Problem Statement

09: Detect Pixelated Image and Correct It

Unique Idea Brief (Solution)

The ‘Detect Pixelated image and correct it’ project offers a solution for real-time detection and correction of pixelation in images. It focuses on maintaining image clarity by selectively correcting pixelated regions while preserving non-pixelated areas, ensuring high-quality image output.

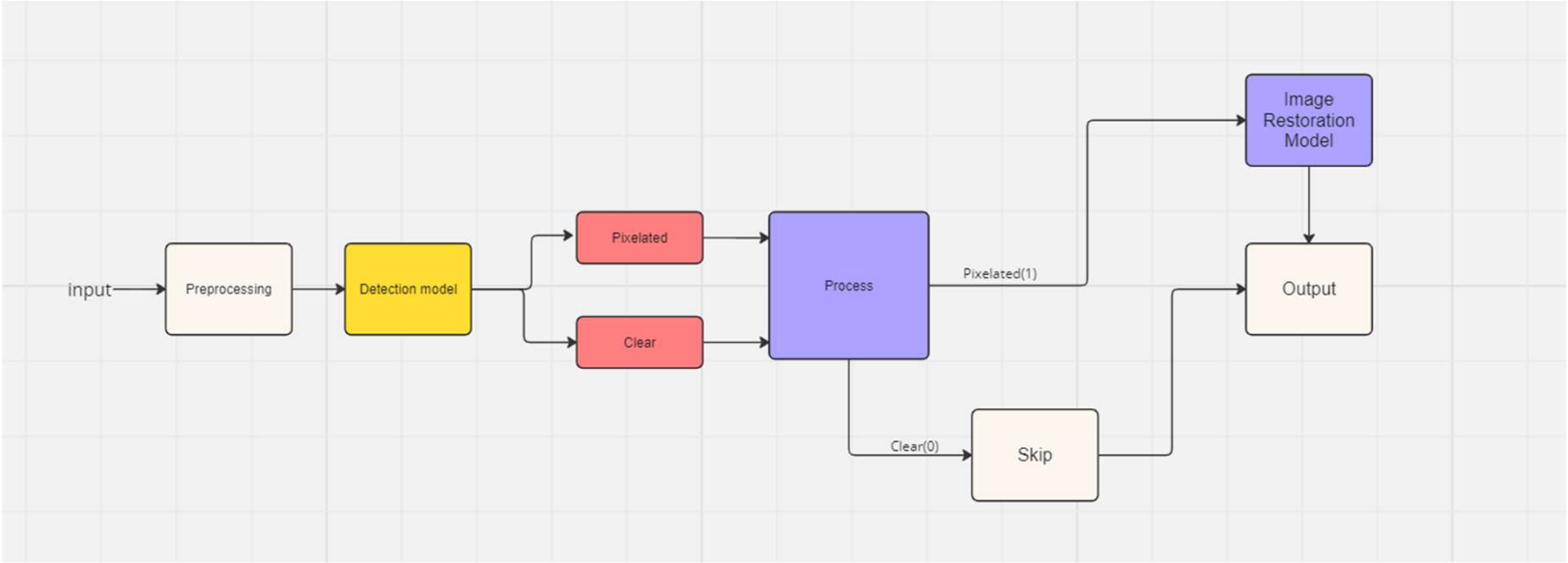
Features Offered

- **Real-Time Detection:** Identifies pixelated areas in images.
- **Selective Correction:** Applies correction algorithms only to pixelated regions.
- **Adjustable Parameters:** Allows users to fine-tune correction settings.
- **High Performance:** Designed for efficient processing, aiming for at least 30 FPS performance.
- **Compatibility:** Works with various image formats and sizes.

Process flow

- **Input Image:** User provides an image containing pixelated regions.
- **Pixelation Detection:** Algorithm identifies areas of pixelation.
- **Correction Algorithm:** Applies correction methods to identified regions.
- **Output Image:** Produces a corrected image with enhanced clarity.

Architecture Diagram



Technologies used

- **Python:** Core programming language for implementation.
- **OpenCV:** Used for image processing tasks.
- **Machine Learning Libraries:** For algorithm development and optimization.
- **Performance Optimization Techniques:** Ensuring real-time processing capabilities.

Team members and contribution:

Pixelated Image Detection:

Vanitha T C	1NT22EC183
Shivani Sadashiva	1NT22EC154

Pixelated Image Correction:

Adithya Mahesh	1NT22EC008

Conclusion

The ‘Detect Pixelation and correct it’ project presents a robust solution for enhancing image quality by detecting and correcting pixelation in real-time. Its efficient algorithms and adjustable parameters make it suitable for a wide range of applications, from video processing to image editing tools, ensuring improved visual clarity without compromising performance.