MOBILE APPLICATIONS FOR GAS FINDING

Rita Afyenni¹, Rika Imdayanti², Refni³, Intan Pratama Kirana⁴, Fitri Nova⁵

¹ Information Technology Department, [Politeknik Negeri Padang]*

Abstract. Current conditions show that almost all Indonesian households use gas as fuel for cooking, but the availability of Liquid Petroleum Gas (LPG) is not proportional to the number of user needs. This condition makes it difficult for the community to get it. Sometimes they have to search directly to each gas station to get information about the availability of gas. Mobile applications for gas finding that have been made, help the community especially in Padang city to find a gas station that still has a stock of gas. This application is equipped with the name of the Gas Station and location map feature. This application can be accessed using an Android smartphone.

1. Introduction
The use of gas stoves in Indonesia as a household need is very common, especially since the Government's success in converting the use of kerosene to the Liquid Petroleum Gas (LPG). Until 2015 Pertamina managed to distribute 57.19 million starter packs of 3 kg LPG. In 2018 based on the Decree of the Minister of Energy and Mineral Resources, Pertamina received a mandate to carry out the supply and distribution of 531131 packages of 3 kg LPG to prospective recipients of the first selected package[1]. These conditions make the community's need for LPG consumption increasing, starting from gas measuring 3 kg, 5.5 kg and 12 kg.

The conversion of kerosene to LPG has both positive and negative impacts on the community. One positive impact of this conversion is increased business opportunities in the distribution of LPG gas. Many people use gas as stove fuel because the cooking process will be easier and faster compared to using firewood as stove fuel. Thus, the sale of gas is a good opportunity for business. While the negative impact is the difficulty of consumers in finding LPG gas, due to the uneven distribution of gas bases in various places while its use has been evenly distributed among the people. Information regarding the availability of LPG gas at each LPG gas selling agent is also difficult to obtain, sometimes the user community must visit directly to the location of the gas base. Sometimes he has to visit several places first to get the gas he needs. This certainly makes it difficult for the gas user community.

Many increasingly sophisticated Android applications that can be used by everyone, this is due to the development of mobile technology[2], [3], [4], [5]. To solve the gas problem as described previously, it is necessary to make an application to overcome the problems that occur. With this Gas Finding Application created, the user community can find out the location of gas sales in the surrounding environment, and the existing gas stock at the base because the gas stock data will always be updated by each gas station owner. This application is equipped with added tracking to assist users in searching for gas. This application can be accessed by android smartphone [6].
2. Methodology

Data collection methods carried out in the form of observation and literature study [7]. Activities carried out in observation are collecting data through field research and requesting data from gas base agents. Data collected are types of gas, gas bases, gas stocks, gas prices, latitude and longitude, photos of gas bases, and other supporting information. Activities carried out in the literature study are collecting data from printed books relating to the application.

Application Development Methods are carried out using stages: 1) analysis, 2) design, 3) making program code using the appropriate programming language, 4) testing and implementation. In the analysis phase, the process of processing data that has been collected is done so that things that become the application needs to be obtained. Activities carried out at the design stage are designing user interfaces for user needs and their databases. At the stage of making program code activities translate the design into program code using the appropriate programming language. The programming languages and tools used are PHP and Android Studio [8], [9], [10]. This activity also creates a database that will be used on the application. At the test and implementation phase is testing the application that has been made to the implementation location, testing the route shown on the map, and submitting the application to the owner of the gas station.

3. Result and Discussion

The application is designed to facilitate use by three types of users, namely 1) people who need gas finding, 2) application administrator and 3) gas station owner. Each user has a different menu feature. Menu features provided for people who need gas finds are a list of gas bases, information about the gas station, and maps to the location of the gas station. The menu features provided for application administrators are the processing of overall gas data and the data of the application user community. The owner of the gas station is given the right to access the server directly to the web. Gas station owners are also given a special Android application to change their gas stock, but they are not given the right to change the gas stock data at another owner's gas station.

One of the tools for application design used Unified Modeling Language (UML). UML is one of the architectures used to describe object-oriented programming architectures [11], [12]. Figure 1 shows the use case diagram for data processing needs on the server, there are two actors namely 1) the admin as the person who can manage all the data, 2) the gas station is the person who can only access their data station.
Figure 1. Use case diagrams for the web

Figure 2 shows a use case diagram for the community that uses gas finding applications. Figure 2 explains the two actors, namely 1) the user is the community looking for gas, 2) the gas station is the person who will change the gas stock data.

Figure 2. Use case diagrams for Android

Some views for Android applications that have been made, can be seen in Figure 3 and Figure 4.
4. Conclusion
Gas Finding Application using mobile has been successfully created to provide information and tracking the location of the gas station in Padang city. This application uses maps from Google Maps, so that it can provide location information and tracking the location of each gas base in the city of Padang. This application is a means to facilitate users in finding a gas station and find out the gas stock provided. The results of this activity aim to identify the problems that occur and the things needed by the user.

References

[1] Pertamina, “Pertamina Terima Mandat Kelanjutan Program Konversi Minyak Tanah ke LPG,” 2018. [Online]. Available: https://www.pertamina.com.

[2] Frans Richard Kodong and Yuli Fauziah, “Pengembangan Aplikasi Smartphone Tracking untuk Monitoring Pergerakan Kurir Pendiistribusi Barang pada PT. Synergy First Logistics Yogyakarta,” TELEMATIKA, vol. 14, no. 1, pp. 38–47, 2017.
[3] A. S. and K. S. S. Elisa, Febi Safitri, “Perancangan Aplikasi Ketersediaan Obat pada Apotek di Kota Medan Berbasis Android,” in SENSASI, 2019, pp. 369–373.

[4] Y. S. and I. Hafiza Aswin, “Aplikasi Pencarian Lokasi Panti Asuhan di Kota Ambon Berbasis Mobile,” ILKOM, vol. 10, no. 3, pp. 338–343, 2018.

[5] S. A. and R. E. C. Devi, “Implementasi Global Positioning System (GPS) dan Location Based Service (LSB) pada Sistem Informasi Kereta Api untuk Wilayah Jabodetabek,” SISFOTEK Glob., vol. 7, no. 2, pp. 27–33, 2017.

[6] I. N. P. and A. A. K. A. C. W. I Made Widnyana, “Aplikasi Sistem Informasi Geografis Bengkel di Kota Denpasar Berbasis Android,” Merpati, vol. 3, no. 1, pp. 23–30, 2015.

[7] A. Kristanto, Perancangan Sistem Informasi dan Aplikasinya. Yogyakarta: Gava Media, 2018.

[8] M. A. A. and M. K. Angga Hendri Kusuma, “Perancangan dan Implementasi Pencarian Lowongan Industri Menggunakan Metode Simple Additive Weighting (Saw) pada Android,” Jartel, vol. 8, no. 1, pp. 162–167, 2019.

[9] M. B. K. and M. W. S. Seng Hansun, Pemrograman Android dengan Android Studio IDE. Yogyakarta: Andi, 2018.

[10] A. Kadir, From Zero to A Pro Pemrograman Aplikasi Android. Yogyakarta: Andi, 2013.

[11] I. and A. F. Sugeng Santoso, “Aplikasi Monitoring Rumah Kos Berbasis Android di Kota Tangerang,” Maklumatika, vol. 5, no. 2, pp. 129–139, 2019.

[12] L. D. S. and R. Amanda, “Aplikasi Penjualan Barang Tunai dan Kredit pada Toko Komputer Rizcom Madiun,” AKSI (Akuntansi dan Sist. Informasi), vol. 3, no. 2, pp. 72–81, 2018.