

SUPGUARD

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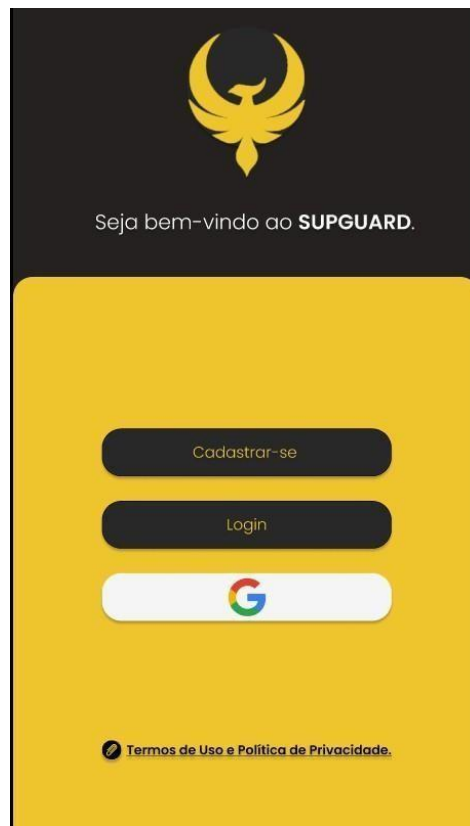
Abstract

SupGuard is an application focused on public safety in the city of Anápolis, Goiás. It aims to inform and protect citizens through real-time notifications, risk-area mapping, and collaborative reports on criminal incidents. The system integrates a robust Flask backend and a PostgreSQL database, ensuring scalability and accuracy. With an intuitive interface, the app fosters community engagement and provides a clear visualization of urban safety data.

INTRODUCTION

Public safety is a pressing challenge for mid-sized cities such as Anápolis, Goiás. The lack of centralized, accessible information on criminal incidents makes everyday decision-making harder for residents. SupGuard addresses this gap by pairing approachable technology with analytics to strengthen community safety. Through crowdsourced reports and integrations with official data sources, SupGuard maps incidents in near real time. Its goal is to create a digital environment that empowers citizens with timely, location-aware risk information, helping reduce crime and improve the overall sense of security. In practical terms, SupGuard is a public-safety app that keeps people informed about criminal activity through (1) real-time notifications triggered by in-app reporting, (2) heat maps that highlight risk levels by area, and (3) collaborative incident reports.

Image 1: Login and Register Screen - Supguard



Source: 2024, The authors

MATERIALS AND METHODS

Public safety in mid-sized cities such as Anápolis, Goiás faces persistent challenges due to the lack of reliable, real-time information—hindering day-to-day decisions by residents and the work of authorities (Brazilian Forum on Public Safety, 2023). With advances in information and communication technologies (ICT), strategies like mobile apps with geolocation have emerged, increasing perceived safety and community engagement (Silva, 2021; Almeida, 2022). Geographic Information Systems (GIS) and crowdsourced data collection also stand out, enabling risk-area mapping and the creation of urban collaboration networks (Batista, 2020; Souza & Mendes, 2021). Building on these concepts, the SupGuard project combines encryption, anonymization, and crime-trend analytics to deliver a technological solution that empowers citizens.

The methodology employed in developing SupGuard was applied and problem-driven, targeting a real and specific need: accessible public-safety information for urban populations. The project followed an exploratory approach that blended qualitative and quantitative methods to understand the context and design a practical, effective solution.

RESULTS

SupGuard is currently at a mid-stage of development.

On the frontend, the app is being built with React Native and Expo, covering the core user flows: login, user registration, a map view with risk-area overlays, and a form for submitting incident reports.

On the backend, implemented in Python with Flask, the essential services are in place: user authentication, incident submission/recording, and the initial set of RESTful APIs that power communication with the mobile client.

PostgreSQL was selected as the database. The schema is partially complete with the key tables defined—most notably for users and incidents. End-to-end integration is in early testing, with promising results for communication across the frontend, backend, and database layers.

CONCLUSION

SupGuard has proven to be a promising response to public-safety challenges in Anápolis by pairing accessible technology with practical community participation. With real-time alerts, risk-area mapping, and crowdsourced incident reporting, the app not only informs residents but also engages them in caring for their city.

By choosing modern tools, Flask for the backend, PostgreSQL for the database, and React Native for the frontend, the team delivered a functional system with solid usability and room to scale. Early tests were positive, especially around end-to-end integration and user experience.

There is still ample opportunity to expand the scope, including future features such as AI-driven risk forecasting and integrations with smart devices deployed in public spaces. More than a single app, SupGuard aspires to be a vehicle for social impact, one that can be replicated in other cities to help foster safer, more connected urban environments.

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