APPLICATION OF INDONESIA SATU: INDONESIAN MULTICULTURAL DIGITATION OF ALTERNATIVE MEDIA STRENGTHENING OF NATIONAL CHARACTER EDUCATION

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Abstract— *Indonesia has much cultural diversity which not all are known and understood by Indonesian themselves. So that instead of strengthening the nation character's identity, sometimes this will only weaken the nation's character. Therefore, it is deemed necessary to develop Indonesia Satu application. Namely, mobile-based applications that integrate cultural diversity in Indonesia by combining Augmented Reality (AR) technology. This application was developed by referring to the waterfall model. The Indonesia Satu application has also gone through a black-box testing method based on system testing, performance testing, installation and load testing also easy use testing. The test results show, in general, this application has been feasible for used. However, for further development, we need to consider data storage so that this application can be optimized.*

Keywords: *integrated cultural diversity, mobile application, nation character's identity, black box testing*

Intisari—*Keragaman budaya yang dimiliki Indonesia sangatlah banyak dan tidak semuanya diketahui dan dipahami oleh masyarakat. Sehingga alih-alih memperkuat identitas karakter bangsa, terkadang hal ini justru semakin memperlemah karakter bangsa. Oleh karena itu, dirasa perlu dikembangkan aplikasi Indonesia Satu. Yaitu, aplikasi berbasis mobile yang mengintegrasikan ragam budaya di Indonesia dengan mengkombinasikan teknologi Augmented Reality (AR). Aplikasi ini dikembangkan dengan mengacu pada model waterfall. Aplikasi Indonesia Satu juga telah melalui proses uji secara black box testing dengan teknik system testing, performance testing, installation and load testing serta easy use testing. Hasil pengujian menunjukkan bahwa secara umum, aplikasi ini telah layak uji. Hanya saja, untuk pengembangan selanjutnya, perlu dipikirkan mengenai penyimpanan data sehingga aplikasi ini bisa lebih optimal.*

Kata Kunci: *multikultural terintegrasi, aplikasi mobile, identitas karakter bangsa, black box testing*

INTRODUCTION

Various understanding of multiculturalism can be concluded that the core of multiculturalism is about acceptance and appreciation of a culture, both own culture and the culture of others (Julaiha, 2014)(Feriyanto, 2018). Everyone is emphasized to respect each other and respect every culture in the community. Whatever the form of a culture must be accepted by everyone without discriminating between one culture with another culture (Sutjipto, Wibowo, & Hastutiningsih, 2017).

Multiculturalism can be interpreted as diversity or difference between one culture and another culture (Lestari, 2016). So that multicultural society can be interpreted as a group of people who live and live permanently in a place that has its own culture and characteristics that are able to distinguish between one society and another. Basically, multiculturalism formed in Indonesia is a result of various socio-cultural and geographical conditions that are so diverse and broad. According to geographical conditions, Indonesia has many islands where each island is inhabited by a group of people who form a community. From this society, a culture of society was formed. Of course, this has an impact on the existence of a very large and diverse culture (Hartono, 2011).

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In the concept of multiculturalism, there is a close relationship for the formation of a community based on Unity in Diversity and to realize a national culture that is unifying for the Indonesian people. This is one of the strong capitals for Indonesia in shaping the nation's character (Kosim, 2012). It is hoped that this cultural diversity can be a reinforcement of national character identity. However, in its implementation, there are still various obstacles that prevent the formation of multiculturalism in society.

This cultural diversity is not all known by the people of Indonesia. So that this diversity actually makes a decrease intolerance. So that instead of strengthening the national character's identity, it actually weakens the nation's character. Because of irresponsible parties, this fact was used as the basis for dividing the Indonesian nation. In addition, the community's indifference to knowing, learning and understanding the culture of other tribes led to efforts by foreign parties to acquire Indonesian local culture as their culture.

By looking at the background above and coupled with the rapid development of information technology, the application of Indonesia Satu comes as one of the digitalized media systems of integrated Indonesian culture. This application provides complete, interactive and integrated information on cultural diversity (multicultural) in Indonesia ranging from religion and beliefs, traditional clothing, regional dances, traditional houses, traditional food, tribal ceremonies/rituals which are Indonesian local wisdom that deserves known and preserved by the people of Indonesia.

It is hoped that this application can be used as a digital media reference for an integrated Indonesian culture system. Through this application, it is hoped that people's understanding of multiculturalism in Indonesia will increase. So that tolerance in society also increases and the identity of the nation's character also strengthens.

MATERIALS AND METHODS

Indonesia One application development adopts the waterfall model (Bassil, 2012) which has the following stages:
1. Analyze system requirements. The system needs analysis process is carried out with the following stages:
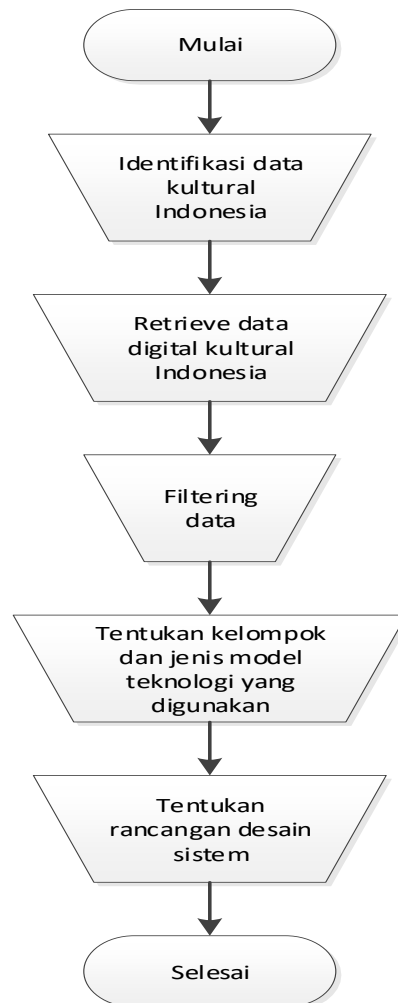
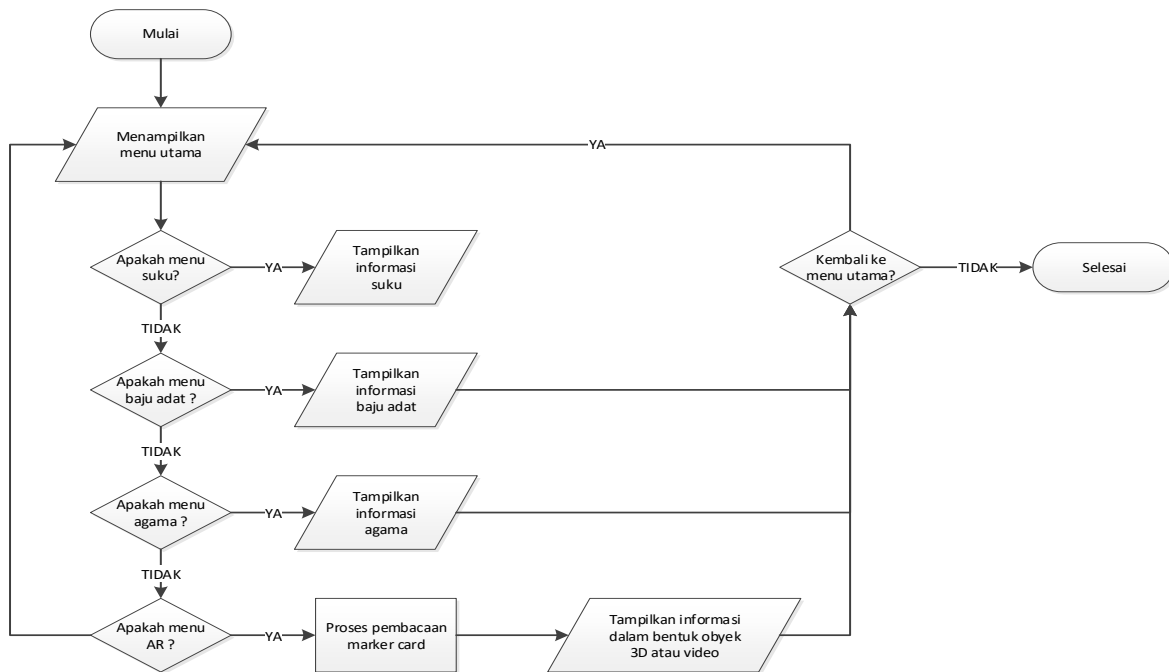Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 1. Stages of system requirements analysis

1. The first process will be the classification of cultural data based on the number of provinces. From the data of each province, cultural data from the majority of tribes that inhabit the province will be displayed. It will also display cultural data based on religious groups. Considering the Indonesian government officially recognized the existence of 6 religions namely Islam, Christianity, Catholicism, Hinduism, Buddhism, and Confucianism.

2. The second process is retrieving Indonesian cultural digital data. This is done by digging up digital cultural data including narrative descriptive data of each tribe, traditional clothes, traditional houses, traditional weapons, regional dances and special foods from the region.

3. The third process is filtering data. At this stage the process of selection, verification, and validation of the data that has been collected.

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4. The fourth process is determining the division of multicultural groups based on the type and model of technology used. For descriptive narrative data using the pdf text file format. For data that are descriptive exploratory in nature and require visualization using AR technology (Nugroho & Pramono, 2017) in the form of 3-dimensional objects and audio video file formats.

5. Design system design The system design of the Indonesia One application is designed using a structured analysis and design approach. The system design is depicted in the form of a flowchart, entity-relationship diagram, and Indonesia One application interface design.

6. Indonesia One application development was developed using the Java programming language.

7. Stages of system implementation are tested on students at the primary education level. This is done with the aim that can be known how the user's response to the Indonesia Satu application.

8. Stages of system maintenance is a supporting stage. This stage is carried out with reference to the results of system implementation. Through this stage, things will need to be added and corrected to the system so that the Indonesia Satu application runs better.

RESULTS AND DISCUSSION

The process flow for running the Indonesia One application is described in the flowchart as follows:

Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 2. Process flow of using Indonesia Satu application

When the user runs the application for the first time, the main page will be displayed as follows:

Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 3 The main page of Indonesia Satu Application
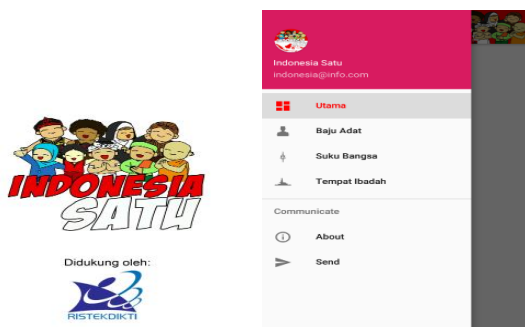
Through the drop-down menu feature, users can choose whether to display information pages about traditional clothes, ethnicity or religion, and beliefs that exist in Indonesia.

If the user chooses the custom dress menu, the application will direct the user to the following page:

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Source: (Tias, Alim, & Purbaningtyas, 2019)

Figure 4 The appearance of the application when the custom dress menu is selected

Users will be treated to the appearance of the application in the form of a complete map of Indonesia, on top of which is given a mini icon in the form of a variety of custom clothing models in accordance with the majority tribe who inhabit the province. To get more detailed information about each of the custom clothes, the user can choose one of the desired custom clothing icons.

Source: (Tias, Alim, & Purbaningtyas, 2019)

Figure 5 Example of detailed information about traditional clothes

As shown in Figure 5, users will get detailed information about the custom clothes that have been previously selected. In addition, visualization of traditional clothes in the form of photos is also displayed so that users have an idea of what the traditional clothing models of the tribe are like.

The appearance of the Indonesia Satu application will change if the user selects the "Suku" menu as shown in Figure 6 below:

Source: (Tias, Alim, & Purbaningtyas, 2019)

Figure 6 Appearance when the tribal menu is selected

The application will return to showing the full map of Indonesia in full. But this time accompanied by a mini icon in the form of weapons typical of the tribe. If one of the weapons icons is selected, then the user will get detailed information about the tribe as shown in Figure 7 below:

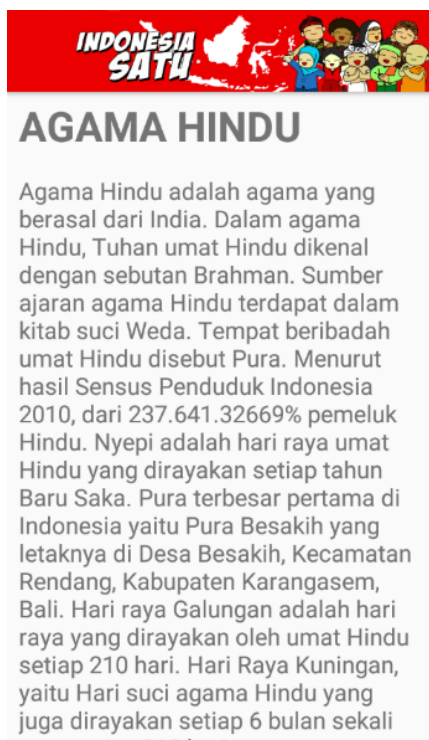Source: (Tias, Alim, & Purbaningtyas, 2019)

Figure 7 The example of detailed information on the Suku menu

In addition to information about traditional and tribal clothes in Indonesia, this application also provides information about religion and beliefs that are officially recognized by the Indonesian government. If the user chooses the religion menu, the application will return to display the entire map of Indonesia with a mini icon in the form of a place of worship from religion and the flow of belief. If one of these icons is selected, the user will get detailed information about the religion and the flow of beliefs as shown in Figure 8 and Figure 9 below.

In addition to displaying information about Indonesian culture in the form of descriptive narrative, this application also provides additional features of information display in the form of videos and animated three-dimensional objects. Video shows to provide information about regional dances in Indonesia. So that it will be easier for users of the Indonesia One application if you want to learn more about the dance movements.

Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 8 Appearance when the Agama menu is selected

Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 10 Video clip of a Papuan Sajojo dance

While the information in the form of three-dimensional animated objects is intended for information about regional specialties and also traditional houses in Indonesia.

Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 9 Display information about one of the Agama in Indonesia

Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 11 Three-dimensional animated clip for Lumpia Semarang

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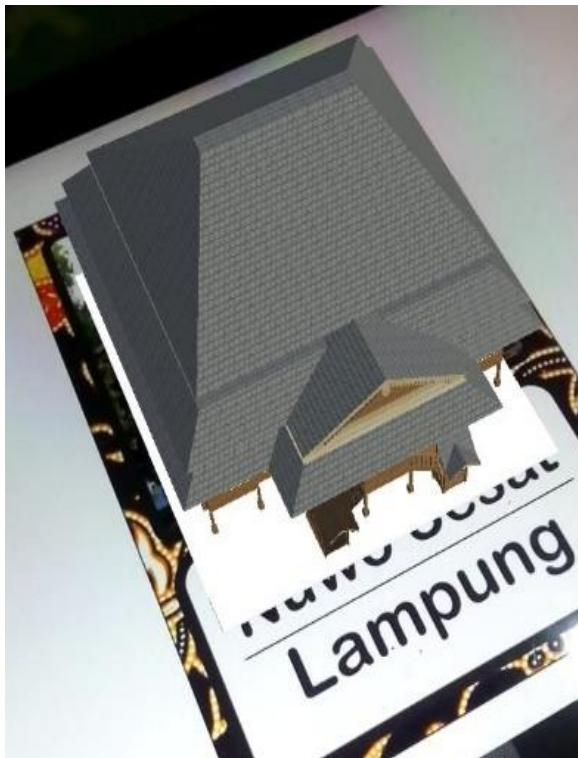
Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 12. Three-dimensional animated clip for a traditional Lampung house

To run video and animated three-dimensional objects, users must scan the marker card provided. Because this Indonesia One application also adopts Augmented Reality (AR) technology. Video and animation of 3-dimensional objects will only be displayed if the user's mobile phone device has succeeded in recognizing the object contained on the marker card.

Source: (Tias, Alim, & Purbaningtyas, 2019)
Figure 13. Example of a marker card in Indonesia One application

Before the application of Indonesia, One was widely released, this application needs to be tested to measure the extent of the feasibility of the system is made. Testing is done by black-box testing, which is testing software in terms of functional specifications without testing the design and program code (Iskandar & Hamdani, 2017). This test is intended to determine whether the functions, input, and output of the software are in accordance with the required specifications. The testing techniques applied include system testing, performance testing, installation, and load testing, and easy use testing (Purbaningtyas, 2019).

System testing is intended to test whether there are functions or modules in the application that cannot run properly. The test results show all the features contained in the Indonesia One application can run in accordance with the expected goals. Modules to display information about tribes, traditional clothing, religion, traditional food, regional dances to traditional houses can run without obstacles.

Performance testing is intended to measure system performance, one of which is by comparing this application with other similar applications. The test results show the performance testing of this application is superior. Apart from displaying information about more diverse tribes, it is not only one particular tribe. This application also adopts AR technology to increase user interest in using this Indonesia One application.

Installation and load testing is intended to determine whether the application can run properly without problems, both during the installation process and when it is run. The test results show that the application can run well on mobile phone devices that have minimum operating system specifications for Android 4.0 (Ice Cream Sandwich version). But unfortunately, this application requires a fairly large memory consumption of 720MB. This is because the data in the form of three-dimensional object animation and video clips are stored in the application storage. So it needs to be considered in the future, whether it is necessary to do data compression or change the storage location of the data.

Easy use testing is intended to determine the level of ease of use of the application for users. The test results show the user did not find significant obstacles while using the Indonesia One application. This application is quite easy to use. In addition, the use of a mini icon compared to using a pointer in the form of text is also considered easy for users when running this application.

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CONCLUSION

This research has successfully developed a mobile-based Indonesia One application that can be used as a means of multicultural digitization in Indonesia. This application is intended as an alternative solution for strengthening the nation's character education. Indonesia Satu application has gone through a black box testing process with system testing, performance testing, installation, and load testing as well as easy use testing. In general, the test results show that this application is eligible for testing. However, for further development, we need to think about data storage so that this application can be optimized.

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REFERENCE

Bassil, Y. (2012). A Simulation Model for the Waterfall Software Development Life Cycle.

Feriyanto. (2018). Nilai-nilai Perdamaian pada Masyarakat Multikultural. *Hanifiya: Jurnal Studi Agama-Agama*, *1*(1), 20–28.

Hartono, Y. (2011). PEMBELAJARAN YANG MULTIKULTURAL UNTUK MEMBANGUN KARAKTER BANGSA. *AGASTYA: JURNAL SEJARAH DAN PEMBELAJARANNYA*, *1*(1). https://doi.org/10.25273/ajsp.v1i1.125

Iskandar, B., & Hamdani, A. U. (2017). DESAIN DAN PENGUJIAN SISTEM INFORMASI JASA PENGIRIMAN BARANG STUDI KASUS : PT. XYZ. *SEMNASTEKNOMEDIA ONLINE*, *5*(1), 1-2–67.

Julaiha, S. (2014). Internalisasi Multikulturalisme dalam Pendidikan Islam. *Dinamika Ilmu*, *14*(1), 109–122. https://doi.org/10.21093/DI.V14I1.11

Kosim, M. (2012). URGENSI PENDIDIKAN KARAKTER. *KARSA: Journal of Social and Islamic Culture*, *19*(1), 84–92. https://doi.org/10.19105/karsa.v19i1.78

Lestari, G. (2016). BHINNEKHA TUNGGAL IKA: KHASANAH MULTIKULTURAL INDONESIA DI TENGAH KEHIDUPAN SARA. *Jurnal Ilmiah Pendidikan Pancasila Dan Kewarganegaraan*, *28*(1). https://doi.org/10.17977/JPPKN.V28I1.5437

Nugroho, A., & Pramono, B. A. (2017). APLIKASI MOBILE AUGMENTED REALITY BERBASIS VUFORIA DAN UNITY PADA PENGENALAN OBJEK 3D DENGAN STUDI KASUS GEDUNG M UNIVERSITAS SEMARANG. *Jurnal Transformatika*, *14*(2), 86. https://doi.org/10.26623/transformatika.v14i2.442

Purbaningtyas, R. (2019). Penerapan Fuctional Testing pada Uji Kelayakan Aplikasi Mobile Smart Malnutrition Detection. *Techno.COM*, *18*(3), 251–263.

Sutjipto, S., Wibowo, U. B., & Hastutiningsih, A. D. (2017). IMPLEMENTASI KURIKULUM MULTIKULTURAL DI SEKOLAH DASAR. *Jurnal Pendidikan Dan Kebudayaan*, *2*(1), 1. https://doi.org/10.24832/jpnk.v2i1.618

Tias, R. F., Alim, S., & Purbaningtyas, R. (2019). *Laporan Akhir Penelitian: Aplikasi Indonesia Satu: Digitasi Multikultural Indonesia Alternatif Media Penguatan Pendidikan Karakter Bangsa*. Surabaya.

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