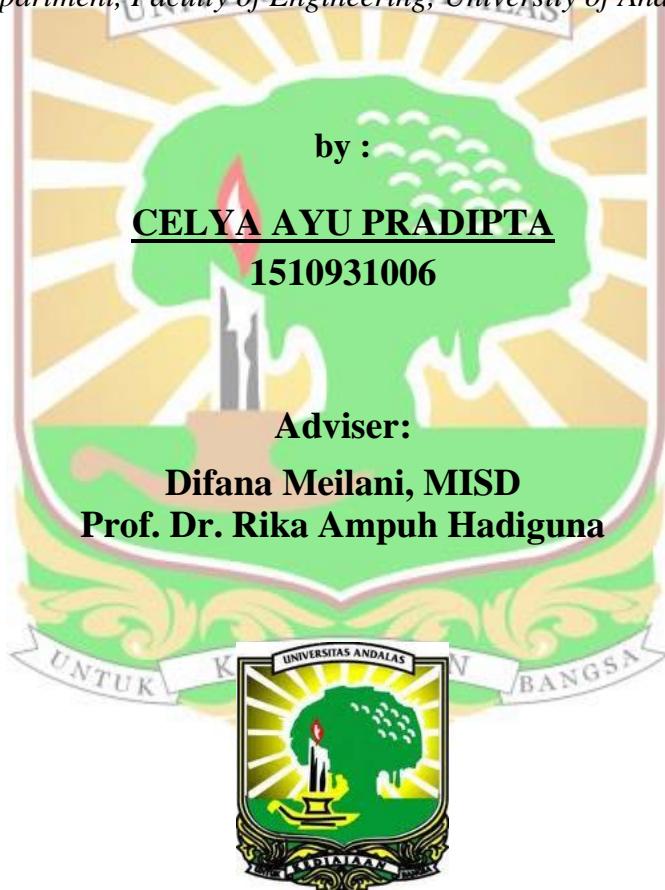


**GEOGRAPHICAL INFORMATION SYSTEM DESIGN AS A  
TOOL FOR THE DISASTER RELIEF DISTRIBUTION ON  
THE EARTHQUAKE AND TSUNAMI DISASTER  
RESPONSE IN PADANG CITY**

**FINAL PROJECT**

*As requirement for finishing the Degree Program in Industrial Engineering  
Department, Faculty of Engineering, University of Andalas*

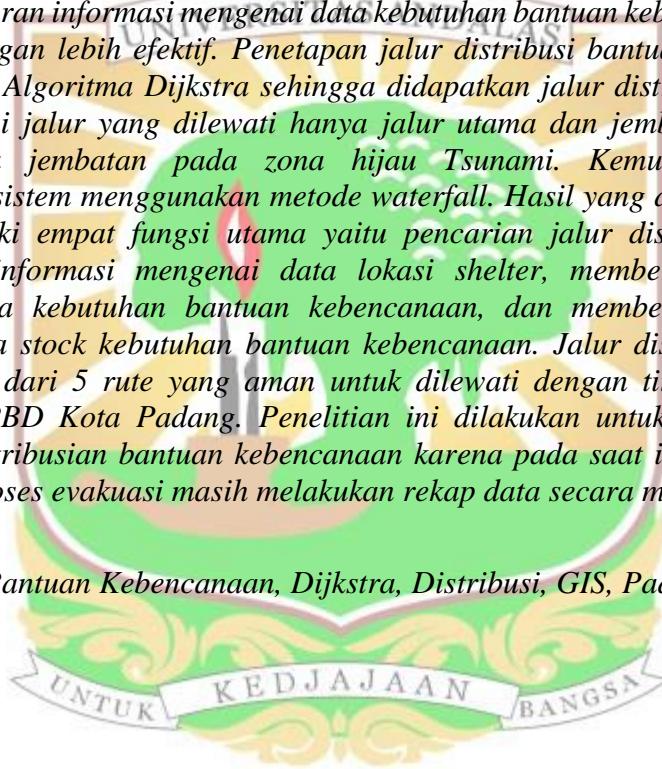


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## **ABSTRAK**

*Sistem informasi geografis yang dirancang merupakan sistem informasi geografis untuk alat bantu proses distribusi bantuan bencana gempa dan tsunami di Kota Padang. Perancangan ini dilakukan berdasarkan permasalahan yang sering terjadi pada saat proses distribusi bantuan berlangsung seperti terhambatnya proses distribusi bantuan kebencanaan karena kondisi jalan yang tidak normal, kurangnya informasi mengenai data kebutuhan bantuan di posko pengungsian sehingga bantuan yang diberikan tidak sesuai dengan apa yang dibutuhkan. Berdasarkan masalah tersebut sistem yang dirancang bertujuan untuk memberikan informasi mengenai rute distribusi bantuan kebencanaan optimal, serta memberikan informasi mengenai data kebutuhan bantuan kebencanaan sehingga proses pertukaran informasi mengenai data kebutuhan bantuan kebencanaan dapat dilakukan dengan lebih efektif. Penetapan jalur distribusi bantuan kebencanaan menggunakan Algoritma Dijkstra sehingga didapatkan jalur distribusi terpendek dengan asumsi jalur yang dilewati hanya jalur utama dan jembatan yang bisa dilalui hanya jembatan pada zona hijau Tsunami. Kemudian dilakukan perancangan sistem menggunakan metode waterfall. Hasil yang didapatkan yaitu sistem memiliki empat fungsi utama yaitu pencarian jalur distribusi optimal, memberikan informasi mengenai data lokasi shelter, memberikan informasi mengenai data kebutuhan bantuan kebencanaan, dan memberikan informasi mengenai data stock kebutuhan bantuan kebencanaan. Jalur distribusi didalam sistem terdiri dari 5 rute yang aman untuk dilewati dengan titik awal adalah Pusdalops BPBD Kota Padang. Penelitian ini dilakukan untuk mempermudah proses pendistribusian bantuan kebencanaan karena pada saat ini petugas yang melakukan proses evakuasi masih melakukan rekап data secara manual.*

**Kata Kunci:** Bantuan Kebencanaan, Dijkstra, Distribusi, GIS, Padang



## ABSTRACT

The geographic information system that was designed was a geographic information system as a tool for the distribution process of earthquake and tsunami disasters in Padang City. This design is based on the problems that occur on the process of distributing the disaster relief such as obstruction of the distribution process of disaster relief due to abnormal road conditions, lack of information about the data of disaster relief needs at the evacuation posts so that the disaster relief provided does not match with the disaster relief needed on the evacuation post. Based on these problems, the system designed aims to provide information on optimal disaster relief distribution routes, as well as providing information about the disaster relief needs data so that the process of exchanging information about disaster relief needs data can be done more effectively. Determination of disaster relief distribution network is using the Dijkstra Algorithm. That the shortest distribution path is obtained using the Dijkstra Algorithm with assuming that the path is traversed only to the main lane and the bridge that can be traversed is only the bridge in the Tsunami green zone. The system design is done using the waterfall method. The results obtained are that the system has four main functions. The first is to provide the optimal distribution routes, providing information about the shelter location data, providing information about disaster relief needs data, and providing information about disaster relief needs stock data. The distribution channel in the system consists of 5 safe routes to pass with the starting point is the Management Operation Center of Regional Disaster Management Authority. This research was conducted to simplify the process of distributing disaster relief because at this time officers who carry out the evacuation process are still doing data recap manually.

**Keyword:** Earthquake, Dijkstra, Disaster Relief, Distribution, GIS, Padang