

**Intellivent : A Business Intelligence Platform for Event Management Using
Gamified Mobile Application and QR Code**

By

Wilbert Adiputra

11502013

BACHELOR'S DEGREE

in

Information Technology

Faculty of Engineering and Information Technology



SWISS GERMAN UNIVERSITY

The Prominence Tower

Jalan Jalur Sutera Barat No. 15, Alam Sutera

Tangerang, Banten 15143 - Indonesia

Revision after the Thesis Defense on

11 July 2019

STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

Wilbert Adiputra

Student

Approved by:

Date

James Purnama, S.Kom, M.Kom

Thesis Advisor

Date

Dipl. -Ing Randy Anthony, S.Kom, M.Kom

Thesis Co-Advisor

Date

Dr. Maulahikmah Galinium S.Kom, M.Sc.

Dean

Date

Wilbert Adip

ABSTRACT

INTELLIVENT: A BUSINESS INTELLIGENCE PLATFORM FOR EVENT MANAGEMENT USING GAMIFIED MOBILE APPLICATION AND QR CODE

By

Wilbert Adiputra
James Purnama, S.Kom, M.Kom, Advisor
Dipl.-Ing Randy Anthony, S.Kom, M.Kom, Co-Advisor

SWISS GERMAN UNIVERSITY

One way for a company to communicate to their customer and promote their products is by participating or holding an event, like an exhibition or a seminar. For the event holder and organizer, it will be their best interest to gather as much data as they can, however for now some of the company may find it hard to find those data. From the visitor perspective, there may be less incentive on the user to interact and engage more in an event. Intellivent is a platform for event management, which features a gamification using gamified QR code. The gamification can be used as a tool for the event organizer to obtain more data regarding on activity in an event, and the visitor will be rewarded when they engage more in an event. A prototype has been created and tested on *Islamic Book Fair 2019* where it is downloaded by 2000 users from the Play Store. Another version is created to be used in *SGU Open House* and *Patjar Merah Malang 2019*, a book bazaar that is predicted to gross around 5 Billion Rupiah. The implementation of the first prototype receive a very positive result from both the Event Organizer and the visitor of the event.

Keywords: Gamification, QR Code, Platform, Business Intelligence



DEDICATION

This work is dedicated for everyone and everything that has support me to finish this work.



ACKNOWLEDGEMENTS

First and foremost, I would like to thank my parents and my brother for their love and support in the past 4 years.

I would also express my gratitude to Pak James Purnama and Randy Anthony, who have been guiding and supporting the creation of this thesis work. This thesis work will not be as done as this if not for their connection, effort and guidance. This thesis work will also cannot be done without the support of all the Lecturers that have provided the fundamentals and knowledge needed to complete this research.

I would also like to give my thanks to the first tester of my application. Firstly, IKAPI and IKAPI members who have trusted me to build the application in their event. Next is for the SGU Open House Committee, especially Mr Christian, for their cooperation and support when applying this application to the SGU Open House. Lastly is for Pande Coffeeshop owners, Ms Devi and Mr Michael, for their support and enthusiasm during the cooperation in SGU Open House.

Finally, a huge thanks for all of my classmates, which have shared the last 4 years with me. Also, shout out to Renaldy Setiawan to include my name in his acknowledgement, and Danny Gani who bought me a pizza during the last days of the thesis writing.



SWISS GERMAN UNIVERSITY

TABLE OF CONTENTS

	Page
STATEMENT BY THE AUTHOR.....	2
ABSTRACT.....	3
DEDICATION.....	5
ACKNOWLEDGEMENTS.....	6
TABLE OF CONTENTS.....	7
LIST OF FIGURES.....	11
LIST OF TABLES.....	13
CHAPTER 1 - INTRODUCTION.....	14
1.1 Background.....	14
1.2 Research Problems.....	15
1.3 Research Objectives.....	15
1.4 Significance of Study.....	16
1.5 Research Questions.....	16
1.6 Hypothesis.....	17
1.7 Scope of Study.....	17
1.8 Limitation.....	17
CHAPTER 2 - LITERATURE REVIEW.....	19
2.1 Theories.....	19
2.1.1 Customer Engagement and Visitor Interaction.....	19

2.1.2	Gamification.....	19
2.1.3	Quick Response Code	22
2.1.4	Prototyping	22
2.1.5	Questionnaire.....	23
2.2	Related Works	23
2.2.1	A Museum Mobile Game for Children Using QR-Codes.....	23
2.2.2	Orientation Passport	24
2.2.3	Mobile Gamification Learning System (MGLS)	24
CHAPTER 3 – RESEARCH METHODS		26
3.1	Research Overview	26
3.2	Business Analysis	28
3.3	User Requirement	29
3.4	System Analysis and Design.....	29
3.5	Prototype Development.....	29
3.6	Evaluation and Feedback	30
CHAPTER 4 – Business Analysis		31
4.1	Playing Field.....	31
4.1.1	Industry and Category	31
4.1.2	Problem to Solve	31
4.1.3	Competitor Analysis.....	32
4.1.4	Offered Solution	37
4.1.5	Core Environment	39
4.2	Market Landscape	40

4.2.1	Unique Selling Proposition	40
4.3	Operational Stability.....	41
4.4	Business Canvas	Error! Bookmark not defined.
CHAPTER 5 – FIRST PROTOTYPE RESULTS		46
5.1	Prototype Development Overview	46
5.2	Initial Requirements	47
5.3	System Analysis and Design.....	51
5.3.1	Architecture	51
5.3.2	Database	52
5.3.3	Web Service	54
5.3.4	Mobile Application.....	55
5.3.5	Web Based Report.....	55
5.4	User Feedback and Evaluation	61
5.4.1	Google Play Store.....	61
5.4.2	Mobile Application User Questionnaire.....	62
5.4.3	Exhibitor Questionnaire	Error! Bookmark not defined.
5.4.4	Event Organizer Evaluation	66
5.4.5	User Behavior Analysis.....	67
5.4.6	Self Evaluation	67
CHAPTER 6 – SECOND PROTOTYPE DEVELOPMENT		70
6.1	Prototype Development Overview	70
6.2	Initial Requirement.....	71
6.3	System Analysis and Design	72

6.3.1	Architecture	72
6.3.2	Database	74
6.3.4	Web Service	77
6.3.5	Web Based Dashboard	77
6.3.6	Mobile Application.....	78
CHAPTER 7 – CONCLUSION AND FUTURE WORK		84
7.1	Conclusion	84
7.2	Future Works	84
GLOSSARY		87
REFERENCES		88
CURRICULUM VITAE.....		91

