Liveness Detection using Deep Learning

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TIMES OF INDIA GROUP

Introduction

Detect whether an image is captured live or spoofed (screen photo, printed photo, etc.).
- Manual KYC is time-consuming and risky.
- Fake uploads like screen images delay onboarding.
- We aim to automate KYC using deep learning for fast, secure verification.

Problem Statement

- Retailers may upload spoofed or fake images.
- Manual checks are slow and not scalable.
- Need an automatic way to detect real vs fake shop images.

Solution

- Developed a deep learning model.
- Classifies images as **Real** (live shop) or **Spoof** (fake/screen photo).
- Helps instantly verify retailers during KYC.

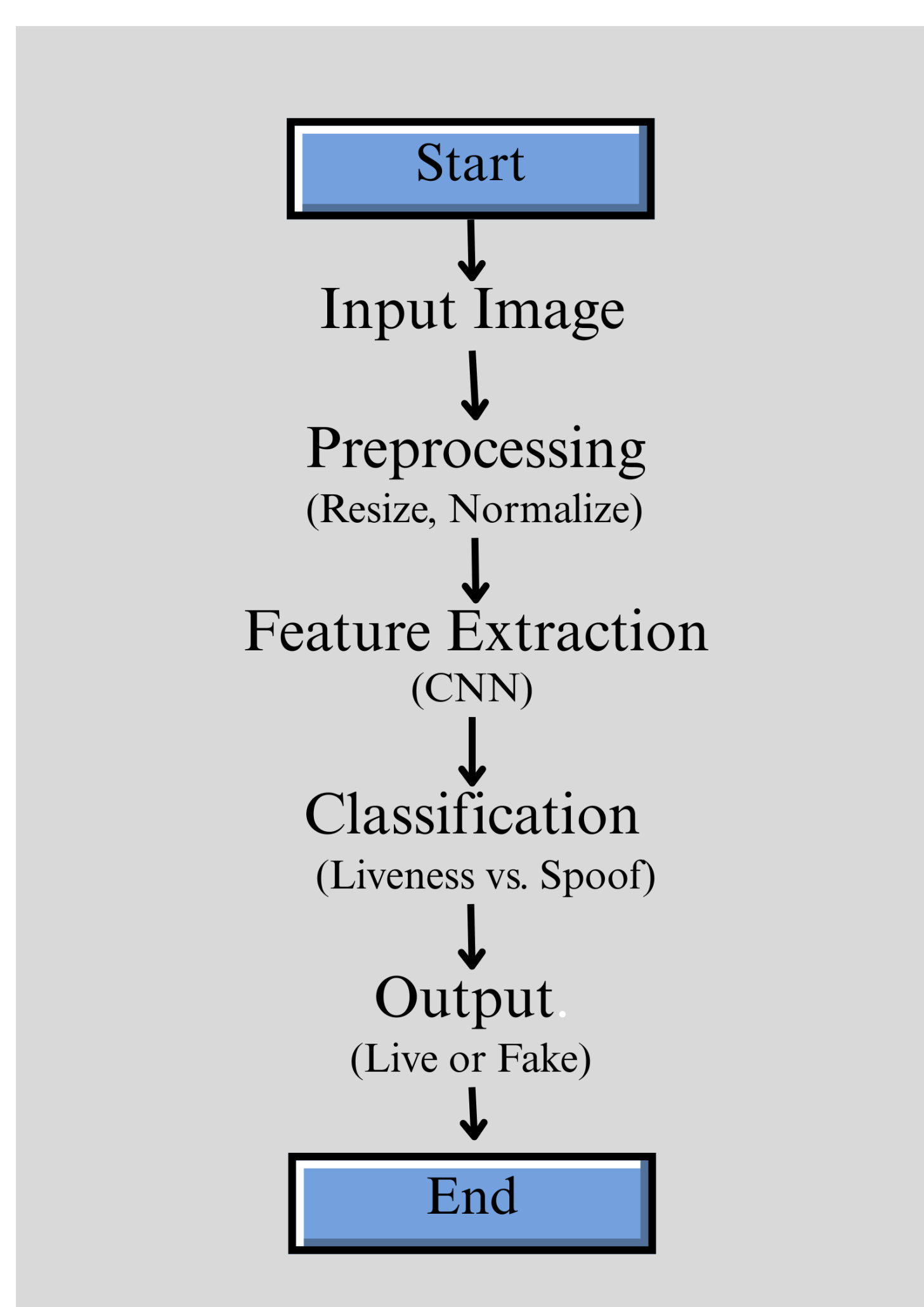| Parameter	Value
Model Version	Yolov8 nano
Epochs	100
Batch Size	16
Image size	640x640
Optimizer	AdamW
Pre-Trained Weights	Yolov8n.pt
Framework	Ultralytics (Python)

Table 1. Model Configuration
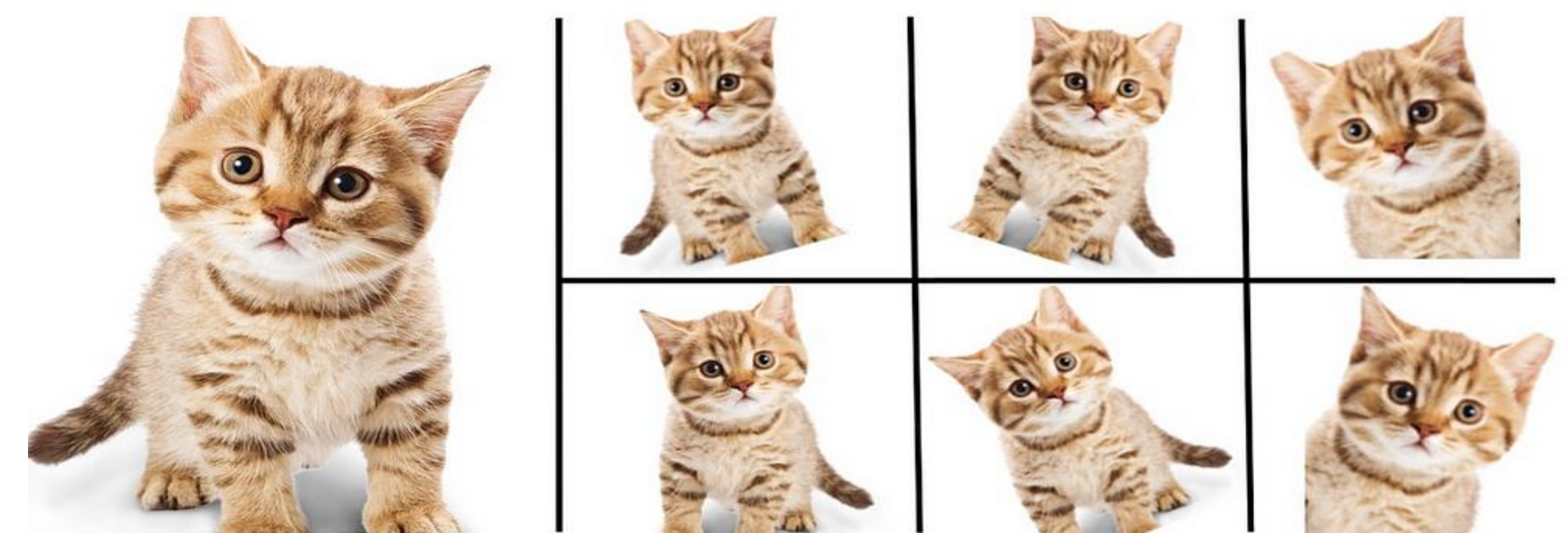

Fig. 1. Workflow Diagram

Techniques Utilized
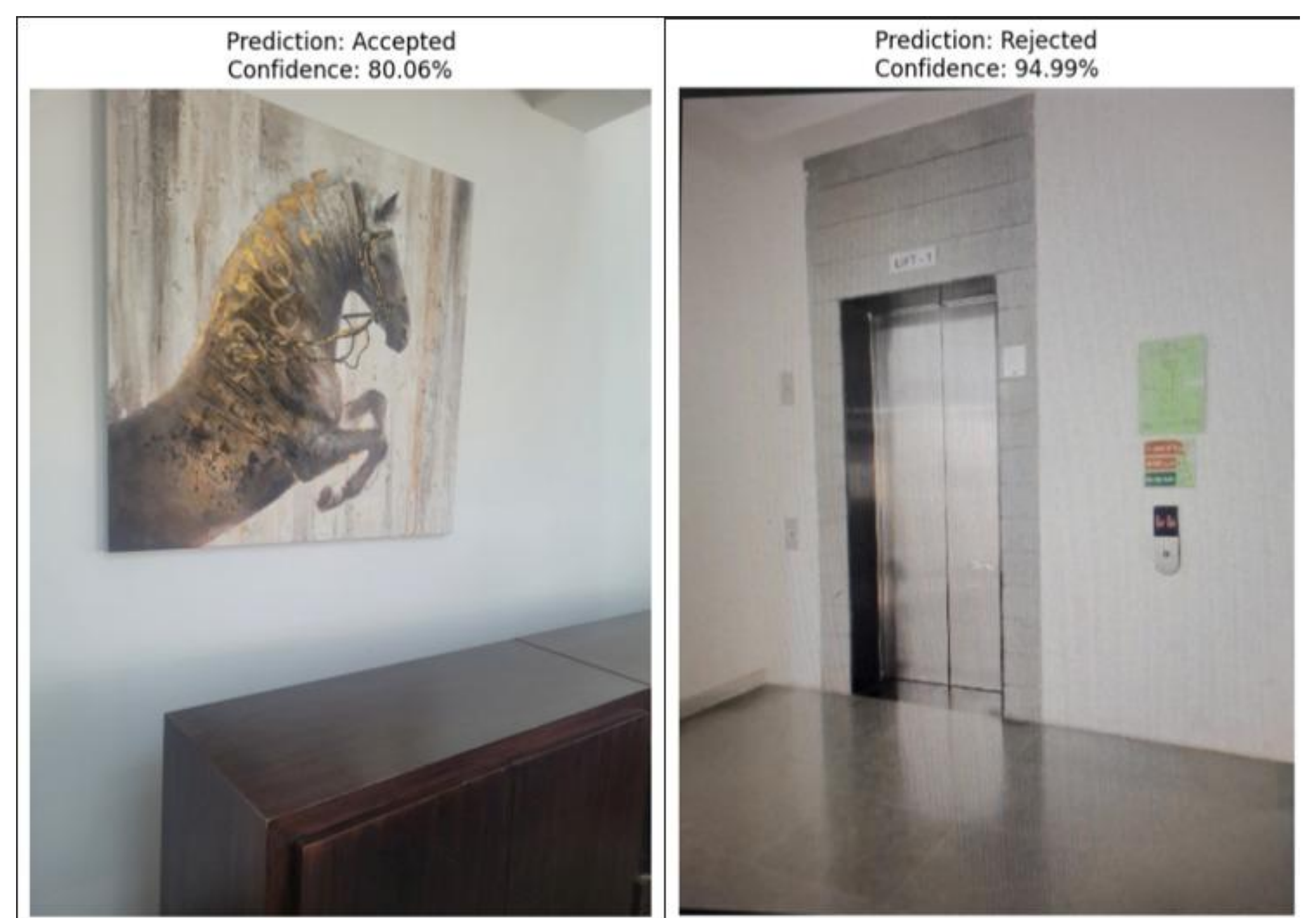
Model: YOLOv8 nano model.

Data Augmentation: Rotation, Grayscale, Color Jitter.

Loss Function: Binary Cross Entropy, Box Regression Loss.

Optimizer: AdamW .

Results

Achievement

Achieved 95%+ validation accuracy.
Very low false positives (fake images rarely accepted).
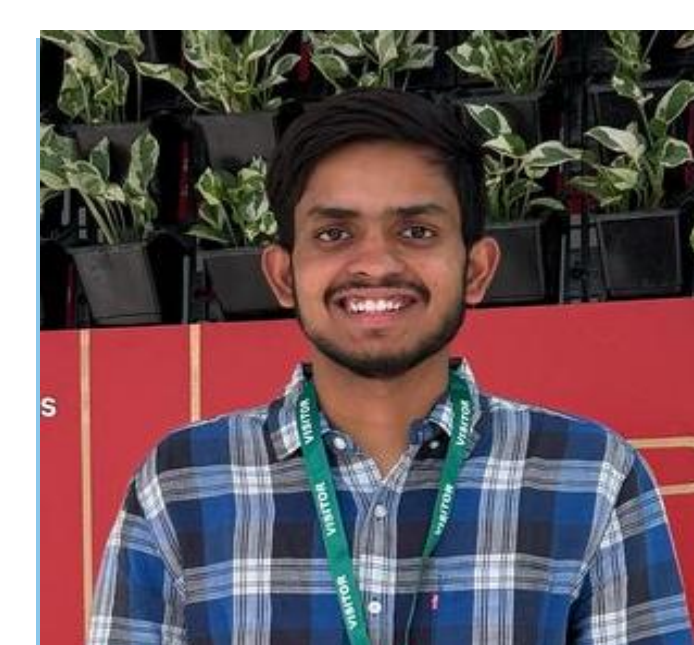Reduced manual efforts and sped up KYC verification.

Conclusion

Automated KYC improves speed, security, and scalability.
Deep learning ensures better trust in retailer onboarding.
Future scope: Expand to video-based liveness detection.

Team
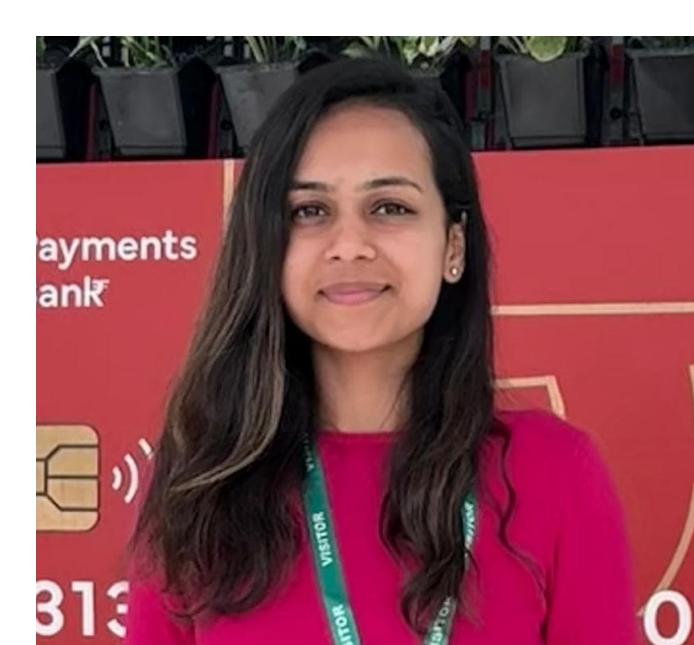
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