Geocoding & Reverse Geocoding and Routing using Python for GIS

S.S. Al Rashdi; A.G. Deshmukh*
Military Technological College, Muscat, Sultanate of Oman
amol.deshmukh@mtc.edu.om

The project addresses challenges faced by the Disaster Management Authority in Oman, particularly in minimizing loss of life and infrastructure during natural calamities such as cyclones.

By leveraging Geospatial Technology and open-source tools, this project aims to create a web-based mapping application for geocoding/reverse geocoding and routing. Using Python libraries like Folium and Nominatim, the system enables visualization of geocoded locations and optimization of routes between Points of Interest (PoI) like hospitals and emergency services. It also provides features such as buffering to visualize the impact radius around affected locations, aiding in disaster response.

The system offers a cost-effective, open-source solution for disaster management and emergency planning. It eliminates the need for third-party software installation, making it accessible to a broad range of users, including stakeholders and authorities. The tool enhances the ability to plan and mitigate disasters by providing intuitive geospatial visualization and routing options.

Keywords: Geocoding, Disaster Management, Python, GIS