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Functional Database in Gateway-based Price Service System Basis Data Fungsional dalam Sistem Pelayanan Harga berbasis Gateway Sucipto 1, Fitra Bagoes Hariawan², Vivin Nurita³, Aditya Gusti Tammam⁴ 1234Information System, University of Nusantara PGRI Kediri 1234Kediri, Indonesia INFORMASI ARTIKEL A B S T R A K Received dd-mmmm-yyyy Revised dd-mmmm-yyyy Accepted dd-mmmm-yyyy Kata kunci : produk, harga pasar, informasi, gateway service _ _ Informasi harga produk menjadi salah satu hal yang sering diresahkan masyarakat karena informasi mengenai harga produk sering berbeda dikalangan penjual.

Padahal pemerintah telah melakukan keterbukaan informasi berupa standar harga pokok sebuah produk. Sesungguhnya standar harga produk dari pemerintah tersebut bertujuan untuk mengurangi perbedaan harga di kalangan penjual. Walaupun tidak bisa dipungkiri terdapat beberapa faktor yang membuat harga produk berbeda-beda. Misalnya faktor wilayah, transportasi, ataupun keterbatasan stok.

Ketika masyarakat telah memperoleh informasi harga dari pemerinta, masyarakat dapat melakukan perbandingan harga di pasaran. Namun keterbukaan informasi dari pemerintah terkait standar harga produk di pasaran yang uptodate masih melalui media internet. Media internet tidak dapat sepenuhnya diakses oleh semua masyarakat, khususnya masyarakat desa yang masih memiliki kawasan wilayah terpencil seperti Desa Gadungan Kab. Kediri.

Adapun alternatif teknologi untuk memfasilitasi keterbukaan informasi harga produk yang dapat diakses oleh masyarakat Desa Gadungan adalah teknologi gateway service. Teknologi gateway service dapat digunakan melalui media short message service (sms). Dimana teknologi ini dimulai dari perancangan sistem yang terstruktur. Perancangan

sistem melibatkan beberapa stakeholder yaitu pemerintah desa, pedagang yang terverifikasi, dan masyarakat desa.

Stakeholder tersebut memberikan sumbangan informasi harga pasar yang terverifikasi..

A B S T R A C T _ _ Keywords: product, market price, information, gateway service _ _

Product price information becomes one of the things that people often regret because information about product prices is often different among sellers whereas the government has made information disclosure in the form of standard cost of a product.

Indeed, the standard price of products from the government aims to reduce price differences among sellers although it is undeniable that there are several factors that make product prices vary. For example area factors, transportation, or stock limitations. When people have obtained pricing information from the government, people can compare prices on the market.

But the information disclosure from the government related to the standard price of up-to-date products in the market is still announced through the internet media when Internet media cannot be fully accessed by all communities, especially villagers who still have remote areas such as Gadungan Village Kediri regency. The alternative technology to facilitate information disclosure of product prices that can be accessed by the community of Gadungan Village is gateway service technology.

The gateway service technology can be used through short message service (SMS) media. Where this technology starts from the design of a structured system. System design involves several stakeholders namely village government, verified traders, and villagers. These stakeholders provide donations of verified market. _ _ Introduction Curenty, information has become a basic important necessity in the life of society.

Information can be obtained by traditional means and by utilizing technological progress. Information can be obtained through face-to-face meetings with other individuals (face-to-face) or it can be through various means / media available so it is not to require individuals to meet directly.

Obtaining information is a human right therefore public information disclosure is one of the characteristics of a democratic state that upholds the sovereignty of the people to realize good state administration, as stipulated in conctitution number 14 of 2008 on Public Information Disclosure (Republik Indonesia, 2008; Zulaikha & Paribrata, 2017)?.

The definition of Public Information based on UU KIP is information generated, stored, managed, transmitted, and received by a public body relating to state and other public

agencies and other information relating to the public interest (Republik Indonesia, 2008)?. Information can be delivered by various media both social media and print media so that the community has many alternatives that can be selected.

The ability of a government to manage information and produce quality public information becomes one of the factors that make the government become advanced in the field of community welfare (Rijati et al., 2015)?. Disclosure of information can affect many things, one of them in the field of economy is market price competition (Wiratraman, Muhtaj, & Kasim, 2015)?.

The market has the power of demand and supply that can move freely. Price competition is a reflection of the wishes of producers and consumers where demand reflects consumer desires, while supply reflects the wishes of producers or sellers. In perfect competition, it is necessary to know the number of buyers and sellers.

The number of buyers and the number of sellers can affect the market price. Perfect competition is the most ideal market structure, because this market system is regarded as a market structure that will ensure the realization of an efficient or efficient production of goods or services.

Thus, it can be defined that Perfect Competition Market is a market or industry structure where there are many sellers and buyers, and any seller or buyer can not affect the situation in the market. Gadungan Village is a fairly wide village with an area of 624,225 ha located in Puncu District of Kediri. The village of Gadungan is viewed in terms of topography is lowland (not beach) is in the north of t Kelud Mountain and in terms of soil fertility, land characteristics in Gadungan Village is sandy and is a rain-fed agricultural area because there is no technical irrigation. In general, soil fertility is in the medium category.

Gadungan Village has a variety of staple products and superior products that can compete. The products in the village of Gadungan should be published further. People generally know the products that they want to get, but information about prices often varies among sellers. In this case the government actually has a standard benchmark about the cost of a product.

Government price benchmarks are already able to reduce the price difference from the seller, but it is undeniable the difference will still always exist with factors such as territory, transportation, and stock limitations. In the era of information disclosure, the Government can apply information disclosure of up-to-date market prices through media such as digital media with internet technology.

Internet media technology cannot be fully enjoyed by many villagers, especially villagers who live in remote areas like the village area of ??Gadungan (Sucipto & Karaman, 2015)?. Technology that can reach the information market price disclosure in poverty village is through technology gateway service namely SMS media (short message service)(Thierry & Priyambodo, 2017)?.

Implementation of technology using SMS actually has been done by some central government, such as the trade ministry that can be accessed on page ews.kemendag.go.id and also on page infoharga.bappebti.go.id. Implementation of products by the central government can only be a little help in terms of price differences in the Gadungan Village due to technological factors that are not equally distributed and the price is still on a national scale.

The things that will be done to provide solutions to the difference in product prices in poverty villages is by applying the concept of sharing price information products using information technology through the media website and gateway service with SMS media. The system to be designed will involve several stakeholders namely government, verified traders and villagers.

The stakeholders will contribute information on the market price, so that the price will be obtained by the public is not a single price but there are three pricing information from the government, verified traders and the public. Literature review Information technology (IT) is **a generic term for** any technology that helps humans create, transform, store and disseminate information(Raymond Mcleod & Schell., 2007)?. IT combines high-speed computing and communications for data, voice and video.

Information technology includes all things related to the **process, use as a tool,** information management, and manipulation of information, therefore Information Technology has wide definition, namely all kinds of activities related to processing, management, manipulation, and transfer of information between media(Raymond Mcleod & Schell., 2007)?. SMS Gateway is an application system used to send and receive SMS for the benefit of broadcast via computer and computerized system.

Gammu is a service provided to build SMS-based gateway applications. SMS gateway application with gammu is free. Gammu as an application will work when the gammu command is executed in the shell environment and its commands are included according to function("Gammu," n.d.)?. Whereas as daemon, your gammu is marked by executing smsd command on the shell. In principle how the gammu work is connecting the modem / phone with PC.

SMS received on the modem / mobile will be taken by gammu to be moved into a pre-arranged database. Method **Action research is a study that focuses directly on social action.** Action research is **both qualitative and quantitative research** and it is a way of doing problems at the same time.

Based on the problems that have been formulated in this study the researchers used Action Research research methodology(Ernest, 2014)? ?. Figure 1. Action Research Result and Discussion This research was conducted with action research methodology. The initial stage is to do the Observation. Observation stage is done by direct observation to the field.

Analysis of the **field to determine the** existing problem is the spread of price information that still occur differences between one village area. Problems that have been obtained then submitted to the local village government. The researchers provide solutions to the problems and benefits of the system to be designed.

The system that will be applied **to solve the problem** is the gateway service system using SMS media. Media SMS selected because it is appropriate to apply in the village area. The second stage is reflect. This step is done by collecting data. The data to be used consist of government data, verified merchant data and village community data. Data retrieval is done gradually.

Initial stages of data retrieval is **in the form of** sample data for application testing. The data taken are the data of the staple. Government data taken are **in the form of** xls file. Data from merchants are **in the form of** data write. Traders are selected based on suggestions of criteria from village government. Traders come from grocery traders and market traders.

Data from the community are **in the form of** direct input to the application. Data inputted via SMS media. Socialization of information to the public regarding the use of price applications was through village information boards, village websites, and RT and RW(Neighbourhood) authorities. The third stage is plan. This stage determines the application development planning of the gateway service using SMS media.

The first stage of planning is to create a system architecture design. System architecture design is made based on observe stage. Architectural design **is shown in figure 2.** _
Figure 2. Gateway Service System Architecture in figure 2 consists of two Cloud servers. the database is a Cloud server. The database server is a leased server from a third party. Data security is a priority because it avoids frequent downtime servers caused by

unstable power flows.

Cloud server provider comes from IIX (Indonesia Internet eXchange). The database used is PostgreSQL. PostgreSQL selection is based on database reliability. The second server is the webserver. Webserver is a local computer located in the village hall. Webserver uses GNU / Linux Ubuntu operating system server 14.10. This **operating system is installed** into virtual operating system using VirtualBox application. The use of VirtualBox aims to facilitate the maintenance of applications.

Maintenance is easier because the village only needs to backup the main file from the gateway service system to the external hard drive. If there is a problem with the local computer, the user can simply restore the application to the new computer by using the copy command. Gateway service used in this application is gammu. Gammu **is an open source** application. Gammu can run without any front end application and only with database media.

Gammu acts **as one of the** SMS gateway modules in this application that connects database with web-based programming language. The gammu application will be linked to a local webserver that is connected to the database from the cloud server. Application access consists of two lines. **The first line is** access for application operators via web-based applications and the second line is community access via SMS.

Application operator records the cost of the government, while the price information of the merchants and the community through SMS The second stage of **planning is to determine the** material requirements. Needs of materials used is according to the needs in figure 2. Materials needed are described in table 1. Table 1. Material needs Gateway Service No _Material _Information __1 _Database Server _Cloud server VCPU 2Ghz Ram 2GB __2 _Webserver _Local PC Core2duo CPU 2GHZ Ram 2GB __3 _Modem _Modem GSM/GPRS, Dual Band 900/1800 Mhz Fully type-approved __4 _Phone Number _GSM Friendly Number __ Table 1 describes the architectural details contained in Figure 2. There are 4 staples in the manufacture of gateway service applications with SMS media.

Server hardware specification in table 1 is the requirement of this application. The needs in table 1 are reversed to village observations and capabilities in various areas such as financial capacity and application stability. The use of modem and gsm SIM is chosen because of the more affordable cost of SMS API service providers.

GSM SIM card is used so its nominal will be easy to remember (friendly). The third stage of **planning is to determine the** programming language. The programming languages used are the PL / pgsq and PHP languages. The selection of PL / pgsq programming

languages is used for the application of functions within the PostgreSQL database (Sucipto, Suhartanto, & Firliana, 2015)??.

Processing functions by the PL / pgsql programming language can process data faster than through PHP-based languages (Sucipto, 2017)??. The auto reply function of the application system is placed in the database. Visual access is through web programming. The selection of web programming is intended to application operator.

Database operators can process sms data such as adding staple data, merchant registration, merchant key data filters, and basic data on community reports. Script code data processing informed to the community is located on the price table. Script table prices as follows: create table harga(kode_h serial primary key, kode_b char(15) references barang(kode_b), harga int, id_harga char(2) default 'M', aktif_harga default 'N', time timestamp default now()); The price table script filters input from three sources: government, verified merchants and the public at large. The governing entity is id_harga and aktif_harga. System gateway service line can be seen in figure 3 Figure 3.

Flowchart Gateway Service The system flow in Figure 3 controls the sms of the people who **want to know the** price information of the product with the info keyword. In the flow of image 3 is limited sms reply as much as 10 sms. Added product on groove 3 with keyword price. When the keyword is wrong there will be a reply from the system.

The following message is delivered when the message with the keyword is incorrect "Maaf, anda salah (Sorry you are wrong) Format, type INFO <space> KONTENT or HARGA <space> CONTENT". Figure 3 flows can run with triggers created on the database. Here is the script code trigger auto_reply used: create trigger auto_reply after insert on inbox **for each row execute procedure** auto_reply (); Trigger auto_reply script runs when a message arrives on your gammu inbox table. Trigger auto_reply executes auto_reply function created based on flow table in figure 3.

Test function and trigger is to insert in inbox table. The following test code insert data pricing information and input price insert: insert into inbox ("text","udh","textdecoded","recipientid") values ('','harga 01 m 1000,'); insert into inbox ("text","udh","textdecoded","recipientid") values ('','info ketela,'); the key words to know the price is info(information) and to add goods is harga(price). harga are followed by some item codes that can be viewed on the village website as well as information by the village apparatus.

The fourth stage is act namely implementation and application testing. Stages of implementation is done by connecting the database server and webserver with the

application of web-based applications. The application is built using PHP and uses the adminLTE template. Here is the front end display for the operators of the gateway service system: Figure 4.

Application Login Figure 4 is an application login page used by the village administration to manage the application system. This page is only for village government. While for sharing the price of the community and traders can only use SMS. Figure 5 is a list of user managers of the application. Managers can add operators to manage those system apps. Figure 5.

Users List The application operators are the village apparatus or employee assigned by the village head. Only operators can access information over the web. Web access is only available for operators according to the observation step **at the beginning of the** search. Figure 6. SMS List of Goods' Cost Figure 6 is **a list of items** that can be known their information sharing price.

List of products not included in the system can not be known their information sharing price. The price list will also be published on the website to facilitate product information. Figure 6 is a sharing of prices from communities, traders, and village governments. Prices that are shared with the community and traders will be filtered by the village government to avoid unclear pricing information or avoid price spam so that people get the best information. Figure 7. Chart of Staples Price Conclusion Figure 7 is an application report graph.

The graph consists of **the average price of** the stakeholders. This chart report can help the government in controlling prices in the village area. The results obtained after testing the built-in prototype functionality show that all functions work well because the built prototype meets functional and user requirements. Usability testing of the system is built to use test for the level of effectiveness, efficiency and satisfaction(Rubin, J., & Chisnell, 2008)?.

After analyzing the usability test results, the usability score of the built prototype was 88.3%. Summary of usability test results **is shown in Figure** 8. Figure 8. Usability Testing This test is intended to ensure that the performance of the application **in accordance with the** planning. The application effectiveness rate is in the range of 89%, the application efficiency level is in the range of 90% and the rate of application satisfaction is in the range of 86%. Conclusion Based on the discussion and analysis, this study gives a good result seen from the test average score on usability is 88.3%.

The use of the application is expected to help the public in getting more varied price

information so as to achieve perfect price competition with information technology using gateway service method. Application development can be done along with the development of internet access technology infrastructure in Gadungan village. The development of a good Internet infrastructure is marked by the transformation of SMS technology into the Social Media Chat API technology thereby saving more SMS transaction costs. References

Ernest, T. S. (2014). *Action Research*. New York: Sage Publications, Inc. Gammu. (n.d.). Retrieved May 12, 2018, from <https://wammu.eu/gammu/> Raymond Mcleod, J., & Schell., G. P. (2007). *Management Information Systems*. New Jersey: PEARSON Education. Republik Indonesia.

Peraturan dan Perundang - undangan Undang-Undang no. 14/2008 tentang Keterbukaan Informasi Publik (2008). Indonesia. Rijati, N., Widjajanto, B., Santoso, D. A., Informatika, T., Komputer, F. I., Dian, U., ... Semarang, N. (2015). DESAIN DATABASE PENDUKUNG LAYANAN INFORMASI. *Techno.Com*, 14(2), 115–121. Rubin, J., & Chisnell, D. (2008). *Handbook of usability testing* [electronic resource]?: How to plan, design, and conduct effective tests (2nd ed.).

Indianapolis, IN: Wiley Pub. <https://doi.org/10.1007/s13398-014-0173-7.2> Sucipto, S. (2017). Perancangan Active Database System pada Sistem Informasi Pelayanan Harga Pasar. *Jurnal INTENSIF*, 1(1), 37–45. Sucipto, S., & Karaman, J. (2015). Perancangan Sistem Informasi Strategis Balai Desa Gadungan Untuk Integrasi Sistem Informasi Publikasi.

In Seminar Nasional Teknologi Informasi dan Multimedia 2015 (p. 2.3-31-2.3-36). Yogyakarta: STMIK AMIKOM Yogyakarta. Sucipto, S., Suhartanto, A., & Firliana, R. (2015). Representasi Fuzzy Tsukamoto Menggunakan Fungsi PL/PgSQL Dan Check Constraint. In Seminar Nasional Teknologi Informasi dan Multimedia 2015 (p. 4.5-7-4.5-12). Yogyakarta: STMIK AMIKOM Yogyakarta. Thierry, M., & Priyambodo, T. K. (2017).

SMS and Web-Based e-Government Model Case Study: Citizens Complaints Management System at District of Gihosha –Burundi. *IJCCS (Indonesian Journal of Computing and Cybernetics Systems)*, 11(1), 67. <https://doi.org/10.22146/ijccs.17167> Wiratraman, H. P., Muhtaj, M. El, & Kasim, I. (2015). RIGHT TO ACCESS INFORMATION IN DECENTRALIZED INDONESIA?: A SOCIO-LEGAL INQUIRY. *Jurnal Media Hukum*, 22(1), 17–35. <https://doi.org/10.18196/jmh.2015.0045/> Zulaikha, & Paribrata, A. I. (2017). Implementasi Kebijakan Keterbukaan Informasi Publik di Jawa Timur Tahun 2016. *Jurnal Studi Komunikasi*, 1(July), 131–162. <https://doi.org/10.25139/jsk.v1i2.168>

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