Internship Project

IN-APP IMAGE PROCESSOR

for iOS and Android

By - Devansh Bansal

Agenda

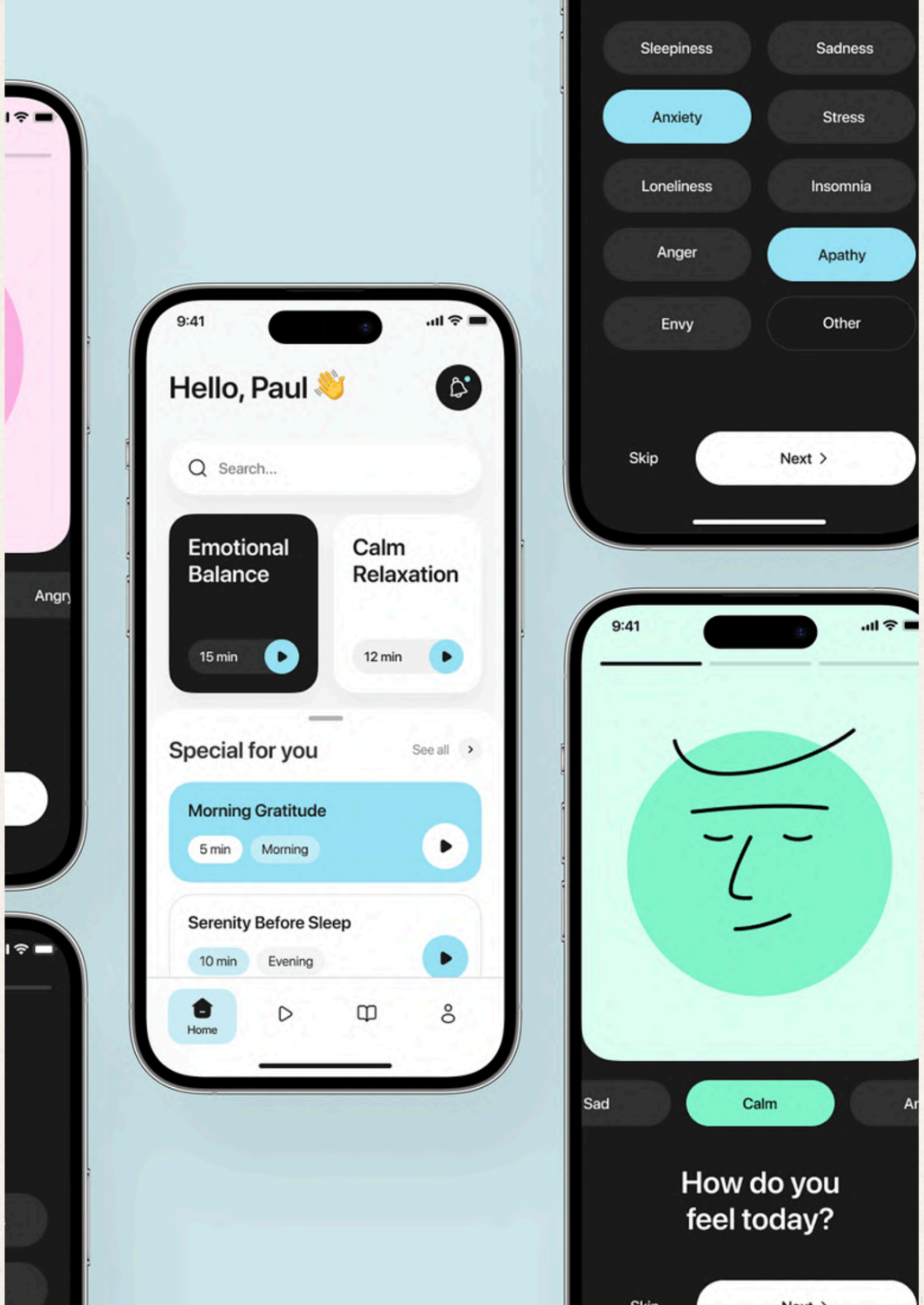
- **PROJECT TIMELINE**

  06/01/2025 - 31/03/2025

- **Project assignment Document** : [click here]

- **TEAM**

  DEVANSH BANSAL
  HITESH DAS



Overview

Developed an image processing SDK using C++ (with OpenCV) to support basic functionalities like cropping, resizing, and filtering for Android and iOS platforms. The SDK should be optimized, reliable, and easy to integrate into existing mobile apps.

Objectives and Goals

Why an In-App image processor is essential for OLX India -

Goal # 1

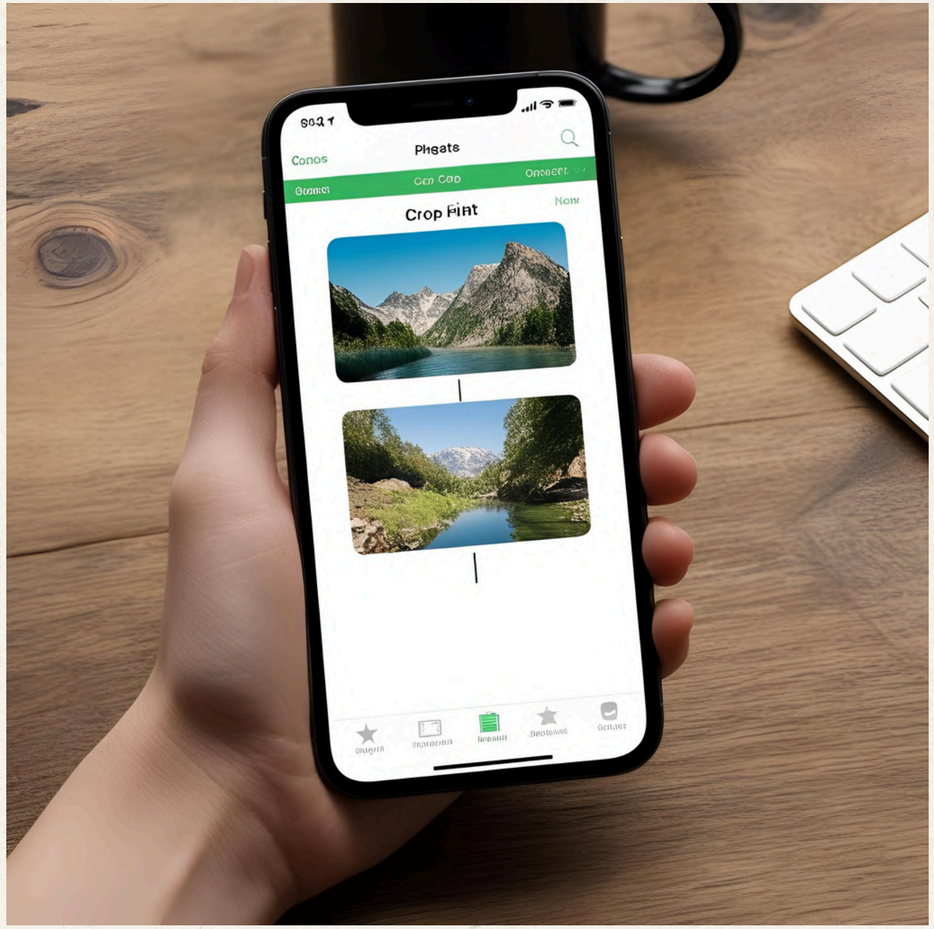
Cropping the image for a better fit for an ad

Goal #2

Watermarking the olx logo for a personalised look

Goal # 3

Applying filters to an image for better clarity



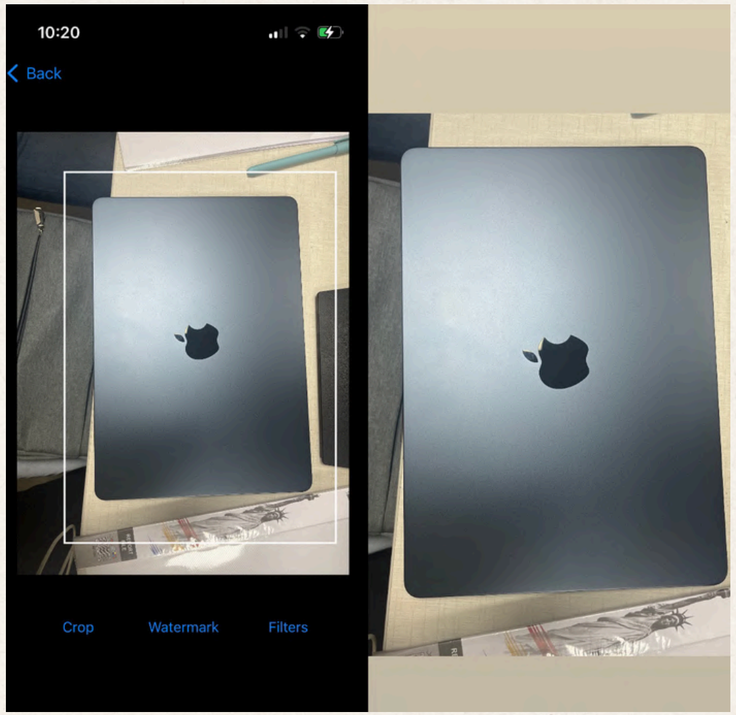
SCOPE

The in-app Image Processor is an NDK designed for Android and iOS that allows users to edit images using various processing features. The app integrates OpenCV with an NDK (for Android) and a native C++ module (for iOS) to apply transformations efficiently. The primary functions include cropping, adding watermarks, and applying filters.

SCOPE

IN SCOPE	OUT OF SCOPE
Image selection from gallery	Cloud storage based photo storage
Image Cropping	Using AI for detecting the object in image
Image Watermarking	Automatic cropping suggestion using AI
Applying FIlters	
Cross Platform	

Use Cases



Use Case 1

Can be used in OLX app to help users reduce noise in their photos through **cropping**

Use Case 2

To be sold as an in-app purchase to users or OLX Dealers to help them give an exclusive look to sponsored ads by using **watermarks**

Technology Used

Technologies used to create the In-app Image Processor

Logic Building

C++

Android Development

Java and Android Studio

iOS Development

Swift, Objective C++ and Xcode

Milestones

Jan 20,2025

Feb 3,2025

Feb 17,2025

Milestone 1

- Understand project scope and familiarize yourself with OpenCV, Android NDK, and iOS frameworks.
- Set up development environments for Android and iOS.
- Research and create a basic SDK skeleton (cross-platform integration).

Milestone 2

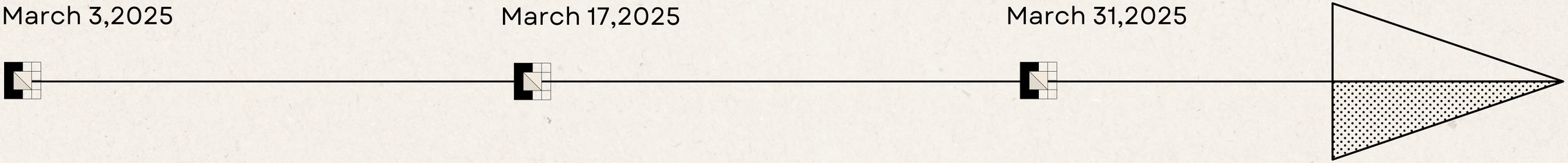
- Implement Image Crop functionality.
- Write unit tests for the cropping feature.
- Validate performance benchmarks for cropping.

Milestone 3

- Implement Image Resize functionality.
- Test resizing with various input formats and dimensions.
- Ensure memory optimization for large files.

Milestones

March 3,2025 — March 17,2025 — March 31,2025



Milestone 4

- Implement Basic Filters (grayscale, blur, sharpen).
- Add error handling for unsupported operations or invalid inputs.
- Conduct integration testing on sample apps (both Android and iOS).

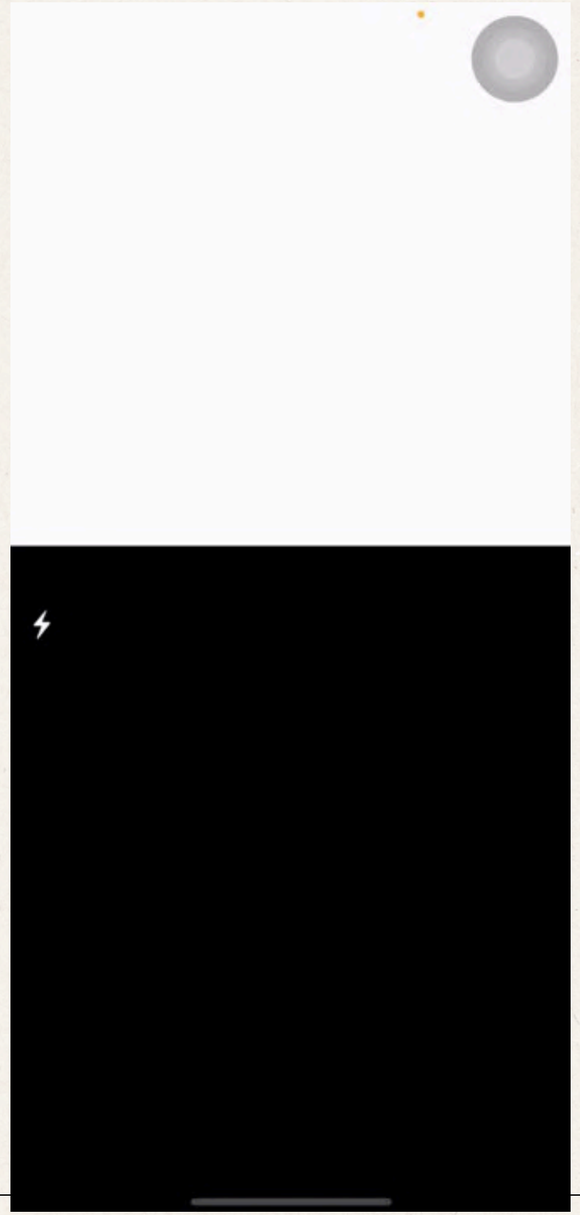
Milestone 5

- Write comprehensive documentation for SDK usage.
- Create example projects for Android and iOS showcasing SDK integration.
- Conduct alpha testing with team feedback.

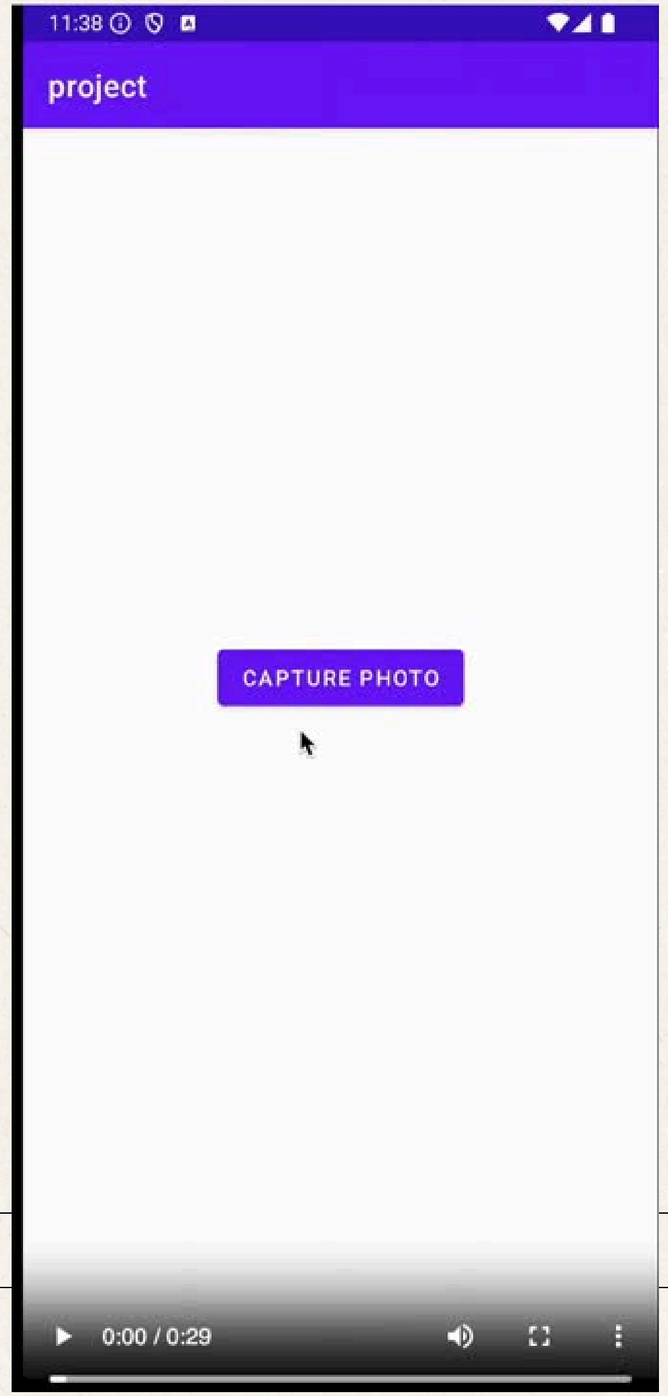
Milestone 6

- Finalize the codebase and fix all identified bugs.
- Optimize SDK performance and memory usage.
- Prepare and deliver the final presentation/demo to stakeholders.

iOS App Demo



Android App Demo



Tracking

OBJECTIVES	KEY RESULTS	% COMPLETE
OBJECTIVE 1	Learned the concepts of Java for Android App Dev	10%
	Created UI for the Android app	20%
OBJECTIVE 2	Implemented the watermark and filtering functionality	25%
	Implemented the Cropping functionality	50%
OBJECTIVE 3	Learned Swift for IOS Development and its fundamentals	60%
	Implemented Cropping, filtering and watermarking for IOS app	75%
OBJECTIVE 4	Testing and Debugging	85%
	Documentation for the In-App Image processor	100%

Resources Used

FILE NAME	SOURCE
OPENCV DOCUMENTATION	https://docs.opencv.org/4.x/d9/d3f/tutorial_android_dev_intro.html
ANDROID DEVELOPMENT	https://developer.android.com
SWIFT APPLE DEVELOPMENT	https://developer.apple.com/swift
PROJECT BRIEF	Internship Assignment - Devansh Bansal
CHATGPT	https://chatgpt.com/

Resources

FILE NAME	SOURCE
Github Account	Github Account - devanshbansal-olx
Project Report	link
PROJECT BRIEF	Internship Assignment - Devansh Bansal

Thank you