Project Exhibition-II

Review-3

Title

Photo Enhancer using Machine Learning & Deep Learning with Python

Group-18

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AIM

To create a web application that increases the image's blurry details in an effort to enhance the image's quality. The provided information and the image's obscured information must be balanced while performing image enhancement in order to get the desired results.

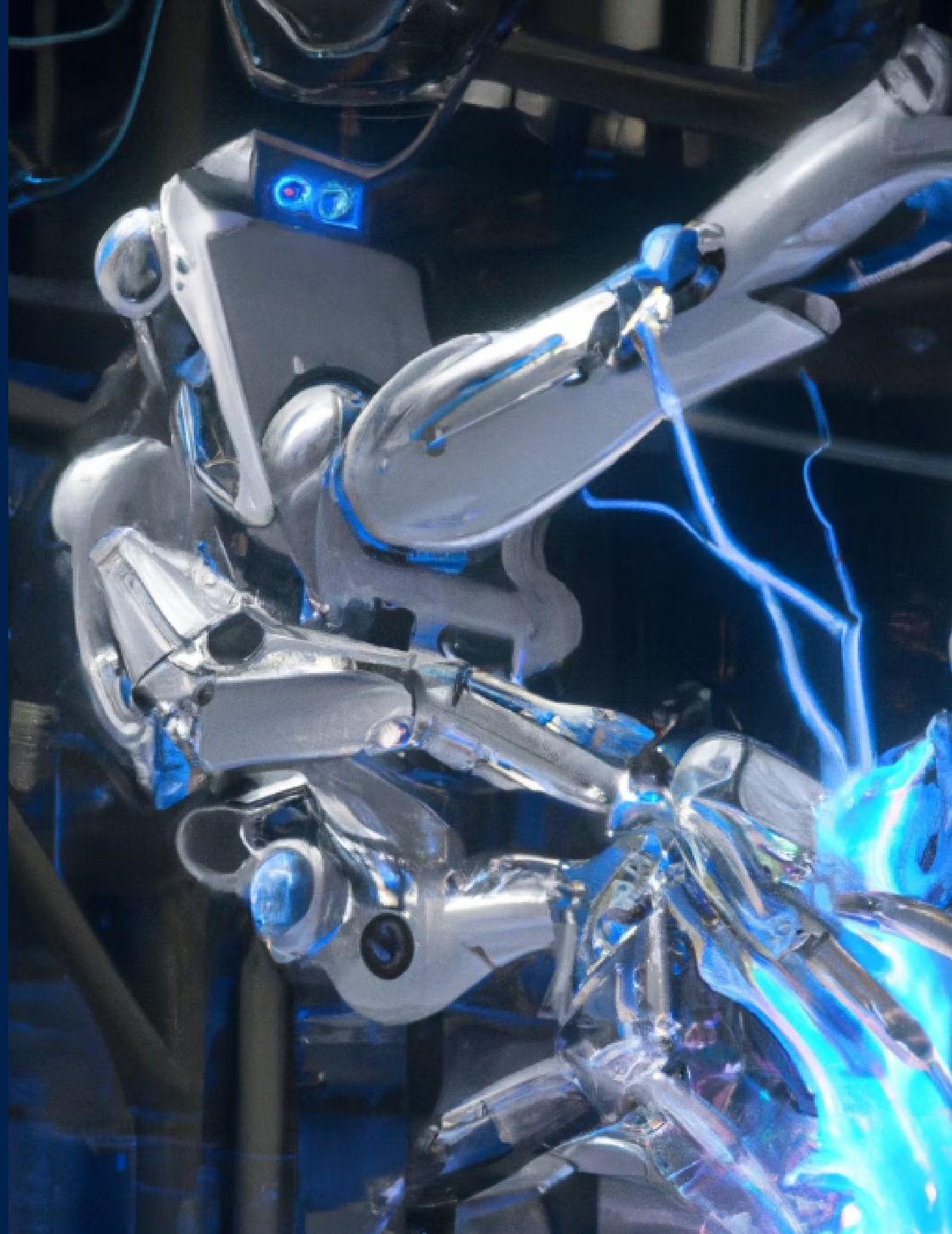
Problem Statement and Scope of the Project

- All of us have outdated pictures, damaged pictures, and unreadable text pictures that make it hard to read as well as tough to interpret visually.

- To solve this problem, we are going to build "IMAGE BLITZ" which will enhance images to some extent so that they are understandable.

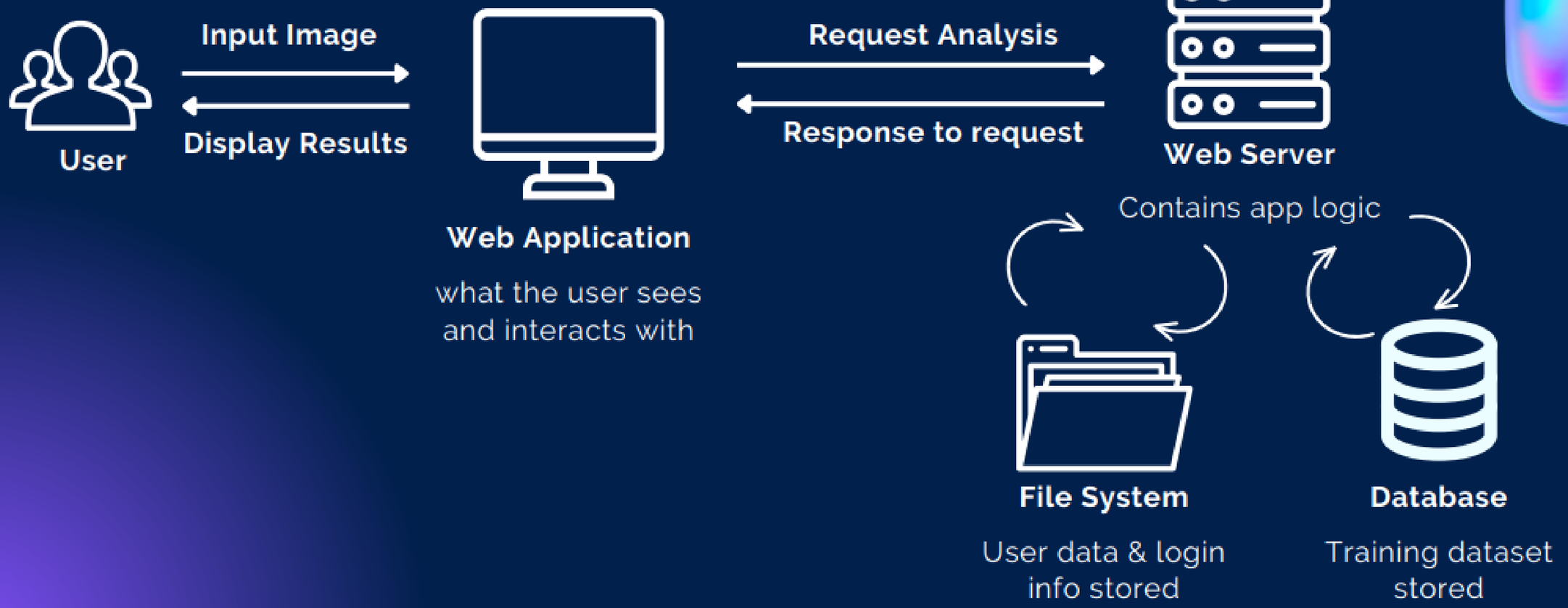
Methodology

The Implementation of Digital Image Enhancement Technology follows a cycle of acquiring data, pre-processing, data cleansing, finally building model via augmenting and expanding dataset, in order to get the model trained. It’s tested in the ratio of 80:20 where the major portion of it is trained and rest 20% of the dataset is used in testing accuracy. Dataset of the images is recovered from the database. All these steps laid the foundation for the development and evolution of Photo Enhancer.

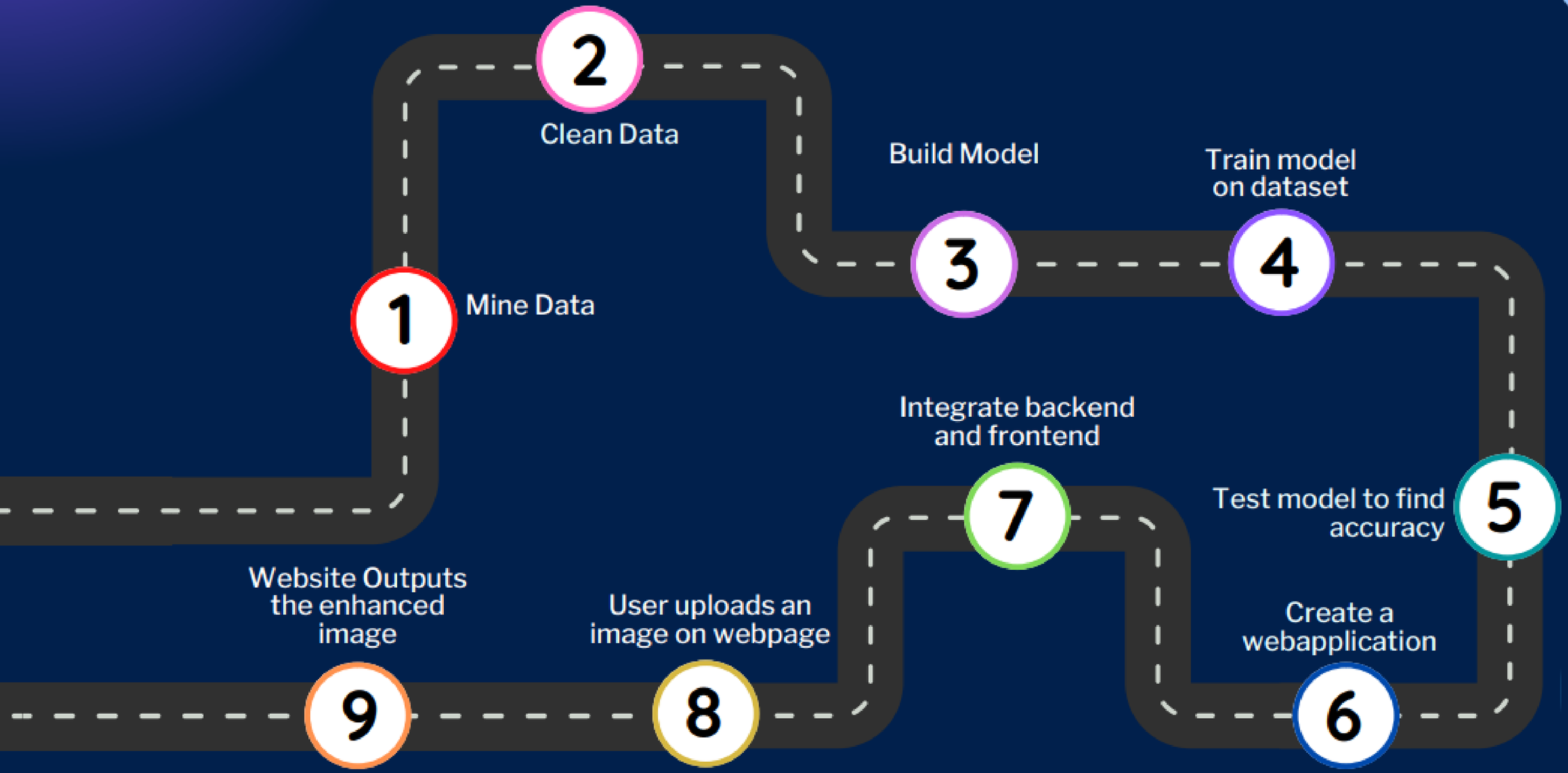


System Architecture Diagram

Understanding how the systems interact and function together



ROADMAP


2
Clean Data
Build Model
Train model on dataset
1
Mine Data
3
4
Integrate backend and frontend
Test model to find accuracy
7
5
Website Outputs the enhanced image
User uploads an image on webpage
Create a webapplication
9
8
6

NOVELTY OF PROJECT

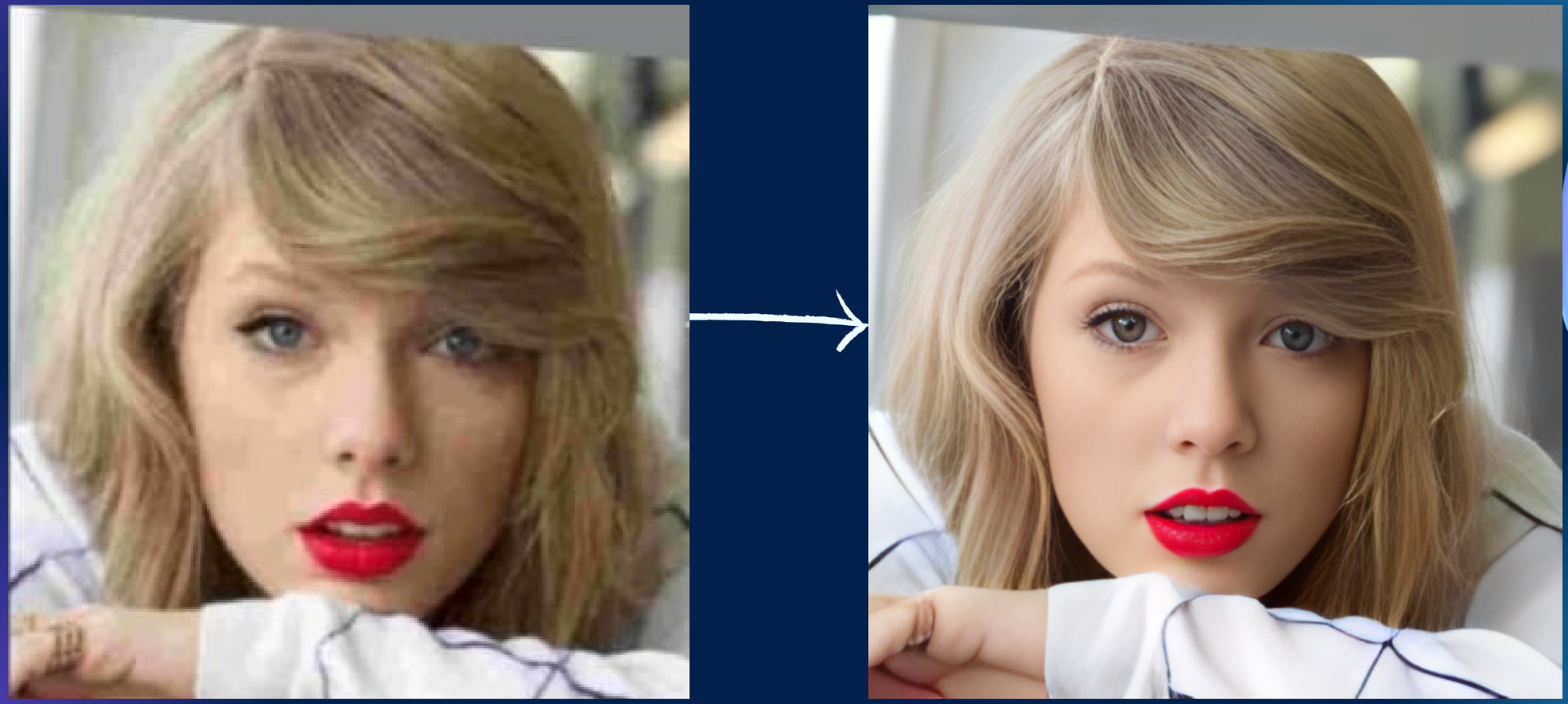
- Our image enhancement machine learning application stands out from existing methods due to its originality, contribution, and potential impact. Specifically, our project incorporates a novel approach to feature extraction that has not been previously explored.

- Traditionally, image enhancement methods rely on preprocessing techniques such as histogram equalization or sharpening filters to improve image quality. However, our approach uses a deep learning-based feature extraction technique that is trained on a large dataset of high-resolution images. This enables our model to learn features that are specific to different types of images and that are more effective at enhancing image quality.

Timeline/Process flow

REVIEW - 2	
• Explanation about frontend & it's respective language used. • Explanation about Python & it's libraries that are used in the backend. • Using Cloudfare for flexible cloud storage. • Connecting Our backend and frontend using Flask.	23rd-27th Jan 2023
REVIEW - 3	
• Final Execution & Implementation Of Our Project.	13th-16th Feb 2023

What will Photo Enhancer do?



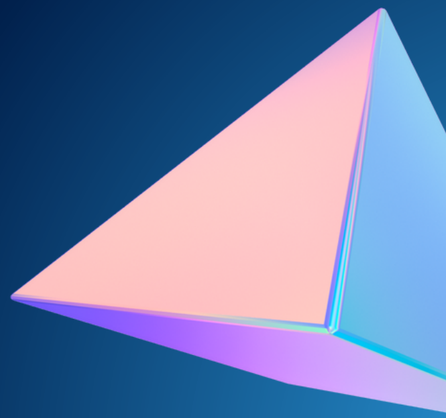
SOFTWARE REQUIRED

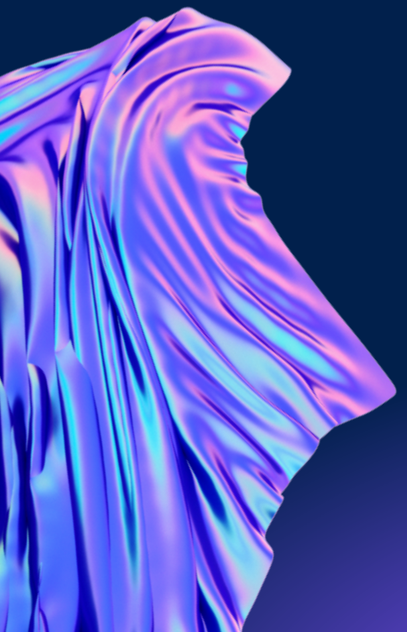
HTML

CSS

Machine Learning

Microsoft Azure





JAVASCRIPT

Flask

Cloudflare

SQLite

IMPLEMENTATION

Libraries used in model

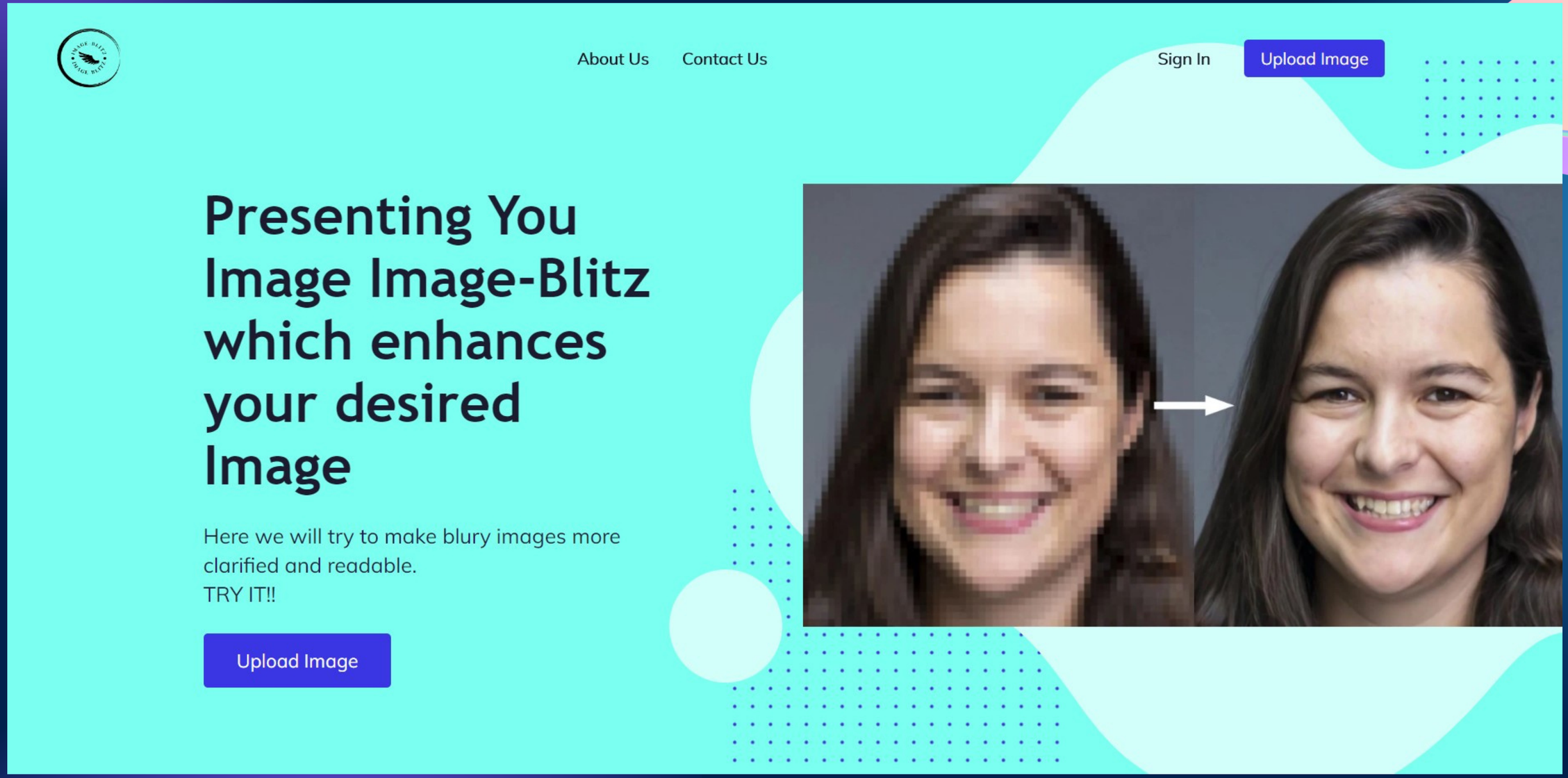
```
import PIL.Image as Image
%cd Image
import os
import cv2
import numpy as np
import pandas as pd

import matplotlib.pylab as plt
import matplotlib.pyplot as plt

import tensorflow as tf
```

Website Title & Logo

IMAGE - BLITZ

IMPLEMENTATION

Glimpse of Frontend

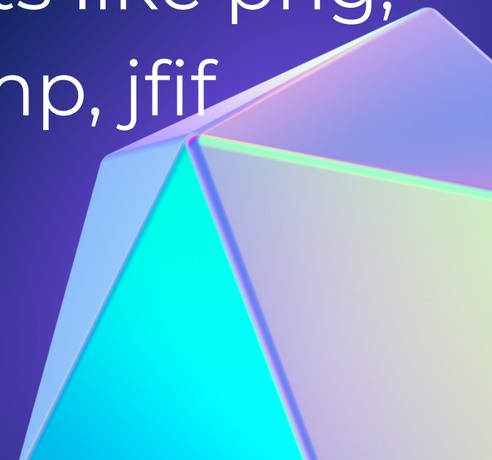


About us

Welcome to Our Website!
We, the members of Team Image - Blitz, are a group of 5 young computer engineers and innovative designers from VIT BHOPAL University.
In addition to developing the backend of Image Blitz, we have also devoted our time towards making the the Image-Blitz Web Application and maintaining the same, in hopes of providing our free service to the Users all around the world.
We understand the importance of preserving the integrity of your original photos, which is why we work closely with our clients to ensure that their vision is realized.
Thank you for choosing us as your go-to photo enhancer.
We look forward to helping you make your memories even more beautiful

Applications of Photo Enhancer

1. Fix Pixelated Images and recover image details Easily.
2. Enhance photo quality and upscale photo resolution to HD
3. Eliminate noise from image without losing quality
4. Support most common image formats like png, jpg, webp, bmp, jfif



Limiatations of the Project

Image Quality: The system relies on the quality of the original image to produce the best results. The enhanced image may not meet the user's expectations if the original image is low-quality.

Image Size: The system may have difficulty handling large image files, resulting in slow processing times and reduced performance.

Platform Dependency: The photo enhancer system is dependent on the platform and operating system it is running on, and may not be fully compatible with all systems, for example, the issues with the user interface.

Security: The photo enhancer system stores images and user data, which may be vulnerable to hacking and other security threats. Adequate measures must be taken to protect user data.

PROBLEM FACED

We faced problems in,

- connecting frond-end with the Machine learning code.
- using cloud computing to use Microsoft Azure services.
- Managing database after hosting the website.

References

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Thank You

For your patience!

Submitted to: Dr. Saravanan S

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