



Aadhaar Fraud Detection System — Setup & Run Guide

Step-by-Step Instructions for Running the Project from ZIP File

1. System Requirements

Hardware

- 4 GB RAM minimum
- Apple Silicon (M1/M2/M3) or Intel PC
- 2 GB free storage

Software

Component	Required Version
Python	3.10
Node.js	18
npm	9
macOS / Windows / Linux	✓ supported

2. Unzip the Project

1. Extract the ZIP file anywhere
2. Open Terminal (macOS) / CMD (Windows)
3. Navigate inside the folder:

```
cd aadhar-fraud-detection
```

3. Create Python Virtual Environment

```
python3 -m venv .venv
```

Activate it:

macOS/Linux

```
source .venv/bin/activate
```

Windows

```
.venv\Scripts\activate
```

4. Install Python Dependencies

Inside the project folder:

```
pip install --upgrade pip
pip install -r requirements.txt
```

5. Ensure `artifacts` / Folder Exists

Inside the project root you must have:

```
artifacts/
    best_resnet18.pt
    classes.txt
```

If these files are missing, **the model will not run**.

6. Verify the Dataset (optional for training)

```
Dataset/
    Real_preprocessed/
    Fake_preprocessed/
```

Skip this if you do not want to retrain.

7. Start the Backend (FastAPI)

Run:

```
uvicorn src.api:app --reload --port 8000
```

You should see:

Uvicorn running on `http://127.0.0.1:8000`

8. Test Backend

Open in browser:

`http://127.0.0.1:8000/docs`

You should see FastAPI documentation.

9. Install Frontend Dependencies

Navigate to frontend:

```
cd aadhaar-ui
npm install
```

10. Create `.env` File in Frontend

Inside `aadhaar-ui/` create:

```
VITE_API_BASE=http://127.0.0.1:8000
```

11. Start Frontend

```
npm run dev
```

Open browser:

`http://localhost:5173`

You will now see the full UI.

12. Features to Test

✓ **Upload Aadhaar Image → Fake/Real Detection**

✓ **QR Code Extraction → Verhoeff Validation**

✓ OCR → Name / DOB / Gender / Aadhaar Number

✓ Aadhaar Number Lookup → Local DB

✓ Status Badge → Verified / Fake

13. Folder Structure (For Documentation)

```
aadhar-fraud-detection/
  └── src/
    ├── api.py
    ├── ocr_utils.py
    ├── qr_utils.py
    ├── xml_utils.py
    └── db_utils.py

  └── artifacts/
    ├── best_resnet18.pt
    └── classes.txt

  └── Dataset/
    ├── Real_preprocessed/
    └── Fake_preprocessed/

  └── aadhaar-ui/
    ├── src/
    └── public/

  └── requirements.txt
  └── README.md
```

14. Stopping the System

Backend:

Press:

CTRL + C

Frontend:

Press:

CTRL + C

Deactivate environment:

deactivate