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Gamification on Cryptocurrencies to Increase Public Investment Interest

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ABSTRACT

The development of cryptocurrencies continues to experience a very rapid increase with the prediction of average growth of more than 1 million investors every month around the world. However, it is different in Indonesia, people do not know widely what cryptocurrency is and how to invest in cryptocurrency. The Indonesian Ministry of Trade noted that in the second quarter (Q2) of 2020, cryptocurrency investors experienced an increase of up to 6.4 million investors, but when compared to the total population of Indonesia, this figure is still very far below 1%, plus economic conditions after the Coronavirus pandemic are getting worse. discourage people from investing. When viewed from the fundamental side, cryptocurrency assets can be said to be quite strong against the pandemic, compared to the stock market and mutual funds listed on the Indonesian stock exchange (IDX) which have decreased due to the coronavirus pandemic. In this study, we propose a gamification method by focusing on the introduction of cryptocurrency investments with the aim that people in Indonesia can be more familiar with and invest in cryptocurrency, the methods, and systems that we propose will at the same time reward users in the form of crypto assets to attract people to better understand the opportunities. investing in cryptocurrency.

1. Introduction

The development of the investment world continues to increase from year to year marked by the increasing number of investors in various fields of financial products in Indonesia and globally. Investment is an activity in the economic world by investing, either directly or indirectly, with the hope that in the future the owner of the capital will get many benefits from the investment (Paranita, 2015). Investments can be made in various ways and using several valuable products which are referred to as assets or instruments. There are several types of investment products, including stock markets, shares, equity funds, bond funds, building loan contracts, endowment life insurance, bank savings, and Federal treasury notes (Sachse et al., 2012), other investment products are capital markets and cryptocurrencies.

This diversity of investment types provides many choices for people to invest. However, some products and types of investment are still unknown to the general even though they have very good value and potential for the future. One type of investment that is still rarely known by the public is cryptocurrency. Cryptocurrency, or cryptocurrencies (cryptocurrency) is a collection of binary data designed to serve as a medium of exchange in which records of individual coin holdings are kept in a ledger which is a computerized database using strong cryptography to secure transaction records, to

control the generation of additional coins, and to verify the transfer of coin ownership (Andy Grenberg, 2011). Cryptocurrency is a digital currency that runs on blockchain technology (Hileman & Rauchs, 2017).

Some of the cryptocurrency products that some people use as an investment instrument is Bitcoin, Ethereum, Texoz, and many more. The number of assets in cryptocurrency digital currencies has reached thousands, so people should be able to freely choose what coins they will use as investment instruments. Investment interest in someone can be increased by using technology. The right concept in this millennial era is to combine games to convey knowledge or information to users (Widarti & Emanuel, 2020). In today's era, the gamification technique is an increasingly popular technique to be applied in learning applications by using game design elements to enhance non-game contexts (Aguilar et al., 2018). The advantages of gamification are, among others, that gamification is considered a technology with high potential and can be applied across industries, such as retail, media, consumer goods, and health (Blohm & Leimeister, 2013; Conaway & Garay, 2014; Koivisto & Hamari, 2019; Seaborn & Fels, 2015). In making gamification there must be elements of knowledge, hands on, and a sense of happiness when playing it so that it will be more exciting and not boring as well as a different traveling experience.

In this study, a method using gamification is proposed to provide wider knowledge and basic understanding to the public about cryptocurrencies to increase their investment interest in the field of digital currency or cryptocurrency. By applying the gamification method, it is hoped that it can provide solutions for exploration and increase public interest in cryptocurrency investment. The gamification approach used consists of game mechanics, and to play dynamics to increase interest in learning crypto investment so that they are interested.

2. Literatur Review

The application of gamification has been carried out since several hundred years ago to provide an understanding of something in society. Research topics related to the implementation of gamification also exist in various fields. Research conducted by (Intawong & Puritat, 2021), regarding the presentation of a mobile gamification development framework for conducting health promotion applications, this method consists of four phases adapted from the spiral model: goal setting for positive health promotion; core game flow and definition of mechanics; development, testing, and evaluation; as well as iteration plans for users. Research from (Li, 2018) on the teaching of economics using technology designed for the teaching system. Gamification is also used in the field of disaster (Arinta & Emanuel, 2020), university learning (Alsubhi & Sahari, 2020), economics (Moreno-Delacruz et al., 2021), and also in engineering (Tsiatsos, 2020).

Other researches in the field of gamification continue to be carried out with many applications in various sectors, such as gamification in the business field conducted by (Shu et al., 2011), which focuses on the application of gamification in areas to understand business which has a category that is difficult to understand. Another but similar research in the field of business was carried out by (Vinichenko et al., 2016), where the research focused on identifying modern views on business gamification but mainly focused on the theoretical aspects of applying gamification in various sectors of the economy, as well as best practices for the application of game techniques. In the application of gamification to business and the economy, research is also carried out to propose attractive designs for gamification in business so that the proposed gamification is more effective and attractive (Kappen & Nacke, 2013). Gamification is also used to educate employees in all industries to fully understand their core business (Wünderlich et al., 2020), gamification is also implemented in the service industry and largescale companies (Hugos, 2012; Korn & Schmidt, 2015).

In the gamification design, there are design elements including points, levels, badges, leader boards, prizes and awards, progress bars, storylines, feedback (Aldemir et al., 2018; Sailer et al., 2017). With these elements successfully applied to increase end-user engagement, satisfaction, and task performance in different domains, effectiveness is often mixed, highly contextspecific, and varies between individuals. Gamification also provides commitment, motivation for users (Buckley & Doyle, 2016). In the business sector, gamification has collaborated with IoT with the proposed concept based on blockchain technology to provide a tokenized economy where IoT solution providers can implement gamification techniques using smart contracts to maximize profits during service supply and demand (Gheitanchi, 2020b, 2020a) and also their implementation. used in mining where research results show that a gamification-based approach distributes mining work among many participants by increasing their motivation to participate in mining work.

The implementation of gamification is also carried out in the media sector, namely, by using an adapted Proof of Authority consensus algorithm concept approach, together with a weighted ranking algorithm, which serves as an incentive mechanism in the gamification component to determine the integrity of fake news (Kano & Nakajima, 2018) and by utilizing game discover Davinci to understand learning about blockchain (Chen et al., 2020). In addition, gamification is also used to measure student learning success factors in management by adopting the CAN (Cognitive Affective Normative) model to explore the intention to use serious games (Suvajdzic et al., 2020).

In this research, we are committed to blending business and cryptocurrency to provide a basic to intermediate understanding of blockchain and cryptocurrency in the investment field. The large investment opportunities in the crypto sector make this research interesting to continue to do and develop. This study aims to design a prototype cryptocurrency investment design using gamification to provide information, knowledge, and experience in the world of crypto investment to the public.

3. Research Method

The research methodology proposed in this research article has several stages, namely a library study which also includes field studies, data collection, system requirements analysis, especially on the criteria needed for cryptocurrency, prototype design and design, evaluation, and prototype testing. A research flow chart is a research workflow from start to finish. The researcher adopted the research flowchart from (Widarti & Emanuel, 2020) however, updates are highlighted through the red box lines to provide newness and differences from previous studies as a contribution to this study. The flow chart of the contribution of this research is as shown in Figure 1 below.

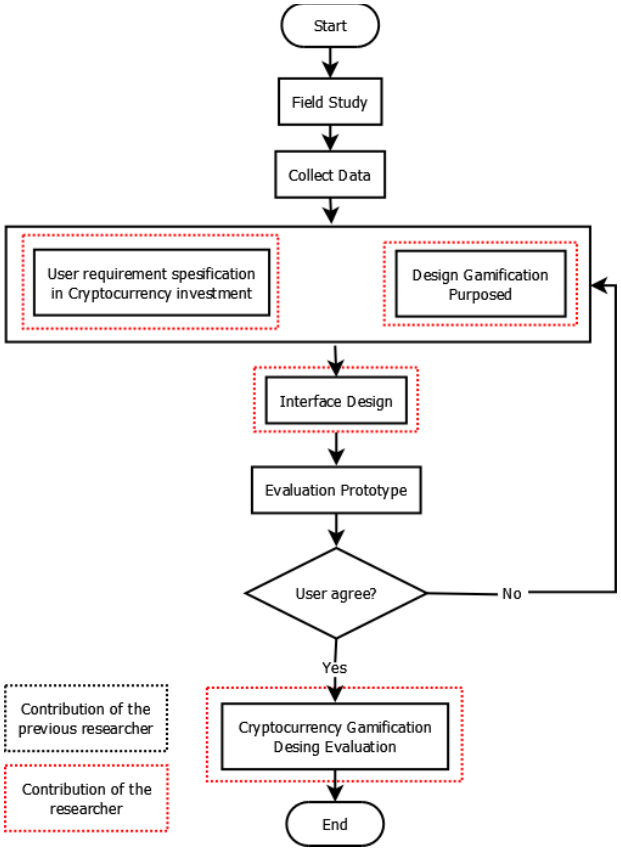

Fig.1. Flowchart research

Figure 1 describes the research contribution diagram. Contributions to this study are shown in red boxes, and adoptions of previous studies are highlighted in black. The contribution of this research is to identify users and design to provide an overview of cryptocurrency to users and their benefits in the investment field that have profitable opportunities in the future. The prototype design focuses on user design with a gamified approach to facilitate the delivery of information and explore knowledge about cryptocurrencies and their associated assets. The gamification design consists of dynamic gameplay

and game play mechanics. After the prototype design is complete, an evaluation is carried out by collecting feedback from users about the gamification system that was built.

The prototype design flow of the built gamification system is shown in Figure 2 below.

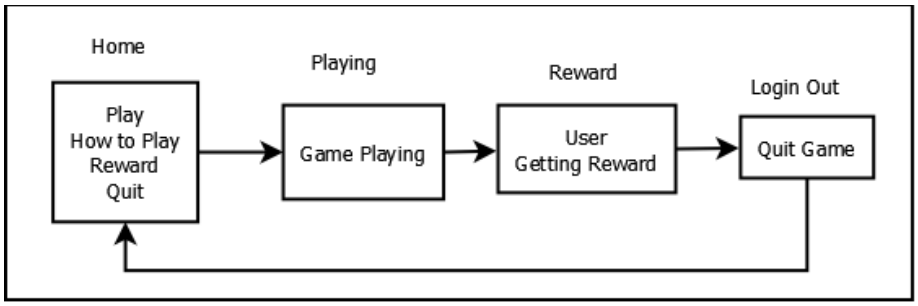

Fig.2. Prototype game flow proposed

This gamification research consists of two parts, namely game mechanics and game dynamics, which have several elements, including levels, missions, scores, virtual items, as shown in Table 1 below.

Table 1. Gamification Model used Design (Bicen & Kocakoyun, 2018)

Game Mechanic	**Game Dynamic**
Points	Reward
Level	Status
Trophies, Badges, Achievement	Achievement

4. Result and Discussions

At this stage the data collection has been carried out, after conducting observations and interviews with cryptocurrency users and investors, the proposed gamification application design is built and is expected to be used to increase investment interest in the new sector, namely crypto. With the concept of gamification, exploring crypto becomes more interesting. The results of the prototype design are proposed for research on increasing investment interest in the cryptocurrency sector with the concept of gamification using game mechanics and game dynamic elements. The results of the prototype design for the menu page, as shown in Figure 3.

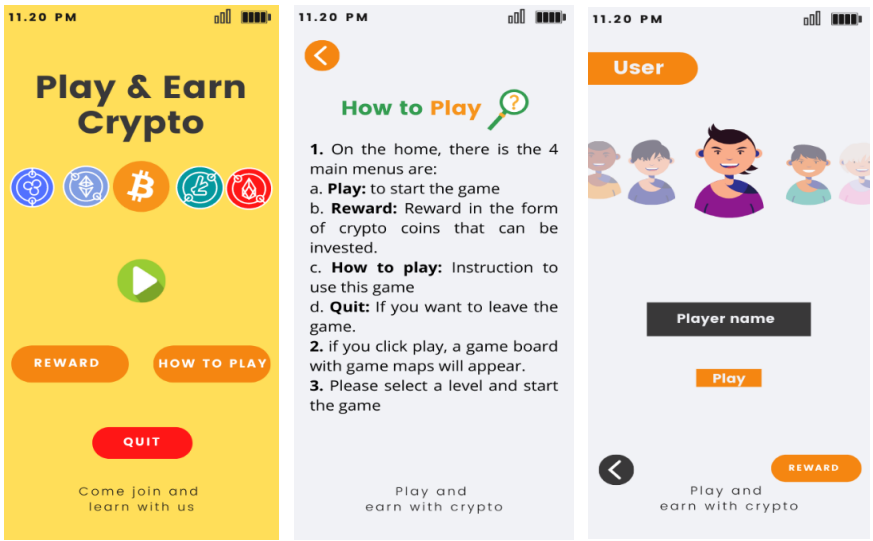

Fig.3. Game Menu

Based on Figure 3, the menu contained in this game has four menus: play, how to play, reward, and quit. The play menu is a menu that must be done by the user in starting the game by selecting an

avatar and entering the player's name first before completing the mission to answer questions and get rewards. The player avatar used in this application consists of six avatars that can be used by the user by selecting one. Furthermore, the "how to play" menu is instructions on how to play and the rules about the game, players can read complete game instructions on this menu. Before the game starts, the game process is that the player first selects the level of the game as shown in Figure 4 below.

Fig.4. Game levels

Figure 4 shows the level menu used by the user in conquering the game and getting rewards. Four choices of levels can be used by players, but for new users, it is mandatory to start with the lowest level, namely level 1. After the player selects the level of the game, the user's next step will be taken to the game dashboard/game arena. To get rewards in this game, players must complete the level of questions per level, each player who completes each level will get a reward in the form of coins that can be converted into cryptocurrency assets, then this player's assets can be withdrawn to a crypto exchange for used as a form of long term or short term investment.

The next step is to complete the mission to answer questions about cryptocurrencies and their benefits and opportunities in the investment world, as shown in Figure 5.

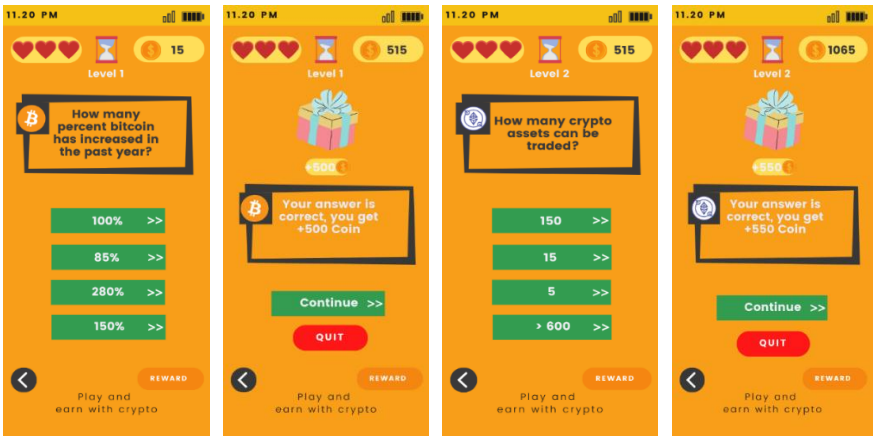

Fig.5. Gameplay

In this gameplay, players must complete missions, namely completing quizzes and if correct, they will get rewards. The mission to complete the quiz is that the player must be able to collect coins.

Coin collections can be exchanged for crypto assets and can be invested in the long term. Collect stars first to exchange gifts for players. Each star earned has the challenge to complete which is a question related to the area the player is exploring. These questions can be answered if the player is in the area according to the level being played. If the question is answered successfully, then the player gets a coin reward with a different amount, if the answer is wrong, then he does not get a star. Also, players will be short of lives or time in the game.

Figures 6 and 7 are rewards that can be obtained by players, ranging from daily checkin to rewards for completing game levels. Each level has a different reward, the higher the level completed by the player, the bigger the reward will be. Another reward that can be obtained by players is a daily check-in, every player who opens the game and plays the game every day, will get a reward that can be converted into crypto assets.

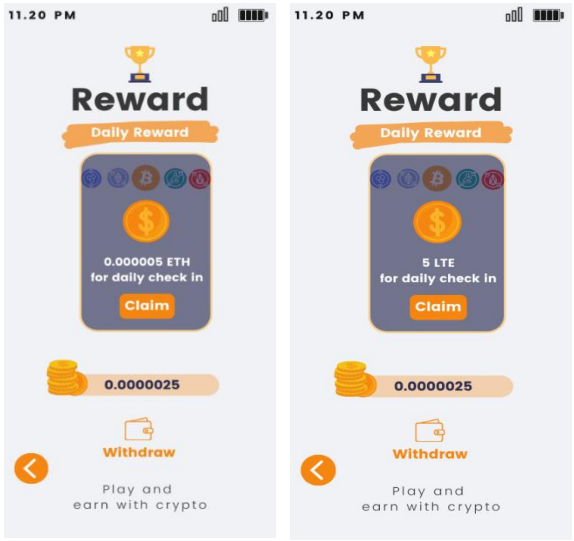

Fig.6. Reward check-in daily

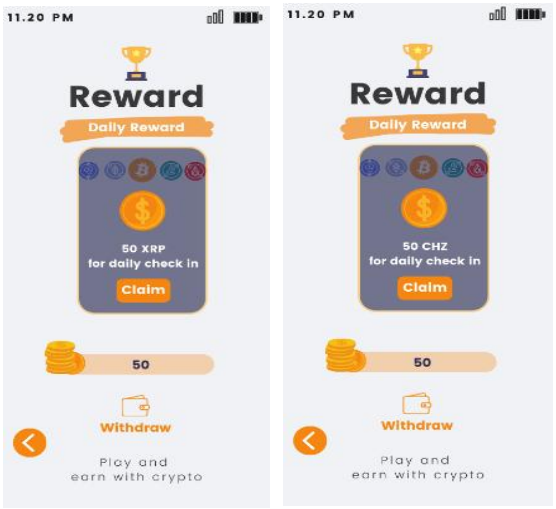

Fig.7. Other reward assets check-in daily

Each player will get a daily reward with a different amount. Players can claim rewards (daily check in) once every 24 hours, besides that, players will also get rewards when they can complete game quizzes correctly. The reward results can be calculated and withdrawn to a crypto exchange or transferred to a crypto wallet for long term storage as an investment asset. This crypto investment asset can be used as a short term investment asset by selling it when the reward from the game arrives at the destination exchange or, as a long term investment asset by storing it in a trusted crypto wallet or exchange and selling it within a certain period when the asset price is owned. has gone up significantly over a long period, so this will benefit the user.

Gamification making in this study adopts the level game model carried out by (Widarti & Emanuel, 2020), where the proposed level model is in the form of a locked level so that higher levels will be locked and make players have to start from the lowest level. The purpose of this locked level in gamification is to make it easier for players to adapt to the game, another goal is also to make it easier for players by starting from the easiest level first. Although adopting the game level model from previous researchers, this research proposal has differences and novelties, especially in system design, objects, also the objectives raised.

The contribution of this research is as follows:

1. Designing investment applications in the cryptocurrency field using a game based or gamification approach to explore the advantages and opportunities of investing in the cryptocurrency sector.
2. Gamification design for the introduction of crypto to society
3. Increase user knowledge about investment opportunities and gain rates that can be obtained on cryptocurrency investments

5. Conclusion

The proposed application is to help the public recognize the potential for investing in cryptocurrencies, to prepare for future financial planning. People can learn directly by starting from playing this game, players can also get rewards in the form of coins that can be exchanged for crypto assets and then can be withdrawn or invested in exchanges registered or recognized by the government. This prototype is expected to be one of the breakthroughs in providing education to the public regarding ideal forms of investment and potential new investment models in the future.

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