

IMPLEMENTING VOICE DETECTION AND GEOLOCATION IN DEVELOPING AN EMERGENCY RESPONSE SYSTEM APPLICATION FOR REPORTING CRIME

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ABSTRACT

Crime in Indonesia, particularly on highways, such as muggings or *Klithih*, remains rampant and is a significant issue, causing unrest and concern within the community. The current crime reporting system requires improvement, as it relies on manual reports and emergency telephone services, which involve lengthy processes and are often hindered by time delays, thereby reducing the effectiveness of interventions. This research aims to develop an integrated Android-based mobile crime reporting application using the Waterfall method. This innovation leverages Geolocation and Voice Detection technology to expedite reporting to authorities, enabling cases to be handled more quickly. Using Geolocation technology allows for precise mapping of incident locations, even in the worst conditions with a weak GPS signal, with coordinates remaining accurate to within 9 meters. Meanwhile, Voice Detection serves as an initial trigger mechanism that proactively analyzes audio patterns in the surrounding environment to identify screaming sounds as indicators of an emergency. This voice detection model has an accuracy rate of up to 0.9590% in noisy environments. When detected, the system automatically triggers the sending of simultaneous emergency notifications to all application users and security personnel within 2 seconds. This study expects that the application can be an effective solution for significantly optimizing crime response times while also strengthening the sense of security and well-being within the community.

Keywords: Android, Crime Reporting Application, Geolocation, Realtime, Voice Detection