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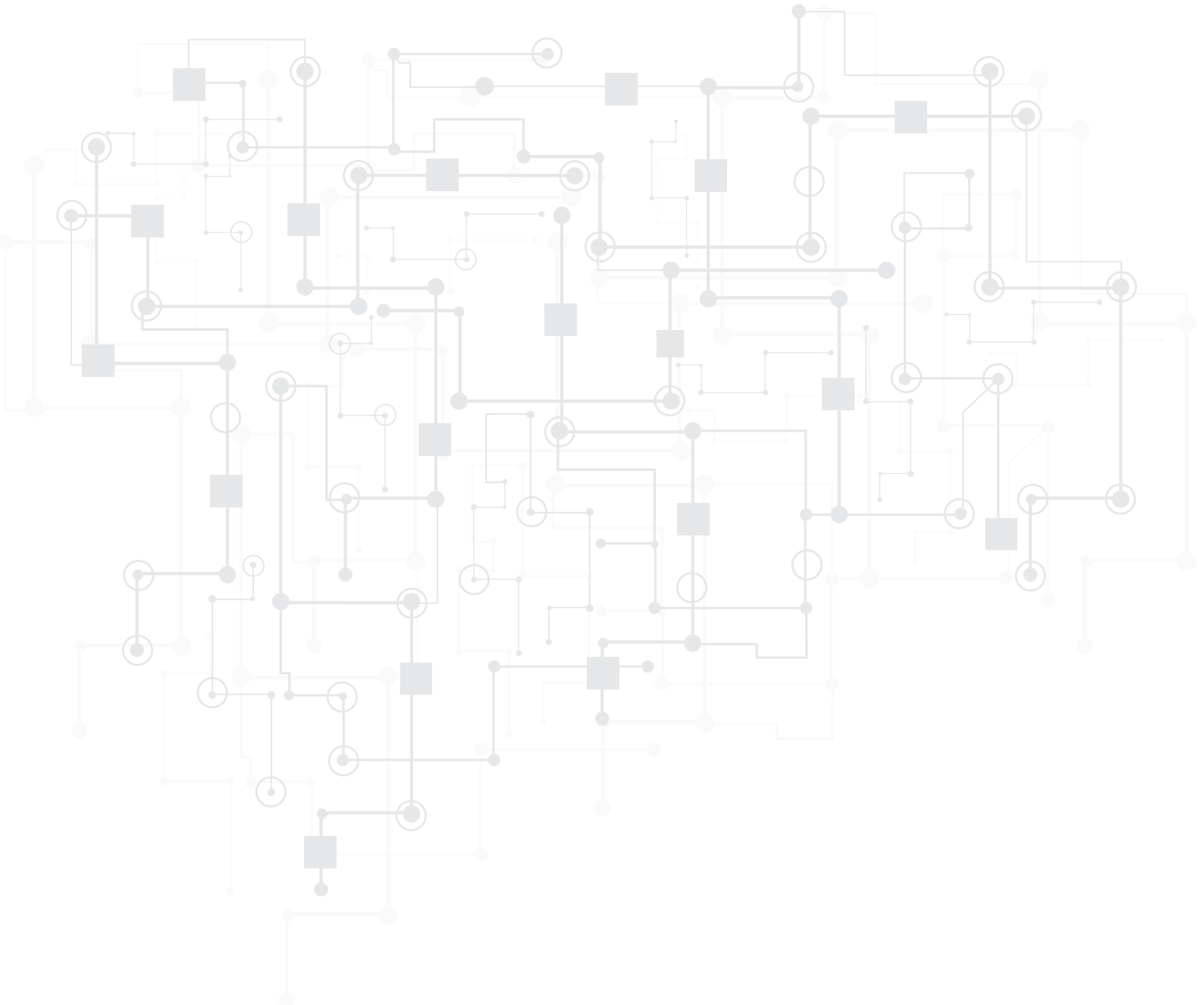
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Applications and Systems (ICITAS)

**“Managing Digital Development
for Sustainable Economy”**

FEBRUARY 3, 2018

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Stikom Surabaya

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- Digital Media Technology
- Digital Game Design
- Film and Video
- Multimedia Applications on Arts and Design
- Visual Communication Design and Knowledge Media

Track 3. Business and Economics Applications

- Business and Public Administration Information System
- Business and Information Technology Allignment
- Business Intelligence
- Business Process Management

-
- E-Business
 - Integration of Data and Processes
 - Management Information System
 - Supply Chain Processes

FOREWORD

We welcome you to the First International Conference on Information Technology Applications and Systems (ICITAS) held February 3, 2018 in Surabaya, East Java, Indonesia. ICITAS 2018 provides a highly competitive forum for global exploration of the latest developments in Information Technology and their direct impact on the economic sustainability. Therefore, we carefully chose and embraced the theme of this conference as “Managing Digital Development for Sustainable Economy”.

We are pleased to present the proceedings of the conference as its published record. In overall, the technical committee has selected 40 papers to be published, which comprises authors from various countries and regions. The topics may include, but not limited to the following: Information and Communication Technology, Business and Economics Applications, and Applications of Digital Media Technology in Arts Design.

We want to express our gratitude to the members of the Program Committee and the Technical Committee, as well as the external reviewers for their hard work in reviewing all the submission papers. We also thank the three invited speakers, Prof Nai-Wei Lo (National Taiwan University of Science and Technology), Prof. Kamarul Hawari bin Ghazali (Universiti Malaysia Pahang), and Mr. Kresnayana Yahya, for sharing their insights with us. Finally, the conference would not be possible without the excellent papers contributed by authors. We thank to all the authors for their contributions and their participation in ICITAS 2018! We hope that this program will further stimulate research in Information Technology systems and their applications in the present time and in the future, and provide practitioners with better techniques, algorithms, and tools for deployment.

Dr. Jusak

Head of Committee of the ICITAS 2018

KEYNOTE SPEAKER

Keynote Speaker 1



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- 2001 - 2002: Lecturer, Politeknik Johor Bahru, Jalan Kongkong Masai, Johor
- 2002 - 2009: Lecturer at Faculty of Electrical and Electronics Engineering, Universiti Malaysia Pahang
- 2010 – 2012: Deputy Dean Research and Postgraduate Studies, Faculty of Electrical and Electronics Engineering, Universiti Malaysia Pahang
- Feb 2014 till present:
Dean of Faculty of Electrical and Electronics Engineering, Universiti Malaysia Pahang
- 1 March 2017 till present:
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- **Professor and Dean** - Faculty of Electrical and Electronics Engineering

FIELD OF SPECIALIZATION

- Machine Vision System, Image Processing, Signal Processing, Intelligent System, Vision Control, Computer Control System, Thermal Imaging Analysis (in all related applications - Electrical, Medical, Environment) and Computer Engineering

Keynote Speaker 2



Dr. Nai-Wei Lo got his Ph.D. degree in Electrical Engineering from State University of New York at Stony Brook, USA, in 1998. He worked as research assistant at TNT Information Systems Inc. in 1997 to 1998. From 1998 to 2000, he worked at H&L Technique Inc. as a software consultant for AT& T Business and Global Services. From 2000 to 2002, he worked at Lucent Technologies as member of technical staff.

Dr. Nai-Wei Lo joined the Department of Information Management in National Taiwan University of Science and Technology in 2003, and he has become professor from 2015. In addition, he has been the director of Taiwan Information Security Center, National Taiwan University of Science and Technology (TWISC@NTUST) since 2014. His research interests include smart grid security, IoT/IoV security, web technology, and cloud security.

Keynote Speech Title: Indoor Positioning-based Mobile Payment System Using BLE Technology

Abstract – The development of information technology has paved the way for faster and convenient payment process flows and new methodology of design and implementation for next generation payment system. The usage growth of smartphones in nowadays has fostered a new and popular mobile payment environment. Most of the current generation smartphones support BLE technology to communicate with nearby BLE-enabled devices. It is plausible to construct an Over-the-Air BLE-based mobile payment system as one of the payment methods for people living in modern societies. In order to secure the BLE-based mobile payment system, a secure indoor positioning-based mobile payment authentication protocol and corresponding mobile payment system is designed. The authentication protocol consists of three phases: initialization phase, session key construction phase, and authentication phase. A prototype is implemented to assess the performance of the designed mobile payment system.

Keynote Speaker 3



Krenayana Yahya is a Director of Enciety Business Consult and also a Lecturer at Department of Statistics ITS. Not only served as Director of Enciety Business Consult, this Jakarta-born man is also listed as a Commissioner of PT Petrokimia Gresik. In addition he is also a Board of Trustees LEAD Indonesia (one of the program The Foundation of Sustainable Development or Foundation for Sustainable Development of the UK). Not only that, a number of important positions in several organizations such as the Chairman of the Association of Indonesia Manager Surabaya Branch, President of the Association of Indonesian Marketing area of East Java, and various other important positions in the field of statistics, environment, marketing to democracy. Mr. Yahya who holds a master's degree at the University of Wisconsin, USA is known to actively fill interactive dialogue in various mass media such as Suara Surabaya and JTV radio. His writing was often appeared in print media Java Post and Kompas Daily.

Keynote Speech Title : Digital development for sustainable economy

The development issues today is strongly related to the developments of Technology. Technology introduction to a society is mainly a choice and related to the readiness to accept and utilized for the good of the improvement of welfare. Digitalization becomes a mean and a purpose to achieve sustainable development. Educating the young and bridging the digital divide becomes the most important aspect before to decide what and which technology should be implemented in a society, in a public sector and overall for business development. Disruptions will come and replacing, renewing, through innovation and developing application to reduce time, increasing speed and integrating most activities that reduce the impact on the degradation of the earth.

The role of development should define and prioritize the steps toward improving quality of life through managing the digital policy in the stages of development. Consideration the impact and the negative side of the use of IT should be anticipated through policy developments. Technology by itself is neutral, but preparing the infrastructure to used, to be used by whom and for what purposes will be the main cause to regulate. The digital divide should be considered as a real concern not to widen the welfare gaps and the increase of economic disparity.

Currently in Indonesia the IT Index of developments showed that Jakarta has the most advanced IT usage, Infrastructure and supported for business, while most villages and outer Island like Papua has very poor access for internet

Indonesian archipelago has its problems in disparity of level support for mostly several infrastructure. Better and more justice in prioritizing is on the way to make it even and more welfare instruments will cover.

On the other hand better access for communication and improving connectivity will improve the chances to integrate IT with most public sectors like transportation, online courses, retail, and public utility access. The future of IT will certainly a great help for human development in general. The improvement of policy development will be a real support for most development instrument. Specifically policy development for digitalization will be most valuable through the better understanding and the right implementation of sustainable development

TABLE OF CONTENT

A. EDITORIAL BOARD	i
B. COMMITTEE	iii
C. TOPIC	iv
D. FOREWORD	vi
E. KEYNOTE SPEAKER	vii
F. TABLE OF CONTENT	xi

I. INFORMATION AND COMMUNICATION TECHNOLOGY

1. A Fast Fourier Transform-based ECG Security Framework Jusak, Seedahmed S. Mahmoud	I-1
2. Analysis of Quality of Service Routing Protocols AODV and AOMDV on MANET Using NS2 Alamsyah, Eko Setijadi, I Ketut Eddy Purnama, Mauridhi Hery Purnomo	I-6
3. Application Evaluation of Simulation of Agribusiness Concept of Livestock (SPEKTRUM) at SMK Al Jauhar Ngawi, East Java Marya Mujayana, Endra Rahmawati	I-11
4. Building The Network Infrastructure and E-Hospital Using Cloud Computing Norma Ningsih, Teguh Sutanto, Anjik Sukmaaji	I-15
5. Comparison between PID and Fuzzy Controller to Hydroponic Temperature Yosefine Triwidyastuti, Ira Puspasari, Harianto	I-21
6. Comparison of Retina Blood Vessel Segmentation Based On K Means and Fuzzy C Means Agus Dwi Churniawan	I-28
7. Design of SLM IT Services on Academic Services in Higher Education Erwin Sutomo	I-32
8. IbM (Science and Technology for Society): Electronic Game Device Implementation To Train the Memories of Kids in Playing Group Weny Indah Kusumawati, Pauladie Susanto, Musayyanah	I-36
9. Implementation Of Online Sales Information System For Sandals Craftsmen In Berbek Village A.B. Tjandrarini, Sulistiowati, Julianto Lemantara	I-41
10. Implementation Text Mining for Recommendation Follow Up Customer Vivine Nurcahyawati	I-46
11. Iris Detection and Localization Based on Contrast Shrinking and Stretching of CIELab Color Susijanto T. Rasmana, Pauladie Susanto, Heri Pratikno	I-49
12. Lead Time Reduction Through Production Process Analysis Of XYZ E-Commerce Company Using Simulation Model Fabio Jeremia Sunarjo, Mursyid Hasan Basri	I-54

-
13. N-TEA (New-Text Encryption Algorithm) For Android Chatting Application Security
Sugiyanto I-62
 14. Scheme Of Application Study Of Kanji Characters Japan To Children Base On Android
I Gusti Ngurah Alit Widana Putra, Yoppy Mirza M., Dinastuti Mulia L. I-67
 15. Pareto Analysis for Agile Requirements Prioritization
Tan Amelia I-72
 16. Sentiment Classification of Microblogging in Indonesia Airline Services using Support Vector Machine
Tien Rahayu Tulili, Muhammad Farman Andrijasa I-76
 17. The Analysis Of Service Quality At Academic And Student Affairs Department (Asa Department) Institute Of business And Informatics Stikom Surabaya
Sulistiowati, Henry Bambang Setyawan, Tutut Wuriyanto I-82
 18. Evaluation of User Experience in Using Web-based Study Planning Application
Tri Sagirani, Puspita Katikasari, Nunuk Wahyuningtyas I-87
 19. The Comparation of The Duration of Five Software to Restore The Operating System
Achmad Arrosyidi, Edo Yonatan Koentjoro I-91
 20. Twitter Mining to Explore Perceptions of Tourism Objects in Indonesia: A case study of Borobudur and Prambanan Temple
Valentinus Roby Hananto I-94
 21. User Evaluation GKJW Waru's Website for Improving Brand Awareness
Siswo Martono, Florens Debora Patricia I-98
 22. Utilizing ADDIE Model for Developing Brilian, Learning Application in Institute of Business and Informatics Stikom Surabaya, Indonesia
Bambang Hariadi, M.J. Dewiyani Sunarto, Pantjawati Sudarmaningtyas I-105

II. DIGITAL MEDIA TECHNOLOGY IN ARTS DESIGN

1. Collaboration Between Designers And Marketers In Developing A New Product Development
Yosef Richo Adrianto II-1
2. Content Analysis Television Program Featured on Disability by Title "Dunia Tanpa Batas" (Episode Tiara Handycraft Embracing Persons with Disabilities With Social Entrepreneurs)
Novan Andrianto, Rike Verlita, Fuad Amsyari II-5
3. Design Product Packaging Chocolate Using With Design Element Inside It
Yosef Richo, Ixsora Gupita Cinantya, Ardian Jaya Prasetya II-9

-
4. Environmental Graphic Design Of Ecotourism Mangrove Surabaya As Efforts To Provide Information To Visitors II-17
Hardman Budiardjo, Dhika Yuan Yurisma, Darwin R. Yuwono
 5. Making A Short Film With The Thriller Genre Using Canted Angle Techniques About Psychopates Titled Hate II-24
Karsam, Nirwana Wahyu, Puspita Prawiswari
 6. Multimedia as a Media Development Skill to Improve the Quality of Learning II-31
Ardian Jaya Prasetya
 7. Song Arrangement Can You Feel The Love Tonight Using Sibelius On Movie Soundtrack "The Lion King" II-35
Yunanto Tri Laksono

III. BUSINESS AND ECONOMICS APPLICATIONS

1. Analysis the Impact of Management Information System Usage on the Performance of Business Company Using DeLone And McLean Model III-1
Haryanto Tanuwijaya
2. Effect Of Mobile Technology, Information Services, Price, Company's Integrity Of Shopping On Line III-7
Antok Supriyanto
3. Framework Business Model on Private College Using Business Model Canvas: Case Study in Institute of Business and Informatics Stikom Surabaya III-10
Ayouvi Poerna Wardhanie
4. Science And Technology For Communities: Internet Utilization For Brand Rejuvenation Of Al Qur'an Al Falah Institution III-14
Achmad Yanu Alif Fianto, Rudi Santoso, Abdullah Khoirriqoh
5. The Effect Of Big Five Personality On Lectures And Employee's Performance III-19
Sri Suhandiah, Ayuningtyas, Oktaviani
6. The Effect Of Motivation And The Work Environment To Competence And Performance Of Permanent Lecturerat Sekolah Tinggi Teknologi Angkatan Laut Surabaya III-25
Rahayu Arya Shintawati
7. The Influence of Brand Trust, Brand Communication and Brand Satisfaction toward Brand Loyalty for iPhone's Customer in Surabaya, East Java, Indonesia III-32
Achmad Yanu Alif Fianto
8. The Management Of Online-Based Supply Of GoodsAt Pt.Indoberka Investama III-36
Mochammad Arifin, Marya Mujayana
9. Science And Technology For Communities: Martketing Strategic Development and Packaging Design for Kelompok Tani Elok Mekarsari Surabaya III-42
Candraningrat, Yosef Richo Adrianto, Januar Wibowo

-
- | | | |
|-----|--|--------|
| 10. | Analysis of Public Trust Factors on Online Media of Travel Website
Putri Pradnyawidya Sari | III-47 |
| 11. | Clicking For Physical Security, Can It Be?
Cakti Indra Gunawan, Putriyana Asmarani | III-53 |

Scheme of Application Study of Kanji Characters Japan to Children Base On Android

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Abstract-- This research aim to to design a application base on Android to assist children learn japan Kanji Characters. Besides this application also can become media to assist instructor of japan language to teach Kanji Characters to educative children of by more pleasant and modern. Android selected as platform for the development of application because this platform used many for the peripheral of mobile so that consumer can access whenever and anywhere. End result at this research is a scheme of application study of japan Kanji Characters can be used as reference to develop study application.

Keywords: *Children, Japanese Kanji, Application, Android, Naritachi Kanji.*

I. INTRODUCTION

Research Background

The development of mobile android technology is currently running very fast. Since its first launch in 2008 [1] up to now the number of Android users in Indonesia is among the highest in Southeast Asia, totaling 41 million users or a market share of 94% [2].

Android is a Linux-based operating system designed for touch screen mobile devices such as smart phones and tablet computers. Android was originally developed by Android, Inc., with financial support from Google, which was later purchased in 2005. The operating system was officially released in 2007, in conjunction with the establishment of the Open Handset Alliance, a consortium of hardware, software, and telecommunications that aim to advance the open standards of mobile devices. The first Android phone went on sale in October 2008 [3].

Child is a man or woman who is immature or has not yet experienced puberty. The child is also a second offspring, where the word "child" refers to the opposite of the parent, the adult is the child of their parent, even though they have grown up. According to psychology, the child is a period of development that extends from infancy to five or

six years, this period is usually called the preschool period, then develops on a par with elementary school years [4].

Japanese Ambassador to Indonesia Yasuaki Tanizaki said that Indonesian students studying Japanese are about 870,000 or the second largest in the world after China [5]. And the method to teach Japanese children especially kanji is still conventional, so for teachers and parents who want to introduce Japanese kanji face difficulty.

The Japanese language itself consists of 3 types, namely hiragana, katakana, and kanji. The kanji script is used to symbolize concepts or ideas (nouns, verb roots, adjective roots, and adverbs). Meanwhile, hiragana (ancient katakana) is generally used as an okurigana to write verb inflexions and words whose roots are written with kanji, or native Japanese words. In addition, hiragana is used to write words that are difficult to write and remember when written in kanji script. Except for the word absorption, kanji script is used to write almost all vocabulary from both Chinese and Japanese [6].

The Android-based learning app was chosen because of the platform for mobile devices. This device is easy to carry anywhere. This application will be offline so do not require internet connection to run it. Based on this background researchers in this study are interested in the title ""Scheme Of Application Study Of Kanji Characters Japan To Children Base On Android "".

Formula of Problem

According to the research background which has explained, researcher has proposed research matter as follows, "how to design Japanese kanji learning application which easy to understand by the children and easy to use by the teacher so that learning process can be flexible, pleasure, and modern?".

Research Definition

The research in order that can more focus and reach the target, so that researcher create framework as follows :

1. The application is only use for learning Japanese Kanji.
2. The application which has designed use Android Platform.
3. The application which has designed doesn't need internet connection to run.
4. The research is only discuss interaction design between users and system.

Research Aim

The aim of the research is to design information technology based Android to help Japanese Kanji learning process in order that can be more efficient, pleasure, and modern.

Research Benefit

This research have expected to give benefits to help Japanese teacher especially to teach Japanese Kanji. Next the expected benefits of the research :

1. Children can study Japanese Kanji by themselves.
2. Children can study Japanese Kanji without join at Japanese course.
3. Lessening usage of practice moment paper write kanji.

II. METHODOLOGY

Research methodology that use in Scheme Of Application Study Of Kanji Characters Japan To Children Base On Android involve some steps as follows:

Analyse and system scheme

In this step will held some steps as follows :

1. Data Collection
In this step, researcher collecting for the various materials which use to teach Japanese Kanji.
2. User Needs
In this step, research analyse what is the user needs in order the application can help in Japanese Kanji learning process. As for user needs is as follows :
 - The interesting view.
 - There are introducing Kanji by picture.
 - There are exercise to guess Kanji by picture or the contrary, guess picture from Kanji.
 - There are writing and reading Kanji exercise by word or sentence.
 - There are writing Kanji exercise suitable with the Kanji writing step.
 - There are exercise to guess the number of the Kanji stroke.
3. System Development Needs

In this step, researcher analyse the system development needs. And there are the system development needs as follows :

- The newest Software Android Studio.
 - PC with Prosesor Intel Core i5 specification or higher one, RAM 8 GB or higher one, Harddisc 250 GB.
 - Middle level Android programmer.
- 4. Learning Design
In this step, researcher will map out the learning model which will use in this application later. Learning will divided by topic, there are : number topic, days name topic, position topic, family topic, school topic, daily activity topic, etc. Each topic will teach reading and writing Kanji be accompanied picture.
- 5. Exercise Design
In this step, researcher will map out the design of the exercise which later can use in this application. The exercise will give in each topic by the exercise like writing and reading Kanji.
- 6. Assessment Design
In this step, researcher will map out the assessment design which later will use in this application. The application will use star in each topic. Highest score is 3 stars, and the lowest score is 1 star. To reach 3 stars, the user should success answer the exercise until 90%, to reach 2 stars, the user should success answer 80%, and if the user only success answer for 40%, they only can reach 1 star.
- 7. User Interface Design
In this step, researcher will map out user interface which will use in this application.

III. DISCUSSION

Result of from this research is a application scheme of study of japan Kanji Characters in the form of application base on android so that childrens can learn japan Kanji Characters at anywhere and whenever with more flexible and interest pleasant.

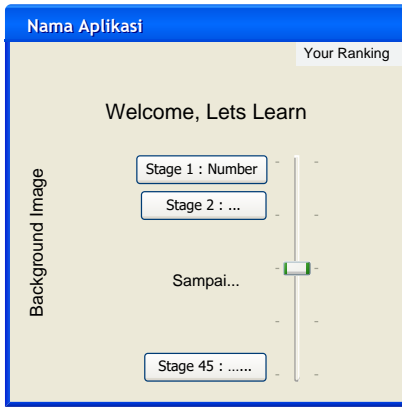


Fig 1 :front page of the Japanese Kanji learning application

This image is the front page of Japanese kanji learning app. Where there is an interesting animated background. In the top right corner there is a total ranking symbolized by three stars which is the result of the accumulation of each material. In the middle there are the menu buttons that read the topic of existing material. The amount of material to 45 chapters. Users must start learning from material 1, if successful pass on the material can just proceed to the next material.



Fig 3 :menu page after explanation page

This picture is page which appear after “GO” button clicked. This page contain 2 main buttons that read “Start Learn!” and “Start Practice!”. Next, under two main buttons there are user assessment on that stage. This assessment symbolized with star. 1 star mean good enough, 2 star mean good, and 3 star mean very good. The assessment will appear after the user follow exercise session.

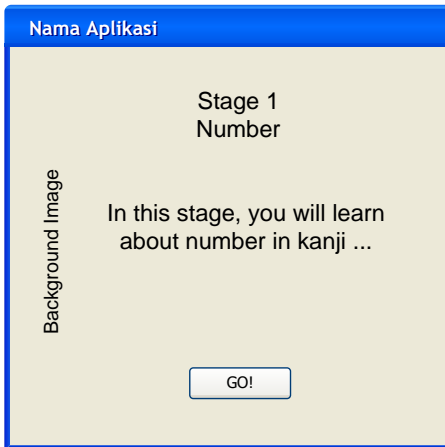


Fig 2 :An explanation page about the content of the material

This picture is an explanation page before start the learning. This page will appear after the user choose one of the matery on the menu in front page. This page use to help user to understand what will they learn in this menu. In this page, there are a button that read “GO!” which is if user clicked will lead to the next page.

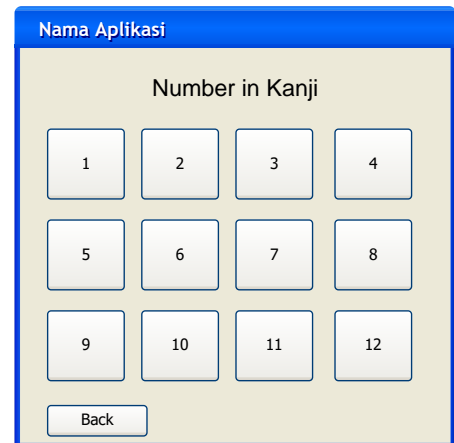


Fig 4 : Page Learn 1

This page appear after “Start Learn!” button clicked. On this page there are buttons which each button read number start from number 1 until 12. Each button contain number matery and if clicked will guide to the next page. Next, there is 1 another button on the top corner of page that is “BACK” for back to the previous page.

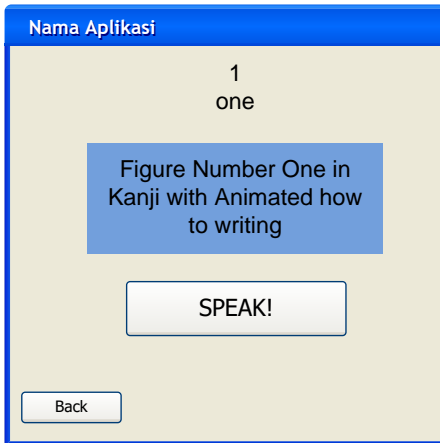


Fig 5 : Page Learn 2

This page appear after user choose one of the button that read number on the previous page. For example, the button that read number “satu”. On this page, on the top there are the same number that suitable with the button which the user have choosen and also the reading in English. Next, just below on it there is animation picture of the number in Kanji. That animation explain how to write Kanji. Next, under the animation picture there is button to hear how to spell those Kanji which is if it clicked will sound in Japanese. Next, there is one more button in the left bottom corner of the page that is “BACK” to back in the previous page.

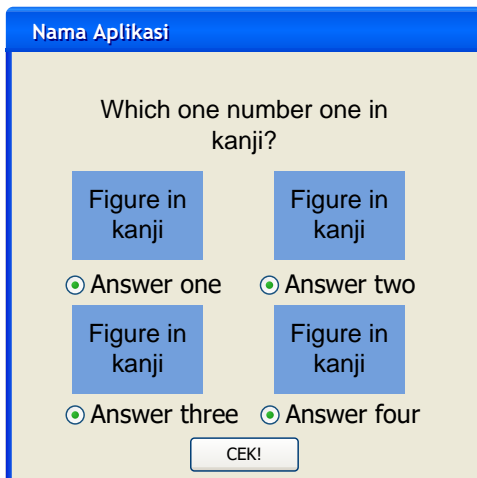


Fig 6 : Page Practice 1

This is exercise page which appear if the “Start Practice” button on Figure 3 clicked. The exercise design of this page is user should choose one of the correct answer from four options. The exercise design not only multiple choice, but also writing and speaking exercise, like the next explanation on this next figure.

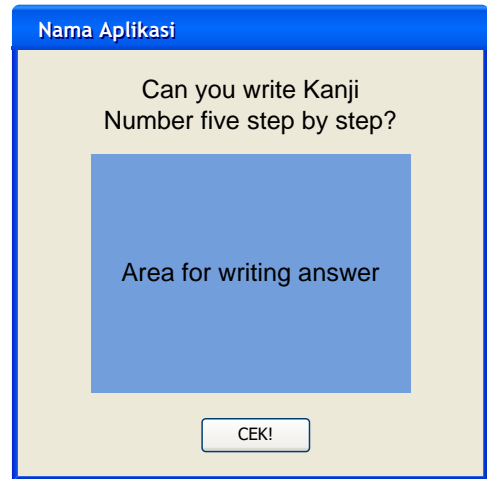


Fig 7 : Page Practice 2

Figure 7 is one of the exercise design besides the choices. On this page, user required to write Kanji gradually in the correct stroke. If user write Kanji not in sequence of stroke, even the Kanji looks right, the system will read it as wrong Kanji.



Fig 8 : Page Practice 3

Figure 8 is one of the exercise design besides writing exercise. On this page, user required to speak Kanji suitable with the picture that appear by clicked “Click to Spoke” button first then speak. Sound from user will recorded and matched with the original sound contained in the system. If the sound of the user considered similar with the original sound, the user sound will considered true.

IV. CONCLUSION

According to the interaction design result between user and the Japanese Kanji learning application for children can be concluded that:

- Children can study Japanese, especially Kanji, anywhere anytime.

- Children can study Japanese Kanji without join at Japanese course.
- This application later just as a tool, not to replace the role of teacher.
- Can lessen usage of paper which usually used as appliance for practice to write.
- Result of this scheme can be used as reference develop application study of japan Kanji Characters.

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