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Recent Decisions in Technologies for Sustainable Development



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Recent Decisions in Technologies for Sustainable Development

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Recent Decisions in Technologies for Sustainable Development

Selected, peer reviewed papers from the
3rd International Conference on
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(ICSTD 2014),
October 30-31, 2014, Bali, Indonesia

Edited by

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Preface

This volume was selected from papers presented at the 3rd International Conference on Sustainable Technology Development (ICSTD Bali 2014), which have been held in Udayana University Bali during October 30-31, 2014. The conference was organized by Faculty of Engineering, University of Udayana Bali Indonesia. This conference covered wide range of engineering issues toward the achievement of sustainability.

In order to meet high standard of Applied Mechanics and Materials, the organization committee has made their efforts to do the following things. Firstly, all submitted papers have been reviewed by 2 anonymous expert reviewers, poor quality papers have been rejected after reviewing. Secondly, periodically review meetings have been held around the reviewers about three times for exchanging reviewing suggestions. Finally, the conference organization had several preliminary sessions before the conference. Through efforts of the scientific committee and Editors team, the volume will be the best collected papers.

We would like to thank the Faculty of Engineering, University of Udayana, the member of organizing and scientific committees, and also to TTP publisher.

Editors

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Tree Data Structure Implementation in Android Base System of E-Ulambebantenan

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Keywords: Data Tree Structure, Information System, Ulam Bebantenan, Android, Ceremony of Hindusm

Abstract: This paper describes the implementation of data tree structure for the application information system of ulam bebantenan. Ulam bebantenan complementary tool part of the offerings at a ceremony Hindusm in Bali. The structure of the data tree displays information about the data contained in a kind of ulam bebantenan. The data information is displayed in the form of the name of a ulam, ulam's function, description of ulam, recipe, until the methode of cooking of ulam bebantenan. Application of information system is built to be run on mobile devices with the Android operating system. This application provides information about the description text, images and video related to bebantenan side dish in Bali. Users acquire data with information from the application access to the server system.

Introduction

The system is a form of process information to deliver information to users in accordance with the requirements. Form of presentation of this information varies depending on the media used. Starting from the delivery of information using print, electronic, and internet.

Use of this information by the impact is felt throughout the wider community, especially people in Bali. Bali is one of the destinations most popular tourist destinations by the tourist. Bali known as one of the favorite tourist spot because one of them due to the spread of information about Bali through the use of media information system. Culture of Bali is one of the tourist part of Bali's most attractive to tourists. Religious ceremonies in Bali is one part of the Balinese culture that is certainly required to be preserved. Religious ceremonies in Bali covers various aspects that support the implementation of a ceremony for Hindus in Bali. *Upakara* and *ulam bebantenan* is one means of implementing a core part of Hindu ritual [1]. The existence of the *upacara* and *ulam bebantenan* and also *upakara* as support facilities, it is important to be preserved for all Hindus. Preservation of the *upacara*, *upakara* and *ulam* can be done by introducing an early age to the Hindus in Bali. The introduction can be done with practically and efficiently with when utilizing the technological advances developed at this time.

Technologies that are popular and rapidly growing technology today is a mobile device, or better known as smartphones. This technology is very popular because of its presence which has a variety of interesting features in it. These features include multimedia, games, until the network can be connected to the Internet. This internet networking features are most popular because of the internet in the smartphone community can facilitate in obtaining the desired information. The information can be obtained starting from lifestyle information today to the existence of Balinese culture itself. The existence of technology which is then combined with Balinese Culture associated with religious ceremonies would give the side a good lesson for Hindus in Bali. An effort to do is to design an application that can provide information about the activities of the ceremony along with *upakara* and also *ulam bebantenan* as a means of supporting the ceremony. Research related to the application of information systems has previously been done with a web-based, and there is currently done on the basis of the mobile. The current research activities are carried out is to design and build an information system application of mobile-based ceremony. This information system will be more to discuss about the ceremony means of support that is *ulam bebantenan*.

This bebantenan information system applications is expected not only beneficial to the Hindus in Bali alone, but for the wider community who also want to know more related to religious ceremonies in Bali along with *upakara* and *ulam*. The existence of this application was later also expected to preserve Balinese Culture.

Research Methodology

Construction stage of these applications through several stages or methods outlined in a research plot. The flow of research to be used as reference material in the execution of the application in order to take place as scheduled. The flow of research that consists of several stages. These stages include:

- a. Defining the problem: the first step before the study started was defining the issues raised in the study.
- b. The collection and study of literature is collecting data and information through a variety of literature sources. Literature sources used are taken from books, articles, journals, internet, final project, and so forth. Data and information obtained also obtained from the explanation by the relevant parties such as experts of *upacara*, *upakara*, and *ulam bebantenan*. Data and information gathered is then used as the basis for the design and development of application.
- c. The design of the application: the application design phase includes system design, database and interface design. The design of the application must have a mature concept that will facilitate the making of the application stage.
- d. Making an application: the process of making the application must be based on the literature and design have made. Making mobile based application using Eclipse tools Integrated Development Environment (IDE) with the Java programming language while on the server side web based PHP programming language used.
- e. Testing, error analysis, and repair applications: test carried out on both the overall application user interfaces and business processes of the system. Trial was conducted to determine the feasibility of the program. The test was also performed to detect any errors that may still exist in the system. Errors contained in the system will then be repaired until no more errors are found.
- f. Preparation of the report: this stage includes the preparation of a report that the overall research that has been done. Reports are made to explain the process of making an application that starts from background processing application, workflow processing application, a general description of the application until the final stage of completion of the application. This report is used as written evidence of the process of the application that will be used as a literature review for the next research work.

Upacara Yadnya, Bebantenan and System Modelling

Basic Concepts of Upacara, Upakara, and *Ulam Bebantenan* Etymologically the word *upacara* comes from the Sanskrit word *upa* and *cara*. *Upa* means around or appoint any means and means motion or activity. *Upacara* around the mean motion of human life or human activities in an attempt to link up with Hyang Widhi (God Almighty). The activities were not done arbitrarily, but based on Vedic scripture and religious literature were laid in various libraries[2]. *Upakara* is the means or equipment used in a ceremony. *Upakara* word consists of two syllables, namely: *upa* means around or anything related to, and *kara* means hand. *Upakara* means everything is made by hand or in other words is a means of offering everything from labor work)[3].

Ulam bebantenan is one part of the means of supporting offerings which serve as a means of execution ceremony. *Ulam bebantenan* is offering a sincere form of agricultural products such as animal or plant that is intended to be presented to Ida Sang Hyang Wasa Widhi. *Ulam bebantenan* usually found in the bebantenan means is lawar, bolsters, to sate and others. *Ulam bebantenan* also commonly referred to as *ben banten*. [4]

Data Tree Structure Modeling of ulam bebantenan is observed comprehensively from ulam classifications and equipments. Ulam classification uses the tree methodology for the analysis phase. Tree is a method to do modeling of system. This structure had specific characteristic and usually is used describing hierarchies relationship of elements [5]. Figure 1 drawn about the diagram tree structure of *ulam bebantenan* that describe about name of *ulam*, function of *ulam*, materials of *ulam*, tools of *ulam*, and also step to making *ulam bebantenan*.

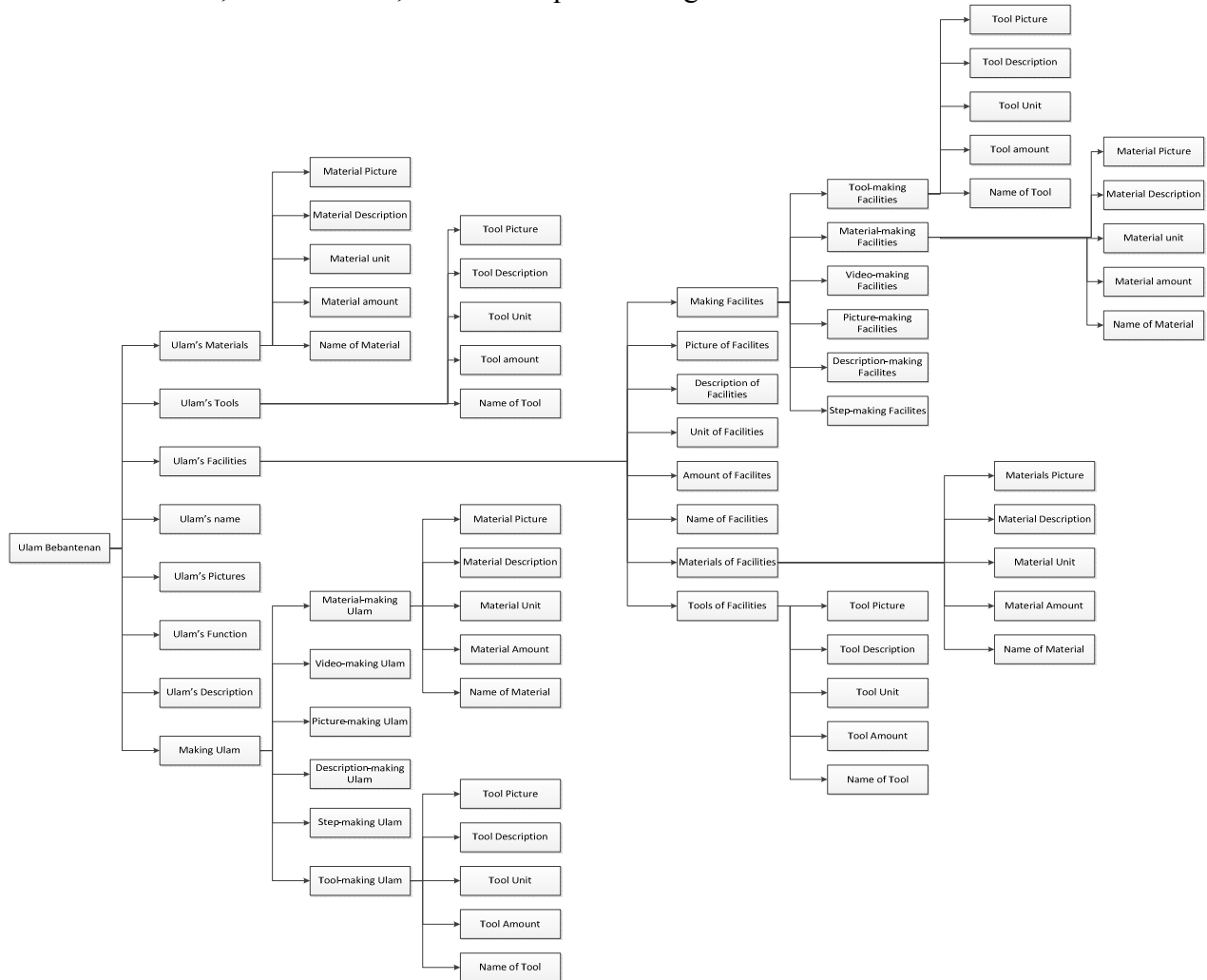


Figure 1 Tree Structure of *Ulam Bebantenan*

Ulam bebantenan is modeled by using tree method, which *ulam* is grouped by the *ulam* classifications, equipments and developing method, for example *Gerang Goreng* on in English called salted fish. Figure 2 shows the tree structure of *ulam Gerang Goreng*.

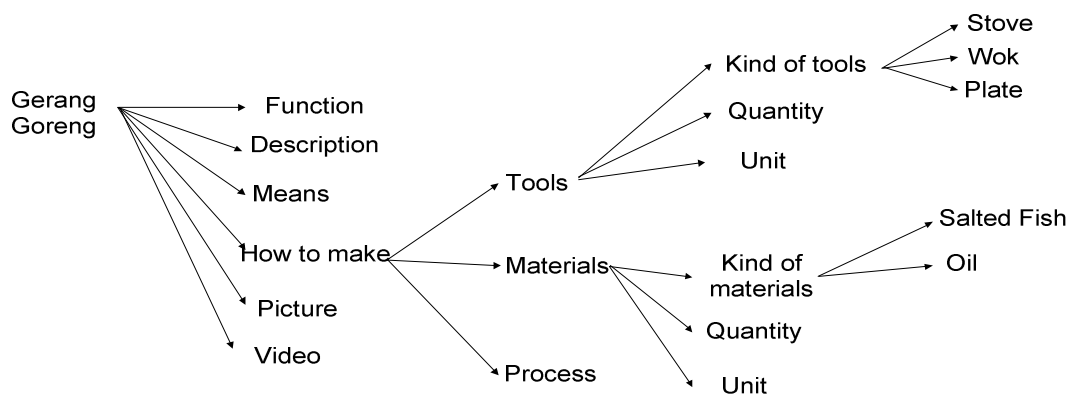


Figure 2 Tree Structure of *Ulam Gerang Goreng*

Information System

The system is a collection of elements that interact to achieve a certain goal. The system also describes the events and a real unity is a real object, such as places, objects, and people who really exist and occur. Information is data that has been processed into a form that has meaning and beneficial to humans (organization). Information is one of the essential components to support the presence of other factors such as capital, human resources, and others. Information system is a set of interrelated components that function to collect, process, store, and mendistriubusikan information to support decision making and pengasan within the organization. [6]

Figure 3 below illustrates the data flow diagram of the system information *ulam bebantenan*.

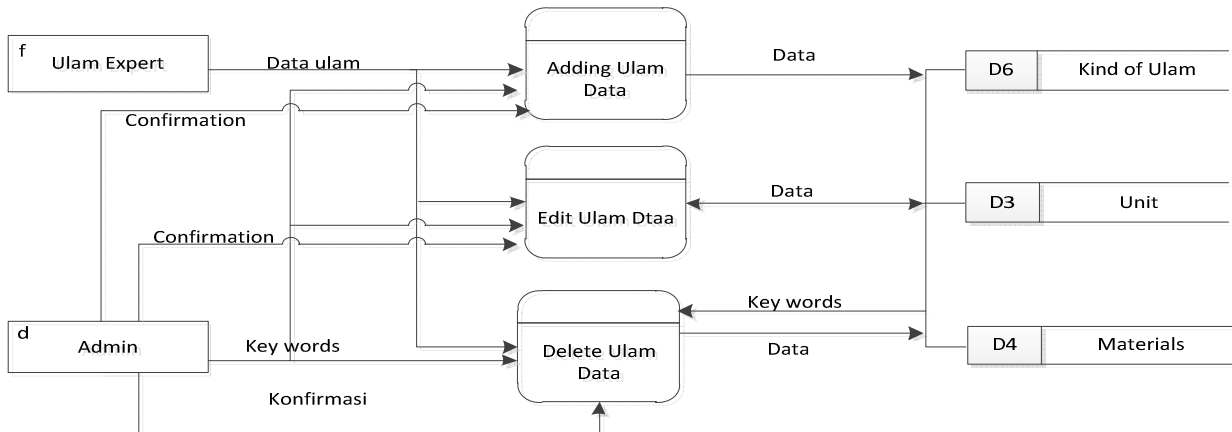


Figure 3 Data Flow Diagram of Ulam Bebantenan System

Result and Discussion

General Description of The System, The system consists of two sides that can be interconnected system with the help of a web service through the Internet network to manage updates to the database on the client application. Web Service is defined as an interface (interface) that describes a set of operations that can be accessed over a network such as the internet in the form of XML messages (eXtensible Markup Language). Web services provide standard communication between various applications of different software and can run on a variety of platforms and frameworks [7].

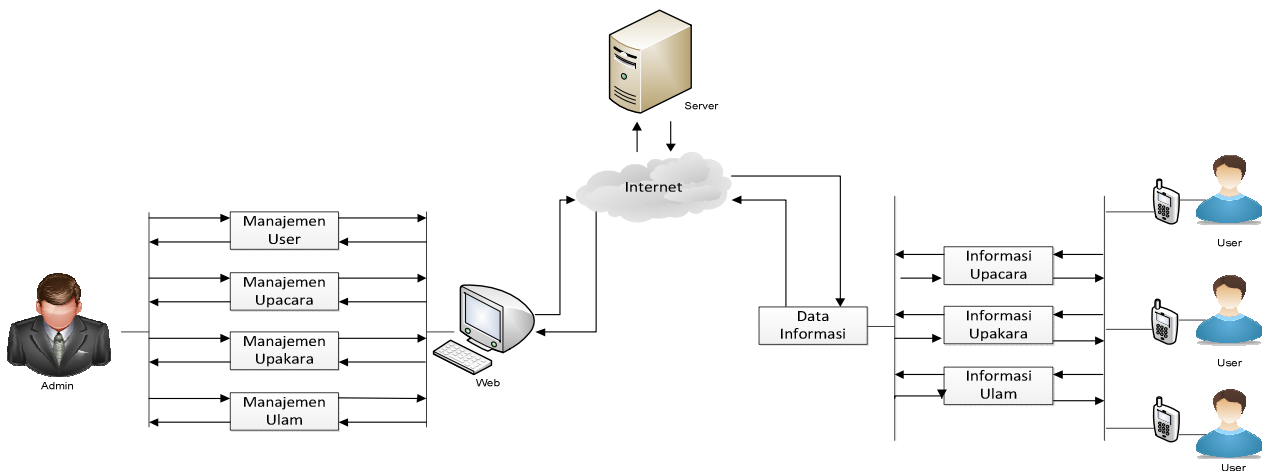


Figure 4 General Description of System

The client side is built on mobile applications with the android operating system, while the server side is built with a web base. Both of these subsystems are connected and communicate with the help of web services as depicted in Figure 4.

Application on the Client Side in the form of mobile applications with Android Operating System. Application on the client side, show about *ulam bebantenan* related information containing data such as text descriptions, images, and video. Data obtained through the user with a way to access the internet connection to the server system. Initially the user selects the data to be displayed, then the server sends the data selected by the user.

The information displayed is divided into several different menu tabs. Tab menu from the *ulam* menu consists of 6 tabs that include information tab, tab material, tab tools, tools tab, tab-making, and the use of tabs. Information tab contains general information related to the *ulam* in which there is a function, description, and also a picture of the *ulam*. Tab material, equipment, and facilities of each list containing materials / equipment / facilities owned by the *ulam* that also contained the number and satuannya. Tab-making is a tab containing an explanation regarding the steps to create the *ulam*. Tab is the tab that contains usage information list *upakara* / offerings that use the bebantenan *ulam*.

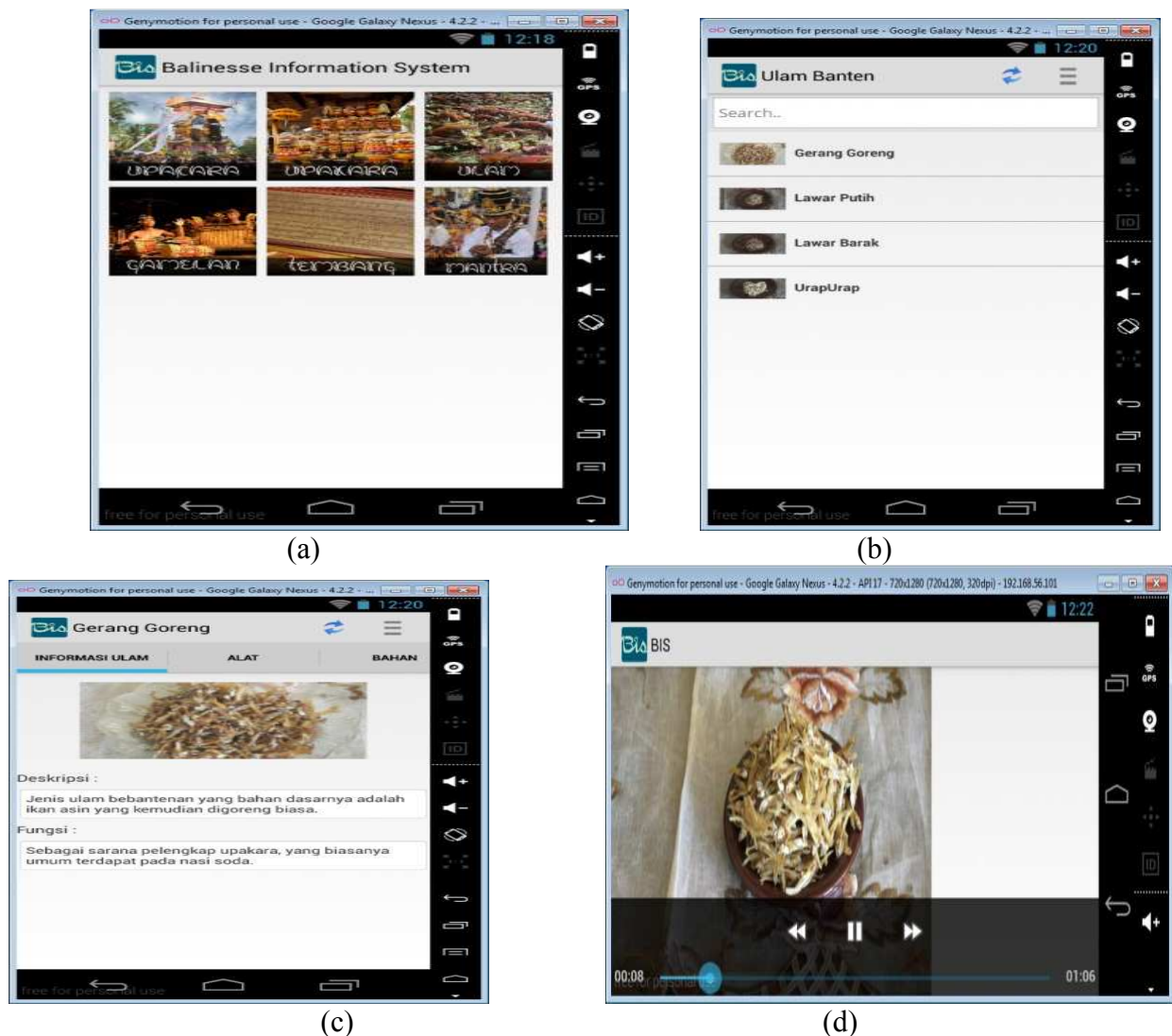


Figure 5 (a) Page View of Main Menu Application System, (b) Page View of Main Menu of Ulam Bebantenan, (c) Page View of One of the Ulam Menu (d) Page View of Ulam Video

Application on the Server Side Applications built with the base web server. This application is intended to manage or conduct the management of the data in the database system. Management is performed in the server application, these include the addition of data, alteration of data, deletion, until the data search. The data were processed in the application server, among other text data, image, and video related to the *ulam bebantenan*.

Conclution

Results and discussion related to information system applications of *ulam bebantenan* has been described in the previous discussion. Several conclusions can be drawn based on these explanations, among others:

- a. Tree data structure can be used to analyze and design *ulam bebantenan* system modeling. This method capable to describe standard *ulam* model that is both of *ulam* classification and properties.
- b. Information system applications of *ulam bebantenan* has been successfully display the data according to the structure of the tree diagram on android based mobile devices.
- c. This information system provides information about text descriptions, recipe, methode of cooking, images, and videos that are associated to *ulam bebantenan*.
- d. This system is integrated with other information systems such as information systems of *upacara* and information systems of *bebantenan*.

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