Machine Learning-Based Iris Recognition Modern Voting System

1. Project Overview

This project implements a **modern voting system** using **iris recognition technology**. It leverages **machine learning** to authenticate voters based on **iris scans**, ensuring **secure**, **fraud-resistant**, **and efficient voting**.

2. Features

- Secure voter authentication using iris recognition
- Machine learning-based iris pattern classification
- Real-time image processing and feature extraction
- User-friendly web interface for election management
- Prevents duplicate voting and identity fraud

3. Tech Stack

- Programming Language: Python
- Machine Learning: OpenCV, TensorFlow/Keras
- Database: SQLite/MySQL
- Web Interface: Flask (Optional)
- Image Processing: OpenCV, Scikit-learn
- **Deployment:** Local or Cloud-based

4. Installation & Setup Guide

1. Clone the repository:

```
bash
CopyEdit
git clone https://github.com/yourusername/iris-voting-system.git
```

2. Navigate to the project folder & install dependencies:

```
bash
CopyEdit
cd iris-voting-system
pip install -r requirements.txt
```

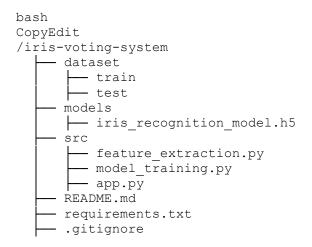
- 3. Prepare the dataset for training (if applicable).
- 4. Train the ML model (if needed):

```
bash
CopyEdit
python train model.py
```

5. Run the application:

```
bash
CopyEdit
python app.py
```

5. Codebase Structure



6. Deployment Guide

- Deploy Flask-based UI on Heroku/Vercel
- Use **cloud-based database** for election data storage
- Ensure **proper security** for authentication and data protection

7. Future Enhancements

- Integrate blockchain for enhanced security
- Improve model accuracy using deep learning techniques
- Extend to multi-biometric authentication (fingerprint, face recognition)