MOBILE APP FOR REAL-TIME SKIN CANCER DETECTION

PREVENTION-FOCUSED PROJECT PRESENTATION

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MOTIVATION

- - Skin cancer is one of the most common cancers worldwide.
- - Early detection is strongly linked to better survival rates.
- - Many people lack access to dermatologists or routine skin checks.
- - Current systems are costly, slow, and often inaccessible.
- - Our solution aims to make prevention and monitoring more accessible.

PROJECT GOAL

1

- Build a mobile app that helps detect suspicious skin lesions.

2

- Provide users with an instant, preliminary risk assessment.

3

- Motivate users to seek professional medical advice earlier.

4

- Bridge the gap between healthcare access and preventive screening.

KEY FEATURES

- Capture or upload images of skin lesions with guidance overlays.

- AI-powered predictions classify lesions as benign or malignant risk.

- Include disclaimers and educational resources for safe usage.

- Display confidence percentages for transparency.

PREVENTION & AWARENESS

Encourage	- Encourage self-monitoring and awareness of skin health.
Educate	- Educate users on warning signs of skin cancer.
Provide	- Provide links and resources for professional support.
Promote	- Promote preventive care, not just detection.

NOVEL ASPECTS

- Privacy-first approach: All predictions happen on the device.

- No need to upload sensitive images to cloud servers.

- Fast results with low-latency performance.

- App doubles as an awareness and prevention education tool.

ALGORITHMS & TOOLS

- - Convolutional Neural Networks (CNNs) with transfer learning.
- - Popular architectures: MobileNet, EfficientNet, ResNet.
- - TensorFlow Lite ensures efficient mobile deployment.
- - Flutter enables cross-platform mobile support.
- - OpenCV handles image preprocessing tasks.

CHALLENGES

- Dataset imbalance: fewer malignant cases than benign.

- Need for high accuracy without bias.

- Mobile limitations: memory, speed, performance.

- Building user trust with clear disclaimers and guidance.

- Compliance with ethical healthcare standards.

EXPECTED OUTCOMES

- - A functional cross-platform mobile application.
- - Real-time lesion analysis and risk assessment.
- - Increased user awareness and preventive actions.
- - Support for reducing the burden of skin cancer worldwide.

MILESTONES

29 Sep. Setup & Initial Model Training

- Select tools & frameworks
- Build basic demos
- Preprocess dataset + CNN integration
- Setup team workflow (GitHub, Docs, Slack)
- Draft key documents

24 Nov. Core Prototype Development

- Image capture & upload
- Real-time CNN predictions
- Add disclaimers & resources
- Test with sample images

- Optimize on-device model
- Cross-platform deployment
- Full testing (accuracy, speed)
- Refine UI/UX
- Deliver final app + docs

27 Oct. Final Integration & Evaluation

TASK MATRIX FOR MILESTONE 1

Task	Lawson	Nikiraj	Nicolas	Christian
Compare and select Technical Tools	TensorFlow/Keras	Flutter SDK	OpenCV	Flutter SDK
"Hello World" Demos	CNN model demo	UI/Camera demo	Model-app integration	UI/Camera demo
Resolve Technical Challenges	Data preprocessing	TensorFlow Lite Setup	API integration	TensorFlow Lite Setup
Requirement Document	25%	25%	25%	25%
Design Document	25%	25%	25%	25%
Test Plan Document	25%	25%	25%	25%

PREVENTION IMPACT

- Raises awareness about risk factors and skin health.

- Encourages routine self-checks with easy tools.

- Promotes earlier medical consultations.

- Provides educational outreach through a widely accessible platform.

CLOSING

- - Faculty advisor approval confirms project scope and direction.
- - Highlights significance in combining AI, mobile technology, and healthcare.
- - Next steps: testing, refinement, and awareness-driven deployment.
- Website : **https://niki2423.github.io/**