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A REQUIREMENT MODEL OF AN ADAPTIVE EMERGENCY EVACUATION CENTER MANAGEMENT

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Abstract (English version)

One of natural disasters that pose a rising danger and has highest percentage of occurrences is flood. Previous studies on flood disaster have provided solutions to deal with this situation. However, they do not consider a scenario where evacuation centers are drowned due to heavy flood and these studies do not provide any requirement models which can be used as reference guides to build similar systems. This study proposes a requirement model for a decision aid model for evacuation center management which is capable of providing smart solutions for relocation of victims to other evacuation centers when they were almost drowned. The methodology used in this study consists of five phases: requirement gathering, conceptual design, development, verification, and preparing thesis & articles for publication. This study has produced a requirement model of the proposed system that consists of a use case diagram, use case specifications, class diagrams, and sequence diagrams, which has been reviewed by the experts by using inspection method. The prototype has been evaluated through a functional testing. The proposed requirement model can be used as a reference model for developers in producing similar evacuation center management system.

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Keywords: requirement model, smart evacuation center management, flood, relocation.

Abstrak (Malay version)

Salah satu bencana alam semula jadi yang menimbulkan peningkatan ancaman dan mempunyai peratusan bencana yang berulangkali ialah banjir. Penyelesaian bagi mengatasi situasi ini telah diberikan melalui kajian yang terdahulu. Walau bagaimanapun, kajian tersebut tidak mempertimbangkan senario di mana pusat-pusat pemindahan mangsa banjir akan ditenggelami akibat air bah dan kajian itu juga tidak menyediakan sebarang model keperluan yang boleh digunakan sebagai panduan rujukan untuk membina sistem yang sama. Kajian ini mencadangkan model keperluan bagi model bantuan keputusan kepada Pusat Pengurusan Pemindahan di mana ianya berupaya menyediakan penyelesaian pintar untuk penempatan semula mangsa-mangsa banjir ke pusat pemindahan yang lain apabila pusat pemindahan yang sedia ada hamper ditenggelami air bah. Metodologi penyelidikan yang digunakan di dalam kajian ini terdiri dari pada lima fasa iaitu: pengumpulan keperluan, reka bentuk konseptual, pembangunan, penentusahan, dan penyediaan tesis dan penerbitan artikel. Kajian ini telah menghasilkan satu model keperluan bagi system cadangan yang terdiri dari pada gambar ajah kes guna, spesifikasi kes guna, diagram kelas, dan diagram jujukan, yang telah diulas dan dinilai oleh pakar-pakar dengan menggunakan kaedah pemeriksaan. Sistem prototaip yang dibangunkan ini telah dinilai melalui ujian fungsian. Cadangan model keperluan ini boleh digunakan sebagai model rujukan kepada pembangun-pembangun seterusnya untuk menghasilkan system pusat pemindahan yang sama.

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Keywords: model keperluan, pusat pengurusan pemindahan pintar, banjir, penempatan semula.

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CHAPTER ONE
INTRODUCTION

1.1 Background of Study

Natural disasters have become worldwide issues. 94 countries have been affected by 317 natural disasters in 2014, causing 8,186 deaths worldwide [1]. There were 6,768 natural disasters occurred between 1995-2015 [2], [3]. This consists of flood disaster, storm disaster, earthquake disaster, extreme temperature disaster, landslide disaster, drought disaster, wildfire disaster, and volcanic activity. The Figure 1.1 shows the percentage of occurrences of natural disasters by disaster types [3], where occurrences of flood disaster are higher than other disasters.

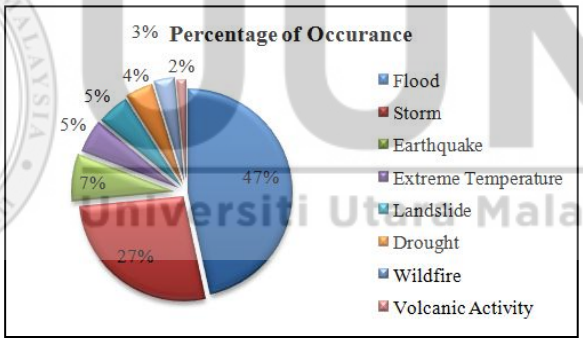

Figure 1.1: Occurrences of Natural Disasters by Disaster Type (1995-2015)

2.3 billion people were affected by floods between 1995 and 2015 [2], [3]. The number of affected people by floods is the highest when compared to affected people of other natural disasters. This information is depicted in the Figure 1.2.

The contents of the thesis is for internal user only

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