Non-Fungible Tokens: How NFTs Can Boost Customer Engagement in the Quick Service Restaurant Industry

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Darwin Khay

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Rosanne Vrugtman, Department of Computer Science

Briana Morrison, Department of Computer Science

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Darwin Khay
Computer Science
The University of Virginia
School of Engineering and Applied Science
Charlottesville, Virginia USA
dkk8es@virginia.edu

ABSTRACT

A Chicago, IL-based quick service restaurant with over 38,000 locations in over 100 countries needed to boost customer engagement by appealing to a particular consumer demographic that was not as popular with the QSR industry. The solution to appealing to the least popular consumer demographic and boosting customer engagement was the utilization of NFTs to allow consumers to contribute to the menu. The restaurant offered an NFT for every purchase through a redeemable code on the receipt of the purchase, and each NFT had a specific number of votes associated with it for consumers to use to vote for a new item on the menu. To implement this solution, the NFT application system was created: a promotional website built with HTML, CSS and JavaScript, and an NFT marketplace website built with React and TypeScript. As a result of applying the solution, there were more consumers from the least popular demographic who purchased more meals from the restaurant and there was an influx of contributions to the new menu items. Customer loyalty and retention increased along with sales. Given more time, the application can be made more secure with the use of multi-factor authentication and with more randomized codes. In addition, the application can be transferred on AWS so that the application can run from the cloud, making it more scalable.

1. INTRODUCTION

Building a healthy customer relationship by knowing the interests and wants of customers is key to boosting customer engagement. In the QSR industry, it would be more likely for a customer to buy a meal from a restaurant that has more health-conscious menu options, or perhaps from a restaurant offering a promotional meal with a favorite music group. Currently, one of the least popular consumer demographics of QSRs are people under the age of 25 according to EBSCOhost (2014). QSRs would need to find a way to appeal to this demographic more in order to increase sales and promote customer loyalty and retention. On the other hand, according to Harris Poll (2021), the current demographic of people most interested in NFTs are those aged 18-34. The age group that is the most interested in NFTs overlap with the least popular demographic of QSRs, so it is an opportunity for QSRs to appeal to this demographic with the utilization of NFTs. This in turn would improve customer retention rate and loyalty, increasing the longevity of the company.

2. RELATED WORKS

What is a non-fungible token? According to Idelberger and Mezei (2022), NFTs are uniquely identifiable digital representations of physical or digital items stored on a blockchain. According to Kavin (2022), blockchain technology is becoming more

prominent. The blockchain contains data that is not modifiable, such as NFTs. Each NFT is unique and owned by an individual, and ownership can be transferred to another individual. An example of a restaurant utilizing NFTs is Chick'nCone. According to PR Newswire (2022), the restaurant released its own NFTs called Chick'nCoins. In this example of a QSR using NFTs, they are promoting customer engagement by providing ownership of the area where new franchise locations would open along with receiving a portion of the franchise fees.

Aquino (2022) reports that another example of NFTs being used with QSRs was Chipotle. Chipotle launched a partnership with Roblox to create a burrito-making experience, in which players play to earn "Burrito Bucks" and the first 100,000 who earn enough can exchange them for an NFT—a free entrée code at Chipotle. This is related to the premise of my project because it an example of a QSR having a target demographic in mind, Gen Z and millennials, to appeal to by utilizing NFTs. Keeping in mind of these examples of how QSRs can use NFTs to boost customer engagement, my project also addresses these concerns, but with a different demographic and specific usage of NFTs.

3. PROJECT DESIGN

This section lays out the process in which my internship project was brought about. First, my internship team was given an industry problem and what was needed to solve it. Afterwards, multiple solutions were proposed to find the optimal method in solving the industry problem. Once the optimal solution was established, my internship team and I implemented it.

3.1 Project Task

The given task for my internship project was to come up with a way to boost customer engagement for our client quick service restaurant by using NFTs while integrating them into the Metaverse. First, my group did research to find reasons using NFTs would benefit QSRs. We looked at the consumer demographics for QSRs and NFTs to establish those reasons. Using NFTs to attract the popular consumer demographic of those interested in NFTs would benefit the client, since this demographic overlaps with the least popular consumer demographic of QSRs. Therefore, my group proceeded with defining the specific solution for the project.

3.2 Solution Specification

To come up with ways our client can utilize NFTs, my group researched examples of other QSRs that had used or are currently using NFTs and how that has benefitted them. In addition, my group looked at any past NFT usage by the client in order to figure out a different way to utilize NFTs. One proposed idea was making fast food ingredients as NFTs that consumers would collect as part of a scavenger hunt on an online game within the Metaverse. However, given the time constraints, any idea involving the Metaverse was scrapped.

My group only then considered ideas that involved just NFTs. We came up with the idea of offering NFTs to consumers through redeemable codes printed on their receipts received after making purchases at the QSR. Each NFT had a different rarity and therefore a different number of votes. Consumers would redeem and collect these NFTs in order to accumulate votes and vote for the next mystery menu item. In other words, NFTs are used by the client to crowdsource consumer input for new additions to the menu. The next step was implementing this solution.

3.3 Solution Implementation

The implementation of our solution was the NFT application system. The first component was the promotional website that was coded in HTML, CSS and JavaScript. The purpose of this website was to provide FAQs about NFTs, access to the client's menu and their other promotional events, and most importantly the ability for a consumer to redeem their code to obtain an NFT. The second component was the NFT marketplace application that was coded in React and TypeScript. It displayed the NFTs that the consumers owned along with information for each NFT and the total number of votes accumulated.

The database used to store NFTs was called DynamoDB hosted on Amazon Web Services. Ganache and Truffle were two tools used to simulate blockchain servers to develop and test the creation of NFTs. To connect the promotional website and NFT marketplace application, my group wrote a REST API in JavaScript to send the entered code on the promotional website as a post request to the NFT marketplace application. If the code was valid, the NFT marketplace application would create an account for the consumer and obtain the NFT from the database to transfer it from the admin user to the consumer.

4. RESULTS

Consumers of our client can now obtain NFTs of their own by redeeming codes that are received from purchasing a meal. As a result, there was an increase in sales because more purchases were being made by consumers to redeem more NFTs. Sales have increased by 41% and there were 60% more daily purchases since more consumers were attracted by the NFT promotional event. There were also more additions to the menu, especially health-conscious options. For example, there were vegan and gluten-free alternatives to the existing items on the menu. This is all due to allowing consumers having a say in what they want to see on the menu.

Customer engagement improved, especially for the least popular demographic for QSRs. About 30% of meal purchases were made by consumers who fell into that demographic. There was an increase in customer loyalty and retention since the same consumers came back to purchase more meals to obtain more NFTs. Overall, the NFT solution was a success in providing our client a creative way to boost customer engagement.

5. CONCLUSION

Customer engagement is key for a business to grow because, without the satisfaction of the consumer base, there is no room for growth. A business cannot succeed without consumers wanting to buy their products and services. With the niche utility of NFTs, businesses such as quick service restaurants have the potential to boost customer engagement in a unique way. QSRs can appeal to the least represented consumer demographic by utilizing NFTs, since this demographic aligns with the most popular consumer demographic for NFTs.

For the utilization of NFTs that my internship team has implemented, crowdsourcing consumer input for our client's menu was the best way to utilize NFTs to boost customer engagement. Though this was one specific way of boosting customer engagement with NFTs, there are also other possibilities of using NFTs for QSRs and business alike. NFTs hold so much utility that they are capable of being used in whatever way businesses see fit to grow. With the versatility of NFTs, there is a potential growth of new, returning, and loyal customers which in turn allows for

an increase in sales and continuity of a business.

6. FUTURE WORK

Due to time and budget constraints, the internship project had its limits. Given more time, there can be efforts to implement a more secure system. For instance, the code to redeem an NFT was limited in that only 8-digit numerical codes were accepted. For security reasons, this can be changed so that codes with more digits that also includes alphabetical letters could be accepted. One step further and the alphanumeric codes can be converted to scannable QR codes.

Another aspect of the project that can be developed further is implementing login functionality along with two-factor authentication for security purposes. With this, users would be able to save the NFTs they claimed and keep track of the number of votes they have accumulated. In terms of scalability, the functionality of the system could be transferred onto AWS so that the application runs on the cloud as opposed to local machines for the purpose of efficiency and usability. NFTs do not have to be used solely with QSRs, because other industries can benefit from the use of NFTs too. Because of the versatility of NFTs, businesses that are not QSRs can still benefit from the utilization of NFTs when used in a way that would best fit the goals of the business. They can even be used as internal business tools to assist with new business plans.

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