Digital Education on Small Island: Maratua Island, Indonesia

Muhammad Badrus Zaman[1]*, Setyo Nugroho[2], Murdjito[3], Eko Budi Djatmiko[4], Wolfgang Busse[5]

***Abstract*— Indonesia has thousand islands to be developed. The total number of islands is 17,508. The potential that can be developed on a small island are environment, energy, transportation, education, information, and so on. In this study, focus is development of Maratua island, located in the district of Berau in East Kalimantan Indonesia. The potential of the island is development of marine tourism. In this case, Sustainable Island Development initiatives (SIDI) implemented to address the above challenges through multidisciplinary research activities. This research is starting from the transport sector, health, education, energy and implementation of information technology. In this context, the development of digital education is very important. This research provides solutions to the educational development of practical and suitable for the Maratua Island. This research develops the role of information and communication technology for teaching and learning activities island communities, examines the role of technology as a supplement teaching and learning process. In addition, this research also aims to design a physical architecture and digital education system that can be implemented in small islands in Indonesia, designing a learning method to support the teaching and learning process, and educating stakeholders about the concept of digital education.**

Keywords—digital education, maratua island, small island.

I. Introduction

Maratua Island is located in eastern Kalimantan, in the district of Berau and has four villages and a population of about 2700 people. The island is clear, beautiful and of course very suitable for tourist attractions. In this Island, a lot of tourists who visit the island for a vacation. We can utilize for diving, snorkeling, relaxing, barbecue and so on. Maratua Island is very nice if it continues to be developed. Those sectors are the environmental sector, water resources, health, transportation, education and so on.

Approximately 6,000 inhabited islands in Indonesia is the biggest challenge for business education equity. the quality of education is also a challenge that must be a solution. A significant difference both in terms of infrastructure and quality of education, became one of the causes of human mobilization in order to obtain a better education. This phenomenon will increase the value of economic necessity. The Government has been working to improve educational infrastructure in small islands, but the development of education infrastructure also requires the construction of another infrastructure including availability of electric power, transportation, and others.

Infrastructure development is not just a school, but also the provision of teaching and learning facilities, such as books, props and other things that require a source of funding.

II. Method

II.1 Education Based on Technology

Education based on technology is not a new concept. The use of technology in education has been implemented for a long time. The use of technology in education is widely used as a media to enhance the students understanding of the teaching material. Scheme of digital island shows in figure 1.

II.2 Education's application review

Digital system of education is not just changing the conventional textbook into a digital version, but also using applications which is facilitating the teaching process for better quality. Currently there are thousands of applications that exist in the world of education, both of which use the Indonesian and moreover use English. Thousands of these applications are still underdeveloped, lack of activity causes the application cataloging applications that education is nothing less can be used. Figure 2 shows an example of learning application.

Muhammad Badrus Zaman, Department of Marine Engineering, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia, Email: drus_zaman@yahoo.com
Setyo Nugroho, Department of Sea Transportation, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia, Email: snugroho@na.its.ac.id
Murdjito, Department of Ocean Engineering, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia, Email: murdjito@oe.its.ac.id
Eko Budi Djatmiko, Department of Ocean Engineering, Institut Teknologi Sepuluh Nopember, Surabaya 60111, Indonesia, Email: ebdjatmiko@oe.its.ac.id
Wolfgang Busse, Hochschule Wismar, Germany. Email: wolfgang.busse@hs-wismar.de

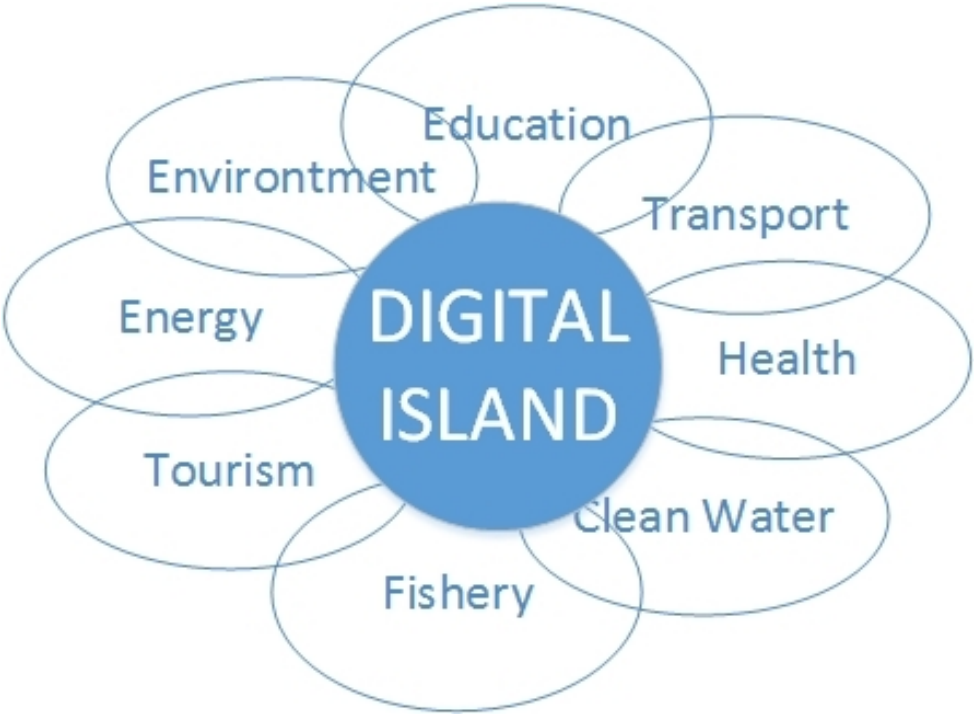
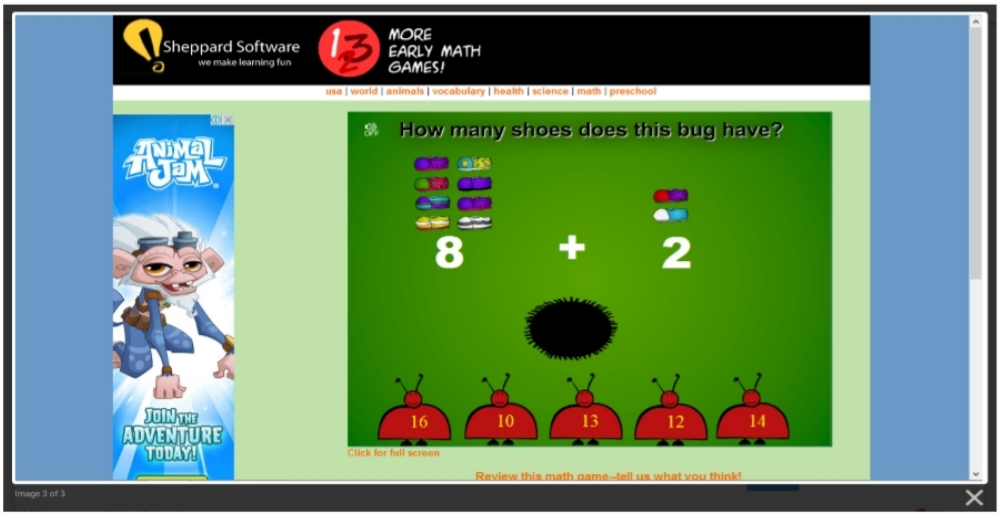


Figure. 1. Scheme of digital island

BUGABALOO



DESCRIPTION :
Bugabaloo is game based education application. Its a simple game application that suitable for kids to help them learn about some mathematics basic operation like addition and substraction. This applicaton come with fancy image and material.

Price : Free Platform : Web Tag :Bugabaloo, Mathematics, Kindergarten

Figure. 2. Example of learning application

III. Results and Discussion

III.1 Development's Scenarios

There are two scenarios for developing digital education,, firs, development of a network of digital systems and second is the development of applications in the classroom. figure 3, shows digital system network development scenario. In this context, the study establish the concept of crowd sourcing to update the database. Figure 4 shows the development scenario of implementation in the class. At this scenario, the learning was running comfortable.

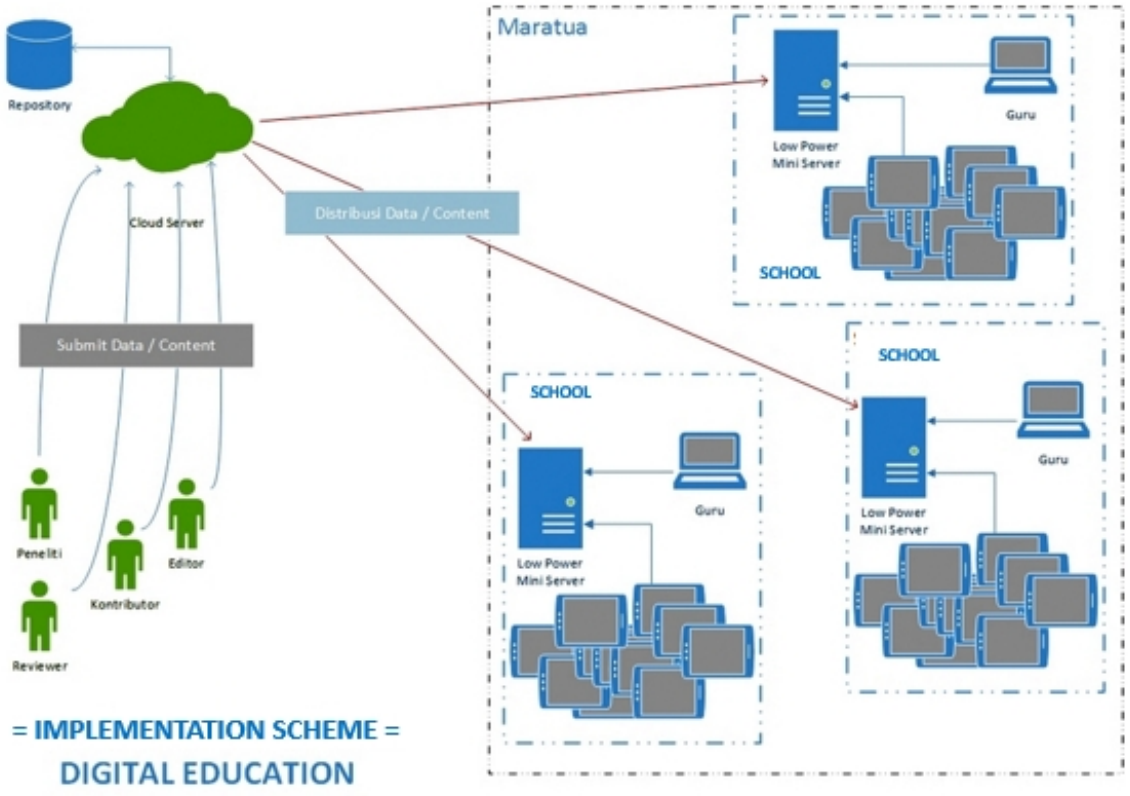


Figure. 3. Development scenario 1

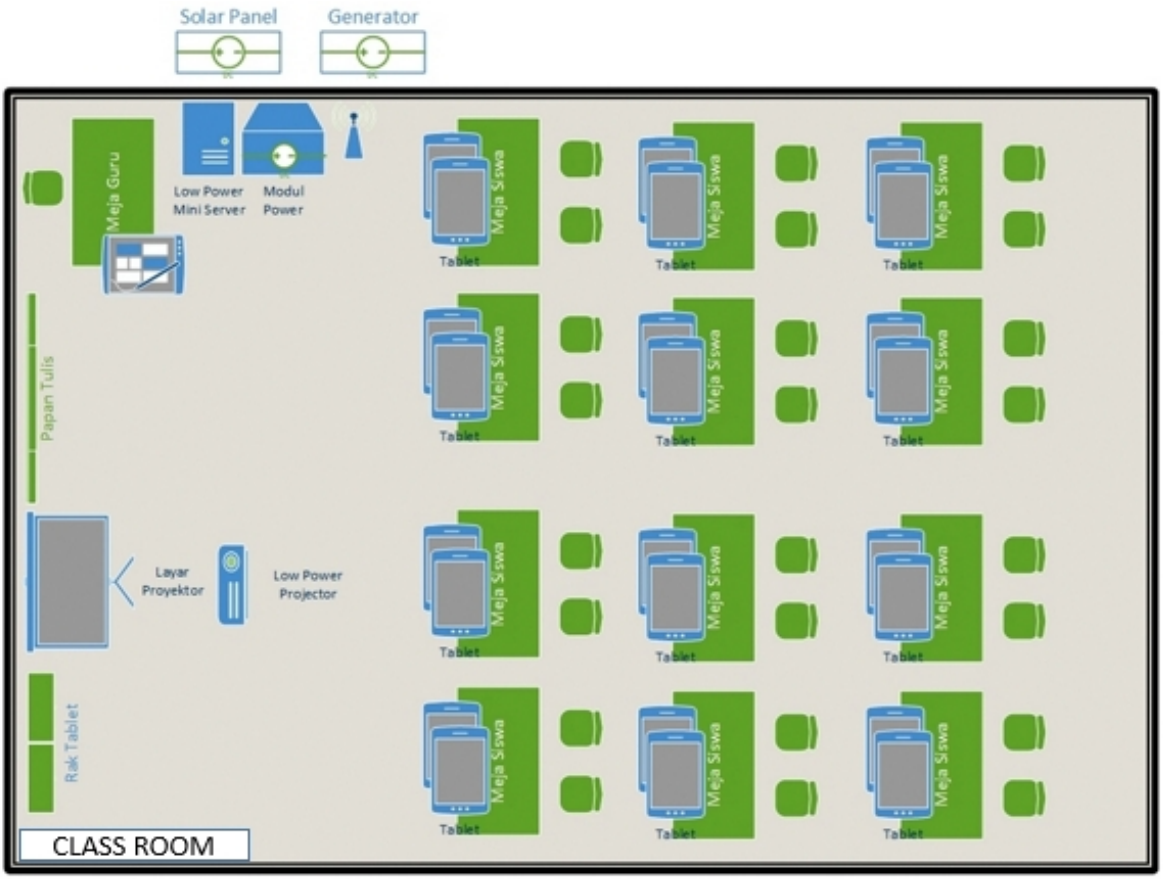


Figure. 4. Development scenario 2

IV. CONCLUSION

This study explores the development of digital education in Maratua Island. It is very important for the empowerment of small Island in Indonesia. The Maratua Island has prospective potential for tourism area. It is important to improve the quality of education as well. The concept of digital education will facilitate the learning process. Systems and applications that are built will continue to be evaluated for future improvements. In the next process, working with local government, industries and other partners will continue to develop digital education system at Maratua Island.

REFERENCES

[1] Busse, Wolfgang. (2010). Development of Human Resources of Indonesian Shipping-Opportunities for Cooperation of INSA. *INSA Seminar,* Jakarta.

[2] Nugroho, Setyo., Abidin, A. Zainal., Zulkarnaen, Ferdhi. (2009). Stowage Planning for Container Vessels: Methodology Development and Implementation Issues in The Light of Intelligent Transportation System Implementation. *International Conference on Logistic and Transport*, Chiang Mai-Thailand.

[3] Orr, Greg. (2008). Review of Diffusion of innovations by Everett Rogers, book.

[4] Wijnolst, Niko. (1995). Design Innovation in Shipping. Delft University Press.