



UNIVERSITI
TEKNOLOGI
MARA

Cawangan Melaka

In partnership with



Tadulako University



i - J a M C S I I X
2023

EXTENDED ABSTRACT BOOK

Publication Date: 30 March 2024

ISBN: 978-967-15337-0-3

<https://jamcsiix.uitm.edu.my>



i - J a M C S I I X 2023

INTERNATIONAL JASIN MULTIMEDIA & COMPUTER SCIENCE INVENTION AND
INNOVATION EXHIBITION (I-JaMCSIIX) 2023

EXTENDED ABSTRACT

COPYRIGHT © 2023

ISBN: 978-967-15337-0-3

i-JaMCSIIX

Universiti Teknologi MARA Cawangan Melaka Kampus Jasin 77300, Merlimau, Melaka

Web: <https://jamcsiix.uitm.edu.my>



In partnership with
Tadulako University

ORGANIZING COMMITTEE

PATRON

PM DR ISMADI MD BADARUDIN

ADVISOR I

TS DR JAMALUDDIN HJ JASMIS

ADVISOR II

DATO' DR MOHD HAJAR HASROL JONO

PROGRAM DIRECTOR

DR. NUR SUHAILAYANI SUHAIMI

DEPUTY DIRECTOR

TS DR NURUL HIDAYAH BINTI MAT ZAIN

SECRETARY I

ANIS SHOBIRIN ABDULLAH SANI

SECRETARY II

FAIQAH HAFIDZAH HALIM

TREASURER I

SITI AISYAH ABD KADIR

TREASURER II

UMMU MARDHIAH JALIL

NURBAITY BINTI SABRI

DR. SITI FEIRUSZ AHMAD FESOL

PUBLICATION

DR. AHMAD FIRDAUS BIN AHMAD FADZIL

SITI NURAMALINA BINTI JOHARI

ROSNIZA ROSLAN

Ts DR. ALYA GEOGIANA BUJA

NORBAHIYAH AWANG

JURY

Ts. DR. NOR AFIRDAUS ZAINAL ABIDIN

DR. RAIHAH AMINUDDIN

NOOR AFNI DERAMAN

SITI FAIRUS BINTI FUZI

BUSHRA BINTI ABDUL HALIM

REGISTRATION

NORDIANAH BINTI JUSOH@HUSSAIN

AINON SYAZANA BINTI AB HAMID

SITI NURSYAHIRA BINTI ZAINUDIN

FADILAH EZLINA SHAHBUDIN

HAJAR IZZATI MOHD GHAZALLI

SYSTEM

FADHLINA IZZAH SAMAN

NOR AZIDA MOHAMED NOH

SHAHITUL BADARIAH SULAIMAN

IZNI SYAMSINA SAARI

INVITATION AND PROMOTION

NOR ADILA KEDIN

	ADI HAKIM BIN TALIB MOHD AMIRUL BIN ATAN
MULTIMEDIA	Ts. NURUL NAJWA ABDUL RAHID@ABDUL RASHID NOOR ASHITAH ABU OTHMAN ANWAR FARHAN ZOLKEPLAY
	ANITA BINTI MOHD YASIN NURUL EMYZA ZAHIDI FATIMAH HASHIM
AWARD	SITI RAMIZAH JAMA DR NURUL HUDA NIK ZULKIFLI MARIATHY BINTI KARIM
	KHAIRUL NURMAZIANNA ISMAIL NUR NABILAH ABU MANGSHOR ZUHRI ARAFAH ZULKIFLI HAZRATI ZAINI
CERTIFICATE	
	Ts. DR. SITI RAHAYU ABDUL AZIZ ALBIN LEMUEL KUSHAN SHAHADAN SAAD
INTERNATIONAL RELATIONS	
	SYAFNIDAR ABDUL HALIM AJK WAKIL UNTAD
LIAISON OFFICER	
	ANIS AMILAH SHARI MOHD RAHMAT MOHD NOORDIN DR YUZAIMI YUNUS DR SURYAEFIZA KARJANTO
SPONSORSHIP	
	RAIHANA MD SAIDI NUR SYUHADA BINTI MUHAMMAT PAZIL ANIS AFIQAH SHARIP SITI MAISARAH MD ZAIN HAZWA HANIM MOHAMED HAMZAH
SECRETARIAT & APPRECIATION BANQUET	

UNTAD'S COMMITTEE FOR I-JAMCSIIX 2023:

PROF. IR. MARSETYO, M.AG., PH.D.

PROF. I WAYAN SUDARSANA, S.SI., M.SI.

PROF. JUNAIDI, S.SI., M.SI., PH.D.

ELISA SESA, S.SI., M.SI., PH.D.

MUKRIM, M.ED., PH.D.

ZARKIANI HASYIM, S.PD., M.ED.

DR. HJ. ANI SUSANTI, M.SI.

DR. ISKANDAR, M.HUM.

DR. IR. ROIS., MP.

SYARIFUL ANAM, S.SI., M.SI., PH.D.

DR. NAHARUDDIN, S.PD, M.SI.

DR. DRG. ELLI YANE BANGKELE, M.KES.

HERMAN, SKM., M.MED.ED.

DR. IR. SAMLIOK NDOBE, M.SI.

DR. RAHMAT BAKRI, S.H., M.H.

DR. HAERUL ANAM, SE., M.SI.

DR. IR. BAKRI, S.T., PG. DIPL. ENG., M.PHIL.

DR. IR. MUHAMMAD YAZDI PUSADAN, S.KOM., M.ENG.

IR. SYAIFUL HENDRA, S.KOM., M.KOM.

RIZANA FAUZI S.T., M.T.

MOHAMMAD FAJRI, S.SI., M.SI.

NURUL FISKIA GAMAYANTI, S.SI., M.SI.

DR. NUR'ENI, S.SI., M.SI.

IMAN SETIAWAN, S.SI., M.SI.

FADJRIYANI, S.SI., M.SI.

LIST OF SPONSORS

External Company Sponsors



Klinik Dr Jamaluddin

Klinik Mawar Jasin

Nasi Ayam Ala Cina Zul

ADS Oasis Enterprise

Noorys Enterprise

Che Ramli bin Che Ismail

Beria Maju Enterprise

Rintiz rezeki

H&K food cafe

HS Gerak Wawasan

Individual Sponsors

En. Muhammad Hanif bin Abdul Aziz

Nor Suhaida binti Karjanto

Table of Contents

JaMCSIIX ID	Project Title	Page
JM005	Ramadhan Prep: A Mobile Application in Preparing for the Bigger Season of the Year	1
JM006	BTF Cake Recommender and Management System by using Rule Based	5
JM007	ALIMS - Assets Loan and Inventory Management with SMS Notification	9
JM009	CRC - Clothing Review Classification using Sentiment Analysis	13
JM012	DEPsy Model	16
JM013	The Use of Computer Diagnostic Apps to Assist Computer Troubleshooting	20
JM014	Recent Studies of Human Limbs Rehabilitation using Mechanomyography Signal: A Survey	25
JM022	Plastopoll: A Serious Game to Raise Awareness About Plastic Pollution	35
JM029	Twitter Sentiment Analysis of Malaysian Fast Food Restaurant Chains: A Novel Approach to Understand Customer Perception using Naïve Bayes	40
JM030	ARTventure: Learning Malay Traditional Dance Through Augmented Reality	44
JM031	ExpenseEase - Living Expenses Management Mobile Application	48
JM032	Drowsiness Detection and Alert System Using Face Recognition with Raspberry Pi	53
JM033	Web Application of Facial Emotion Recognition in Classroom Learning Environment with Raspberry Pi4	58
JM035	Development of mobile app: Funeral services system (FSS)	63
JM036	Development of Mobile App: Digital Mutawwif	68
JM037	Assessment Mark Management System: An Excel VBA Approach	72

JM038	Design and Fabrication of a Potato Peeling Machine	77
JM040	Donatenow: A Crowdsourcing-Based Mobile Application with Geolocation and Content-Based Filtering Algorithm	82
JM041	TextCrunch: An Interactive Text Mining Application	88
JM047	Innovative Video on Compound Interest	93
JM049	Forecasting Inflation Rate in Malaysia Using Artificial Neural Network (ANN) Approach	98
JM050	Factors Affecting the House Price Among Kuala Lumpur, Selangor and Johor	102
JM054	A Framework of Procurement Analytics for Fraud Coalition Prediction	106
JM055	Abstract Exploring Classical Chinese Poetry with AI Tool in PPT Design	111
JM056	Developing Emergency Application for LRT Passengers with Decision Tree Algorithm (RailAlert!)	115
JM057	LetsGoFit Unlocked: Revolutionizing Wellness with Gamified Mobile Health	119
JM059	Sheep Tracker via Radio Frequency Identification (RFID) System	123
JM060	Developing an Application for Handyman Services Platform using Geofencing and Content-Based Filtering (Handy2Help)	128
JM061	Modeling Cases of Stunting Toddler in Indonesia using the Conway Maxwell Poisson Regression Method	133
JM063	Clustering Regencies/Cities in Central Sulawesi Province Based on Poverty Level Using the Average Linkage Method with Principal Component Analysis (PCA)	138
JM064	An application for Vehicle Rental Service Advertising using Geofence with Content-Based Filtering (ReadyVehicle)	142
JM066	Horticulture Land: Guide to Being A Plantsman Through Green Game	146

JM067	IMFLOODVR: An Immersive Virtual Reality Serious Game for Flood Risk Mitigation Awareness	149
JM068	Tomoe: Topic Modelling Web Application	153
JM071	Forecasting the Number of Schistosomiasis Cases (Snail Fever) in Napu, Central Sulawesi, Using the Auto Regressive Integrated Moving Average (ARIMA) Method	158
JM074	Forecasting the Open Unemployment Rate in Central Sulawesi Province using the Auto Regressive Integrated Moving Average (ARIMA) Method	162
JM075	Pre-parent Test Based on Web Application in Assessing Readiness to Become a Parent	166
JM076	The Development of Edu-Fertiblox Digital Game using Roblox as ABM in the Topic of Fertigation Systems for the Subject of Design and Technology Level 1	170
JM077	SPARK: Simplified Practices, Analogies, and Resources for Knowing C++ Functions	177
JM078	PLC-Based Water Filling Machine Simulator for Teaching and Learning Activities	180
JM079	Hana's Map	185
JM081	Futech.Edu (Future Technology Education): Teaching and Learning Application Design in the Society 5.0 Era	189
JM082	Checkers Match Game	193
JM084	Gamification in English for Report Writing: Engaging Learning Through Webinars	198
JM085	Iffah's Busy Board (IBB)	203
JM086	3R Bag	207
JM087	'Chick VS Virus', A Game-Based Learning Approach in Teaching Students	210

IMFLOODVR : AN IMMERSIVE VIRTUAL REALITY SERIOUS GAME FOR FLOOD RISK MITIGATION AWARENESS

Nur Eisyah Fariyah Mohd Dali¹, *Nurazian Mior Dahalan² and Nor Intan Shafini Nasaruddin³

^{1,2,3} College of Computing, Informatics and Mathematics
Universiti Teknologi MARA Melaka Branch, Jasin Campus
Melaka, Malaysia

eisyahfariyah.dali@gmail.com, *nurazian@uitm.edu.my, norintan4463@uitm.edu.my

Abstract— This project aims to design an immersive virtual reality game focusing on flood risk mitigation awareness. The primary objective is to enhance flood preparedness and minimize consequences in Malaysia. Climate change is currently increasing flood risk significantly. However, disaster readiness and knowledge among Malaysians are still at a low level, which leads to a lack of preparedness to deal with floods. This project aims to instil proactive mindsets and provide crucial pre, during, and post-flood risk management skills. The chosen methodology, the Game Development Life Cycle, drives a comprehensive and iterative game creation process. This methodology ensures the seamless integration of flood risk training components, enabling players to navigate through various stages of a flood event. To assess the game's effectiveness and user satisfaction, the Game Experience Questionnaire was employed. Preliminary results indicate positive feedback from testers, validating the potential impact of the game. The immersion score averaged 3.483, indicating a high level of immersion experienced by the testers. However, certain limitations include reports of motion sickness among users. Ultimately, this project holds the potential to empower Malaysian by fostering flood risk awareness and proactive risk management behaviours.

Keywords— *Virtual Reality, immersive, GEQ, GDLC, Flood Disaster, Serious Game*

I. INTRODUCTION

Natural disasters are becoming major challenges around the world as the global climate continues to change over the next few decades and beyond [1]. Climate change is currently increasing flood risk significantly [2]. Flood is not foreign element toward some Malaysians as some of them are experiencing it frequently [3][4][5]. Natural disasters are becoming major challenges around the world as the global climate continues to change over the next few decades and beyond. It is worsening the effects of natural disasters on human health and escalating economic damages [1]. Disaster readiness and knowledge among Malaysians are still at a low level, which leads to a lack of preparedness to deal with disaster events [1]. Citizen of Malaysia could help to reduce these losses by doing private household mitigation of flood risk. This statement is supported by the research done by NADMA [4], stating that flood is important to give attention to as it has negative impact on human lives and infrastructure. Therefore, this project aspires to raise awareness on how to mitigate flood risk using a serious game educate teens and young adults. The game embraces 3 main aspects, mitigation of flood training before, during, and after. This system is meant to aid Malaysians and giving the idea on how to protect their properties and life during flood disaster occurrences.

II. OBJECTIVES

This project will produce an innovative prototype for ImFloodVR, a virtual reality serious game of flood risk mitigation awareness immersively. This project aims to create a real-life flood simulation with a safe, study and experimental environment. The scenarios consist of guidelines from NADMA and narration in Malay language. There are three key objectives achieved in this project:

- i To design a virtual reality flood risk mitigation awareness game using virtual reality serious game.
- ii ii. To develop a flood risk mitigation awareness serious game using Virtual Reality technique.
- iii iii. To evaluate user experience of a flood risk mitigation awareness virtual reality serious game.

The significance of this prototype are to give awareness and preparedness from engaging with real life situations during the flood especially for anyone who has never encountered this natural disaster. It also acts as a safety guidance reminder during the pre, current, and post flood as suggested by the official expert personnel.

III. METHODS

In order to complete this prototype, Game Development Life Cycle (GDLC) has been selected as the framework for this research. GDLC encompasses the most comprehensive and effective methodology for game development projects. GDLC provides a comprehensive framework that encompasses all stages of game development, from conception to post-release maintenance. Its iterative and flexible nature allows for continuous improvement, adaptability to changing requirements, and ensures the delivery of high-quality games within specified timeframes. Furthermore, GDLC's emphasis on thorough testing and quality assurance leads to enhanced player satisfaction and reduced post-release issues. Last but not least, GDLC incorporates key stages such as concept ideation, prototyping, testing, and post-release maintenance, ensuring a holistic and systematic approach to game development

In assets creation, we can observe the process of creating 3D assets using Blender, a powerful 3D software, to construct the main house where significant events and gameplay will take place. All the assets in this scene are initially built on a cube base, and subsequently, some 3D models are thoughtfully arranged and merged together, resulting in a cohesive and visually appealing structure. Each model is then exported individually in the FBX format to allow for seamless integration into the Unity game engine. The game features two significant environments: the lobby and the house. the house is designed to resemble a typical Malaysian neighbourhood, incorporating houses and trees to create a charming and realistic setting.



IV. RESULTS AND FINDINGS

Game prototyping plays a decisive part in the iterative design process of game development, allowing developers to explore and validate ideas, mechanics, and gameplay elements. The objective system provides players with directions and instructions (Figure 1) to aid them in completing the game. To achieve this, a text game object is integrated as a child to the clipboard 3D model using the user interface canvas with the setting on world space (Figure 2). Each level is distinct and features its own specific scene design. The game comprises pre-flood and post-flood scenes, characterized by bright skyboxes, and during the flood, scenes with cloudy skyboxes to set the appropriate atmosphere referring to figure 3, figure 4 and figure 5



Fig. 1. Instruction for player

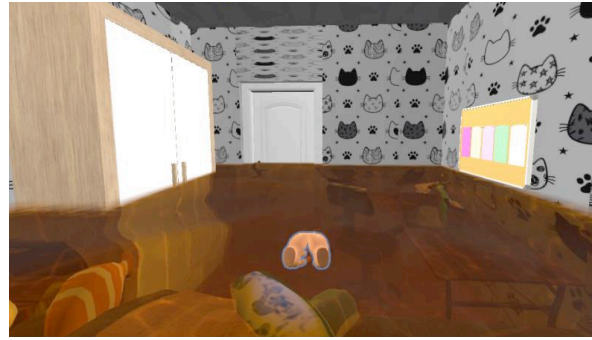


Fig 2. Family room scene



Fig. 3 PreFlood scene with bright sky.



Fig 4 During the flood scene with darker sky.



Fig 5. Post-flood scene with aftermath puddles

The self-testing phase in Unity VR 3D focused on thorough testing using only the Meta Quest 2 virtual reality headset. During the testing sessions, participants had the opportunity to experience the VR game on the PC setup hooked up to the Meta Quest 2 HMD via airtel. After each session, participants were given a phone outside the play space where they could access a Google Form with GEQ items to gather their feedback. In total, 5 males and 5 females from the target group participated in this test.

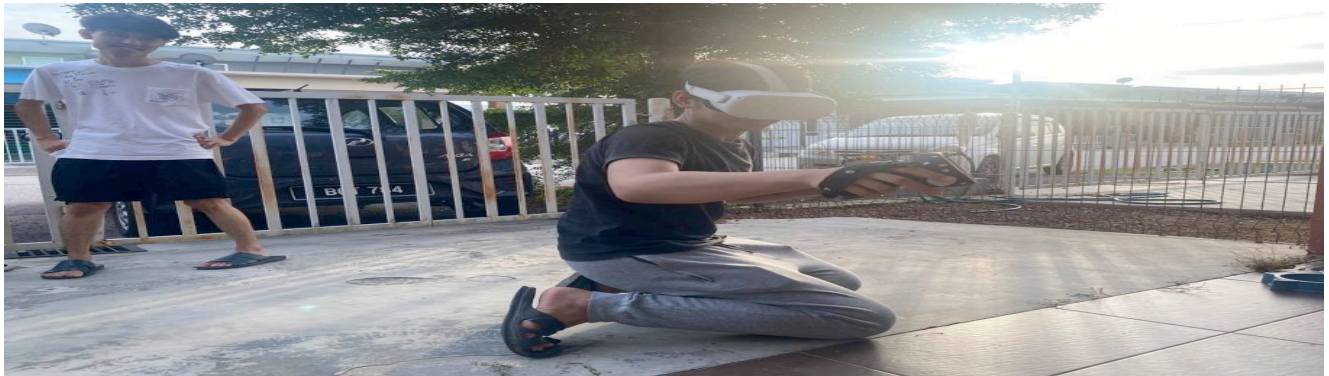


Fig 6 Tester was on ground trying to reach out for an item in virtual space

Analyzing the GEQ responses involves examining various aspects of the player experience. This includes assessing the overall game experience, emotional responses and gameplay, immersion and presence, and fun for the learning environment. Calculating each component score from the items in a Game Experience Questionnaire (GEQ) involves a systematic approach. Each component was identified and assessed in the questionnaire, such as immersion, enjoyment, presence, flow, and challenge. The immersion score averaged 3.483, indicating a high level of immersion experienced by the testers. This suggests that the game was successful in creating a captivating and engaging virtual world by using VR HMD, allowing players to feel fully absorbed in the gaming experience separating reality and VR. Meanwhile, the positive affect score was 3.70, indicating that the game evoked positive emotions and feelings of fun in the testers. Overall analysis shows that the results of the GEQ indicate that the game was well-received by the testers, providing an engaging, immersive, and enjoyable gaming experience.

V. CONCLUSIONS

In conclusion, this report encapsulates the comprehensive development and evaluation of an immersive virtual reality flood risk mitigation awareness game designed specifically for Malaysian adolescents and young adults. The target tester has successfully integrated flood risk training components within an engaging gameplay experience, effectively cultivating proactive attitudes and essential risk management skills among the target demographic. The utilization of GDLC and the GEQ has provided a structured approach to both game creation and user feedback assessment. The GEQ results underscore the game's positive impact on competence, immersion, flow, and affect, reaffirming its potential effectiveness. The significance of this work lies in its ability to advance flood risk awareness and preparedness, suggesting innovative approaches to mitigate flood-related losses and promoting safety measures advised by official sources. The benefits of the project extend to Malaysians and the nation's future resilience against floods, offering realistic and engaging experiences that prepare individuals for potential flood scenarios.

REFERENCES

- [1] Azmi, E. S., Rahman, H. A., & How, V. (2020). A Two-Way Interactive Teaching-Learning Process to Implement Flood Disaster Education in an Early Age: The Role of Learning Materials. *Malaysian Journal of Medicine & Health Sciences*, 16.
- [2] Houry, M., Gibson, M. J., Savic, D., Chen, A. S., Vamvakieridou-Lyroudia, L., Langford, H., & Wigley, S. (2018). A serious game designed to explore and understand the complexities of flood mitigation options in urban-rural catchments. *Water*, 10(12), 1885.
- [3] MaNIS Portal. (n.d.). <https://manis.kpwkm.gov.my/manis/>
- [4] Portal NADMA. (n.d.). Retrieved January 6, 2023, from <https://www.nadma.gov.my>
- [5] Malaysian Cross Red Crescent Society. (2021). Final Report Malaysia: Floods. In www.ifrc.org (FL-2021-000001-MY)



i - J a M C S I I X

2023

PUBLISHED BY:

i-JaMCSIIX

Universiti Teknologi MARA Cawangan Melaka

Kampus Jasin

77300 Merlimau, Melaka

Tel: 062645000

Email: jamcsiix@uitm.edu.my

Web: <https://jamcsiix.uitm.edu.my/>

**All rights reserved. No part of this publication
may be reproduced, stored in a retrieval system
or transmitted in any form or by any means,
electronic, mechanical, photocopying, recording
or otherwise, without permission of the
copyright holder**