

## TITLE - COASTAL SAFETY AND TOUSIRM SUITABILITY APP

### ***Abstract —***

Beaches, while popular for recreation, pose numerous safety risks due to changing weather, water conditions, and limited on-site information. Traditional methods of conveying beach safety, such as signage or manual updates, often lack timeliness and fail to reach visitors effectively. This paper presents *Beach Safety App*, a mobile-first solution aimed at bridging the gap between beachgoers and real-time safety information. The app integrates real-time environmental data, such as weather and marine data, with a geolocation-based interface to provide users with instant and location-relevant safety notifications.

Using a modular system architecture, the backend is powered by FastAPI, PostgreSQL, and APScheduler, while the frontend is developed using Flutter for cross-platform responsiveness. Real-time data synchronization and offline support are built in to ensure continuous access to critical information. A user-centered design approach, coupled with Agile development methodology, facilitated iterative feedback and improvements.

The solution was evaluated through user testing and performance metrics, demonstrating improved awareness and user engagement in safety practices. By enhancing communication between authorities and beachgoers, this system contributes to safer beach experiences. The proposed architecture also serves as a model for similar real-time public safety applications.