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ARTICLE

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REAL-TIME FACE DETECTION ON ANDROID USING CAMERAX AND MEDIAPIPE BLAZEFACE MODEL

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Executing real-time face detection on standard smartphones remains difficult because traditional architectures are too heavy for mobile processors. This paper introduces a highly optimized Android framework that integrates the CameraX API directly with Google's MediaPipe BlazeFace. Instead of limiting the output to basic bounding boxes, our application tracks six critical facial landmarks simultaneously. Deploying this successfully required resolving several persistent front-end pipeline challenges, including frame synchronization, camera mirroring, and localized cropping. In empirical evaluations, the system achieved sub-millisecond inference latencies and maintained a stable frame rate exceeding 30 FPS—even during partial occlusions or poor lighting conditions. The complete framework has been open-sourced to aid the mobile development community.