classes.