Car Damage Identifier: AI-Powered Insurance Claims Analysis

Streamlit App with Multi-Image Support and Hindi Translation

Presented by Pranav Parasar

8 September 2025

Introduction

- **Purpose**: Automate car damage assessment for insurance claims using AI.
- **Context**: Streamlines claims processing, reducing time and costs.
- **Technology**: Powered by Google Gemini 1.5 Flash and Streamlit.
- **Key Features**:
  - Multi-image analysis for comprehensive damage assessment.
  - Bilingual output (English and Hindi).
  - Attractive, user-friendly interface with custom CSS.

Key Features

- **Multi-Image Support**:
  - Upload multiple images (jpg, png) for holistic analysis.
  - Combines findings into a single report.
- **Bilingual Output**:
  - Results in English and Hindi (हिंदी).
  - Supports Indian users with INR-based cost estimates.
- **User-Friendly UI**:
  - Modern design with CSS styling (blue theme, card layout).
  - Tabs for English and Hindi results.
  - Downloadable text outputs.
- **Flexibility**:
  - Optional damage description.
  - Image-only analysis supported.

How It Works

1. **Upload Images**: Users upload one or more car damage images (jpg, jpeg, png).
2. **Optional Description**: Provide a text description (e.g., ”Dented front bumper”).
3. **AI Analysis**: Gemini 1.5 Flash processes images and description to identify:
   - Damaged Part (e.g., front bumper)
   - Damage Type (e.g., dent)
   - Severity (minor, moderate, severe)
   - Cost Estimate (INR)
4. **Output**: Plain text summary in English and Hindi, downloadable as .txt files.
5. **Display**: Results shown in tabs with a clean, styled interface.

Technical Details

- **AI Model**: Google Gemini 1.5 Flash
  - Multimodal (text + images), fast, cost-effective.
  - Config: Temperature = 0.3, Max Tokens = 1000.
- **Framework**: Streamlit (Python-based web app).
- **Dependencies**:
  - `streamlit`, `google-generativeai`, `pillow`.
- **Styling**: Custom CSS for modern UI (blue theme, card containers).
- **Output**: Plain text in English and Hindi, no JSON or markdown.
- **Error Handling**: Robust handling for API, image, or response issues.

Usage Demo

Input Example:

- Images: Two photos (dented bumper, scratched door).
- Description: ”Dented front bumper.”

Output Example (English):

```
Damaged Part: front bumper, door
Damage Type: dent, scratches
Severity: moderate
Description Match: Yes
Estimated Repair Cost (INR):
30000-80000
Recommendation: Approve
Reason: Images show a dent on the
bumper and scratches on the door.
```

Output Example (Hindi):

क्षतिग्रस्त हिस्सा: सामने का बम्पर, दरवाजा
क्षति का प्रकार: डेंट, खरोंच
गंभीरता: मध्यम
विवरण मिलान: हाँ
अनुमानित मरम्मत लागत (□□□): 30000-80000
सिफारिश: स्वीकृत
कारण: छवियों में बम्पर पर डेंट और दरवाजे पर खरोंच दिखाई देती हैं।

Benefits

- **Efficiency**: Automates initial damage assessment, reducing manual effort.
- **Accuracy**: Combines multi-image analysis for comprehensive results.
- **Accessibility**: Bilingual output (English, Hindi) for Indian users.
- **User-Friendly**: Intuitive UI with styled cards, tabs, and downloads.
- **Flexibility**: Supports image-only analysis and optional descriptions.
- **Cost-Effective**: Uses Gemini 1.5 Flash for fast, low-cost processing.

Conclusion

- **Summary**: The Car Damage Identifier app streamlines insurance claims with AI-driven analysis, multi-image support, and bilingual output.
- **Value**: Saves time, improves accuracy, and enhances user experience.