

# Demystifying the concept of IoT enabled gamification in retail marketing: An exploratory study

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**Abstract:** The retail landscape is evolving rapidly as firms embrace innovative technologies in an attempt to stay ahead of the aggressive competition prevalent within the industry. Gamification is one such innovative technology that has been gaining popularity in recent times. This study aims to explore the application of Gamification in the context of Retail Marketing in Sri Lanka and ultimately propose a concept for a Gamified application that can be used by customers of modern-trade retailers. The study took an exploratory qualitative approach where intensive surveys of literature and in-depth interviews with a judgmental purposive sample of seven marketing professionals in the modern-trade retail industry were conducted to determine the current play of technology in retail marketing as well as the drivers & challenges of Gamification adoption. Further, in-depth interviews with the customers of such organizations were conducted in gathering user preferences and design recommendations for a Gamified app. Thematic analysis was carried out in deriving insights. Findings show that the retail firms currently employ several technologies in line with those discussed in existing literature such as loyalty card systems, digital signage, VR technologies, online Gamification amidst others in carrying out their marketing efforts. Gamification is predominantly applied in the online context as opposed to the offline (in-store) context. Furthermore, the key drivers that propel firms to implement novel technology like Gamification are to generate customer insights, enhance customer experience and achieve marketing related KPI targets. Conversely, inadequate technology infrastructure, justifying the focus on a niche crowd of tech-oriented customers and slow ROI pose as challenges in the process of Gamification adoption. Three main themes emerged upon exploring user preferences and design recommendations for a Gamified app and are identified as information at the touch of a fingerprint, automation & integration and use of game mechanics. Ultimately by incorporating these insights gathered, a concept for a Gamified app was proposed.

**Keywords:** Gamification, Marketing, Modern-trade retail, Technology

## I. INTRODUCTION

The wireless sensor network technology has infiltrated many areas of our modern-day lives and the proliferation of each of these devices has successfully created the web of IoT [1]. Gamification deems to be one such component that is enabled due to the implications of IoT. This term in its most rudimentary essence elucidates how certain tasks are converted to be more game-like to motivate entities to complete it. It is also conferred that Gamification is “the use

of elements of game design in a non-gaming context” [2] and when properly articulated and utilized it can aid in achieving multiple advantages: improvement of processes, positive psychology and emotional affirmation, amplified relationships, increased engagement and producing feelings of accomplishment within individuals [3]. Gamification techniques comprise elements like; competitions, rankings, scoring schemes and incentives, and these act as a means to build brand loyalty, form connections and encourages consumers to return to the brand [4].

The current context of a retail environment is rather challenging, and marketers engage constantly in the pursuit of novel ways to offer customers a unique shopping journey and encourage traffic to physical outlets. Customers should be engaged through both emotional and behavioral approaches [5] and thus, the methods used to increase customer interest should be rich in emotional appeal as well as encourage interactions with the brands. In fulfilling this challenge, Gamification has joined the phenomena of artificial intelligence, big data, and crowdsourcing as a contemporary megatrend.

In the realm of marketing, with the use of this concept, marketers can compile customer-oriented games that propel firms closer to their aims such as boosting their brand image, an engagement that augments a loyal customer base. A few noteworthy and longstanding examples of Gamification are:

- Victoria Secret PINK Nation App: This is based on the millennial group and consumers can win offers just by playing concise games within the app.
- Bonobos’ Scavenger Hunt: This apparel eCommerce website initiated a digital scavenger hunt in their site-customer had to click on images and in turn, received thrilling rewards.
- NikeFuel Program: Nike was able to capitalize on their customers’ competitive nature and released a type of Gamification mechanism where users should post their best times, track progress and challenge peers to meet goals and enhance fitness and for which they all received early access to Nike products, free shipping and many more [6].

The concept of Gamification had been researched and tested by many scholars however there are very few researches concerning retail marketing and service marketing aspects, whereas the results derived through these stands to be

questionable in the context of a developing country like Sri Lanka. Hence, this research aims to provide theoretical contributions to the dearth of literature underlying the knowledge gap on the prospects of leveraging Gamification in retail marketing in Sri Lanka.

Before exploring the application of Gamification, in establishing an understanding of the existing play of technology within the retail industry, an investigation will be carried out on the current technologies employed by retail firms in the execution of their marketing efforts. Subsequently, this paper focuses on the drivers that motivate organizations to employ novel technologies like Gamification as well as those which emerge as challenges in the adoption process.

It is predicted that over 80% of Gamified applications are bound to fail due to poor designs incorporated [7]. In addressing this, the latter part of the paper focuses on determining the user preferences and design recommendations for a Gamified application in the retail context and drawing upon these findings, ultimately a concept for a Gamified application is put forth.

## II. LITERATURE REVIEW

### A. Current play of technology in the retail environment

Amidst the plethora of technology utilized by retailers Loyalty cards systems stands out as one of the most fundamental technologies and discussed in detail in the literature. Loyalty programs were established as a mechanism that offers incentives to regular customers intending to garner customer loyalty towards a particular retailer or brand [8]. Further, integrating Loyalty card systems to Electronic Point of Sale digital systems (EPOS) has enabled retailers to identify who bought what; when and where they bought it, which in turn capacitate retailers to merge their merchandising practices with customers buying behavior [9].

With the rising popularity of the World Wide Web, the world has infiltrated into an era where a substantial proportion of marketing communications are executed across the digital space, whereby the online presence of companies has become critical. Online channels of retailing such as websites enhance existing relationships with customers while complementing the offline, i.e. physical stores and thus firms being present online has become a strategic need nowadays [10]. Moreover, in the recent couple of decades, marketers' primarily used e-mail blasts, telemarketing, websites among other mechanisms to publicize a firm-specific or product-specific information, at present firms are shifting their presence in social media- such as Facebook, Instagram, Youtube- since customers are increasingly engaging over these platforms [11].

Moreover, the rise in the use of mobile phones has encouraged marketers to use mobile technologies in contacting customers about product information and promotions which had led to the coining of the term "Push based mobile marketing" referring to advertisements getting pushed to customer's mobile devices. Leveraging on the high penetration rates of mobile networks and the low costs associated with the medium, SMS marketing which preceded more recent Mobile Instant messaging (MIM) technologies like Whatsapp, Viber is predominantly in use [12].

The move to smartphones has revolutionized the shopping experience even further. While initially offering basic mobile apps, the efforts are now shifting towards integrating targeted offers via geo-fencing and scan-and-go-technologies whereby customers can scan products as they shop and proceed to make payments via the retailer's mobile app [13]. Gamification: the main focus of this paper, joins the recent developments in technology which has leveraged the popularity of mobile phones. Gameful experiences motivate particular behaviors such as making purchases, repeat purchases, and engagement and this has encouraged retailers into integrating Gamified approaches into their activities. It is predicted that by 2020, 87% of retailers anticipate incorporating Gamification features to their loyalty programs [14]. Probing on alternative means by which customer engagement can be achieved is of vital importance for the success of particularly online retailers' digital strategy. Gamification will facilitate in this, as it repositions the shopping experience as entertainment in an individual's cognition [15]. Thus, firms can leverage on Gamification to position the shopping experience as an enjoyable task within their customers, thereby attracting more customers to its stores.

Digital displays are used for advertising in-store by large retail chains to improve the in-store environment, promoting specific products and displaying other information. It is considered that Digital Displays/Signage augment approach behaviors of customers such as visiting frequency, the likelihood of revisits within a given time and likelihood of spending [16]. Moreover, Query-based Artificial Intelligence (AI) systems have been adopted whereby customer inquiries such as those on product functionalities and complementary product suggestions are being met by AI systems. The responses are tailored to complement a customer's existing knowledge through the analysis of historical purchase data followed by predictive analysis and this enables customers to be more informed and engaged [13].

Further, interactions between humans and the environment around them have altered with the development of interactive technologies such as Augmented Reality. AR technology integrates computer-generated graphics with the real world. Interacting and being occupied within holographic environments- a form of AR- offers customers a unique and entertaining experience [17]. Thus, in the retailing context, the technology is been utilized in presenting three-dimensional images of products to assist the customers with their purchase decisions.

### B. IoT and Gamification

The paradigm of the Internet of Things (IoT) in layman terms is a system of physical objects embedded with sensor technology, electronics, connectivity and varied software to enable it to perform exceedingly well by the exchange of information with other connected devices [1]. The potential of IoT extends to aid in achieving goals and improvements in decision making through augmented intelligence, enhancing process optimization and efficiency via the vast amount of data collected through IoT devices and making improvements in the management & efficient flow of information [18].

The perception of Gamification has strong divided views – some deem it as a novel term for traditional marketing tools or rather as a modern method to exploit customers whilst others regard it as a sincere means employed by firms to

enhance value addition to customers [19]. Gamification in marketing refers to the application of game design rudiments to marketing activities, to produce a game-like experience for customers thereby enhancing customer service value and achieving optimum value creation [20]. Due to the continual improvements and advancements in technology, customers too are heavily selective of how they desire to spend their time and money and this, in turn, coerces companies to invest in various methodologies to keep them engaged [21]. As such, Gamification is one such strategy used by firms as they envision Gamified marketing activities to be an effective form of promoting products and branding, while also providing the customers a fun experience [4], as previously highlighted as well.

Literature also converses on the Real-world applications of Gamified efforts. An example of such a Gamified effort stands out to be a program designed by Alipay- whereby users accrue energy through means of walking, consuming and online payment and trades the collected energy to trees in the desert. This Gamified process presents users with a sense of accomplishment which in turn makes them preferentially use Alipay to collect energy and thus form a sense of devotedness towards the brand [22]. In terms of In-store Gamification, it is emphasized how Gamified in-store applications for customers enable retailers to combat against revenue denigration (Showrooming amid other retail challenges) [23]. In the same study, the scholars initiated and proposed a system where shoppers obtain a VR headset and a mobile phone running a Smart Phone-based Mixed Reality Application (SPMRA) through which they can walk around the store and view the environment in an augmented manner, thus observing more than what is physically present. This solution received positive feedback from both shoppers and the retail stores as it increased the engagement and the fun factor. Besides, Gamification has effects on the inclination to act on offers gained at the point of purchase through eye-tracking, smartphone activity logging and choice technical apparatuses [14].

### C. Gamification elements

In referring to the literature under this segment, one can find varied means to classify the elements of Gamification: DMC framework, MDA framework, FDD framework, Elemental tetrad among multiple others. The more commonly known Gamification elements are points, badges, and leaderboards and stand out as a useful initiation point for Gamified efforts [24]. As per the same scholars, the DMC framework is the most widely used and it incorporates three main echelons; Dynamics (promote Gamification behaviors of users- emotions, narratives, constraints, relationships, and progression), Mechanics (used to drive Gamification process and the participation of users through competition, chances, challenges, corporation, rewards, acquiring resources and feedback) and Components (achievements, points, badges, leaderboards) [25].

Gamification elements provide an emotional experience for customers and lead to the completion of tasks and subsequent behaviors [26]. An illustration of this would be how customer purchasing behavior is manipulated by the element of the challenge during Gamified shopping; for example, unlocking an offer by completing a set challenge, successfully increases the preferences to act on that particular offer [27].

Further, in implementing a successful Gamified effort three main aspects are to be considered: (1) understand target audience profoundly, (2) determine the objectives of the system in a systematic manner and (3) utilize proper and appropriate game elements to motivate players as that is the overall purpose of using game elements in a non-gaming context. [28].

### III. METHODOLOGY

Qualitative studies are appropriate for research on little-known phenomena or innovative systems [29], and thus a qualitative exploratory approach was taken considering the lack of literature and the novelty of the concept of Gamification within the Sri Lankan Context.

Considering the numerous retail stores available across several industries, the scope of this research was on modern-trade retailers, specifically, FMCG supermarket retailers in Sri Lanka as the type of Gamified app ultimately proposed in the study is most suitable to be introduced in such stores (easiest to set up the technological infrastructure needed) and as it's more likely that tech-savvy customers for whom this type of app is better suited for would visit these stores. The scope was limited to the modern-trade retail organizations in Sri Lanka.

Data collection was carried out through semi-structured interviews since this method support in gathering not only first-hand valid and reliable data, but it will also assist in refining ideas [30], which was vital considering the nature of the study.

Judgmental purposive sampling method was employed and in gathering insights about the current play of technology and Gamification, considering selection criteria of a minimum of five-year experience in marketing within the modern-trade retail industry and the potential interviewee's job role, a sample of seven marketing professionals was taken till theoretical saturation was reached. Open-ended questions about the current technologies used by the firms, those which they hope to use in the future as well as the purpose of using each of these technologies were probed on.

Similarly, in gathering insights on user preferences and design recommendations for a Gamified application in the retail context a purposive sample of 24 respondents was taken until theoretical saturation was reached. The selection criteria for the respondents were determined as being a customer of any of the above modern trade retail stores and those who are using mobile applications, specifically those incorporated with Gamification mechanisms. Open-ended questions regarding overall experience with the mobile apps (likes, dislikes, challenges, etc.), user expectations of mobile apps, potential features that generate interest to use Gamified apps specifically designed to be used in retail environments and usage scenario preferences (in-store/ offline app).

TABLE I. CURRENT TECHNOLOGIES EMPLOYED AND THEIR USE OBJECTIVES

Technology	Use Objective
Loyalty card systems	Encouraging customer loyalty to the store. Generating customer data (specifically buying patterns, contact information) which in turn is used to send targeted communications.
E-Commerce	As a channel of service delivery. For communications (offers and promotions, service offering, etc.)
Social media	For communications. Driving leads to the website. Driving customer engagement.
E-mails	For communications.
Digital tabloids	For communications (related to product offerings and offers) to drive leads to website/ encourage store visits.
SMS	For targeted communications to drive sales (customers segmented as high spenders/low spenders/lapse customers).
Digital Signage	The medium of product/brand advertising.
TV systems	The medium of product/brand advertising.
Checkout couponing	Presenting customized offers to encourage repeat visits to the store.
Online Gamification	Driving engagement.
VR technologies	Driving customer engagement.

Data gathered were analyzed through content thematic analysis technique using the NVivo 12 Plus Software as a facilitating tool. An inductive approach (absence of a predetermined structure or framework in data analysis), was taken as it is widely used when little is known regarding the research phenomenon [31]. A seven-tier process was followed in conducting thematic analysis laid out as Data Organization, Immersion in data, Generation of case summaries and potential themes/ categories, Data coding, presenting interpretation via analytic memos, exploring of alternative interpretations and lastly the report writing or other forms of presentation of results [29]. Themes and categories derived were either theory-generated codes (codes which are derived from previous literature) or in-vivo codes (the codes which arise from the data collected).

The process concluded with the findings being compared and contextualized to that of existing literature. In presenting the final concept for the Gamified app, Flowcharts and System Architecture diagrams were compiled.

#### IV. RESULTS

##### A. Current technology usage in retail marketing

Technology corresponding to those laid out in the prevailing literature is employed in achieving multiple marketing objectives by the retail organizations as detailed in Table I. Loyalty programs have evolved over the years to the

most contemporary format being coined with the term Loyalty 3.0. Loyalty 1.0, the most basic format of the program comprised of frequent-flyer programs, cash-back credit cards, and punch cards while Loyalty 2.0 focuses on customer segmentation through data available from Loyalty 1.0 programs and directing targeted direct mail and emails in generating customizable customer experience. Loyalty 3.0 builds upon major building blocks- human motivation, big data and Gamification [32]. At present, Sri Lanka is implementing Loyalty 2.0 programs with targeted offers sent via SMS, Facebook or Checkout couponing, leveraging on the information such as purchase history captured through Loyalty programs. Implementing the concept for a Gamified app put forth ultimately in this paper will advance firms towards Loyalty 3.0 programs. Furthermore, some modern-trade retail organizations belonging to diversified conglomerates were in the process of evolving into “group

loyalty” which allowed them to gather data on a specific customer across multiple domains such as healthcare, financial services and leisure which will enable them to further refine their targeted marketing activities. Referring to Gamification, all the professionals were acquainted with the term and its applications, with certain firms already incorporating Gamification into their marketing efforts.

A noteworthy illustration of such Gamified efforts is the Keells Supermarket chain’s (a leading player in the modern trade retail sector in Sri Lanka) launch of a free-to-play game named “Keells Power shopper” in 2018 which is accessible on iOS and Android devices and reportedly have been played by 10,000 players [33]. This is an online form of Gamification where the players engage in a simple arcade-style adventure game with the player’s Avatar running within an environment that is similar to the Keells supermarket collecting power-ups which in turn allows them to earn points. As such it employs game mechanisms of points, leaderboards, and rankings, avatars with rewards of PlayStation 4 gaming consoles being awarded to players who have scored the highest points at the end of a certain week. However, the game was launched within a separate gaming platform which had 50 other mini-games and 25,000 active users, and a player would have to download the gaming portal before playing the game. This was seen to be a massive negative point consumers had faced which had resulted in the game being not exceedingly successful.

As such it should be noted that Gamification is mainly applied in the online context and in-store Gamification is minimal: typically executed in collaboration with FMCG brands like that of Unilever Sri Lanka. Further, Mobile Instant Messaging and Autonomous shopping carts emerged as two technologies that are expected to be employed shortly. On probing about the use of Hologram technologies and In-store Gamification, it was revealed that firms are receptive to the idea, yet faces several challenges in the implementation as expelled out ahead in this paper. The use objectives of potentially employing each of these are laid out in Table II.

##### B. Drivers for Gamification adoption

Further, analysis of data exposed three recurrent themes which drive retail organizations to use technology as a strategic choice as described below:

1) *To generate customer insights:*

Unorthodox way of observing buying behavior, tracking the movement of customers and these insights will act as a valuable input to the decision-making processes, facilitate in designing more appealing offers/ sending targeted messages and make internal adjustments within stores.

TABLE II. TECHNOLOGIES TO BE EMPLOYED IN THE FUTURE AND THEIR USE OBJECTIVES

Technology	Use Objective
Mobile Instant Messaging	As an alternative/complement to the use of SMS.
Autonomous shopping carts	Gathering customer insights For targeted communications (specifically for offers intended at upselling, brand switching)
Holograms	Driving Customer Engagement
In-store Gamification	Driving Customer Engagement For Communications (specifically for offers)

2) *To enhance customer experience:*

Innovative mechanisms are essential in satisfying the contemporary customers' segments, especially the younger generations: articulates upon how generation Y consumers think differently and are always seeking an environment which is relaxed, flexible, interactive and engaging as opposed to those of other generations like baby boomers [34].

3) *To achieve marketing KPI targets:*

As with any other department within a firm, the marketing department has its own set of goals and objectives to be achieved such as building brand awareness, engagement, generating qualified leads and their respective Key Performance Indicator (KPIs) targets. Thus, if an objective relates to creating engagement or capturing the top of mind within a customer, disruptive technologies like Gamification is resorted to.

C. *Challenges for Gamification adoption*

Three recurrent themes emanated as the challenges faced by firms in the process of adopting digital initiatives like Gamification.

1) *Slow return on investments:*

Although retail revenues are high, profit margins were reported to be low thus making firms focus more on ROIs. As ROIs are not brought immediately in digital platforms, top managements are reluctant to spend on digital media/technology. However, interestingly some other firms were of an alternative view: that blurred ROIs are not of concern when focussing on creating a value proposition and cutting down on the Above –The-Line budgets (Television/radio Advertisements, etc.) to invest on more innovative platforms is worthwhile.

2) *Niche target crowd:*

Gamification is still at its onset, bringing about the challenge, especially within well-established retail trade organizations whose focus is on mainstream markets, to convince the top management about catering to a niche market segment which Gamified apps will appeal to.

3) *Technology infrastructure readiness:*

Certain firms believed that they were not ready in terms of the infrastructure necessary to implement and deliver customers a seamless experience, specifically in terms of in-store Gamification. Conversely, other firms declared that the

required infrastructure does not necessarily pose a challenge. Interestingly these were retailers who were late movers to the industry and focusing on leveraging technology in gaining a competitive advantage as opposed to storing location and number factor which more bigger players focussed on.

D. *User preferences and design recommendations for a Gamified application in the retail context*

When exploring on preferences and design recommendations for a Gamified app, analysis of data materialized three main themes that users focused on. The codes for the first two themes were derived from a previous similar study [35] as the data gathered reflected the same, while the third theme was in line with the mechanic's aspect of the MDA framework [35]. These are detailed out below:

1) *Information at the touch of a fingertip:*

A central, accessible resource for information regarding the promotions available, loyalty schemes offered, newly launched products and outlet information as and when needed.

2) *Automation and integration:*

Smart functions which can passively capture data, require less input and be highly relevant, responsive and engaging. For example functions like Smart shopping lists which recommend offers available for products relevant to the items in the compiled list, which can be also be shared with family members across devices. Regarding automation, apps that can automate the process of shopping; for example, queue-less shopping solutions with the use of QR code scanning were preferred.

3) *Game mechanics:*

Inclusion of Avatars, badges, challenges / quizzes to collect points which in turn offer rewards either as loyalty points or discount offers for products relevant to a customer.

E. *The concept for a Gamified app*

Drawing upon other insights and specifically, those classified under the theme of Game mechanics discussed above, the most rudimentary level of the concept design for a Gamified app was designed as illustrated in Fig. 1.

- Users preferred both an online version and a version to be played in-store.
- Online Mode: Similar to the Gaming apps of Temple run and Dialog Mega Run, this option allows a user to play a game from anyplace, whereby users can earn points that can be converted into loyalty card points.
- In-Store Mode: Users actively spoke of how engaging and paradigm-shifting the app Pokémon Go was. Thus similarly, the in-store mode-normal version allows consumers to hover over products or the aisle to catch hidden daily deals and other offers (facilitated by beacons). Further as suggested by users, a mode specially tailored to kids is also incorporated.

The notion to link the app with the loyalty card was to easily facilitate keeping in track of progress and hassle-free when checking out as opposed to a unique code generator that generates codes each time the game is played.

The above concept is depicted in a flowchart as shown below in Fig. 2 to aid visual clarity and further understand the process and logic of the system involved. Further, to get a final overview of the proposed App, the System Architecture diagram is presented in Fig. 3.

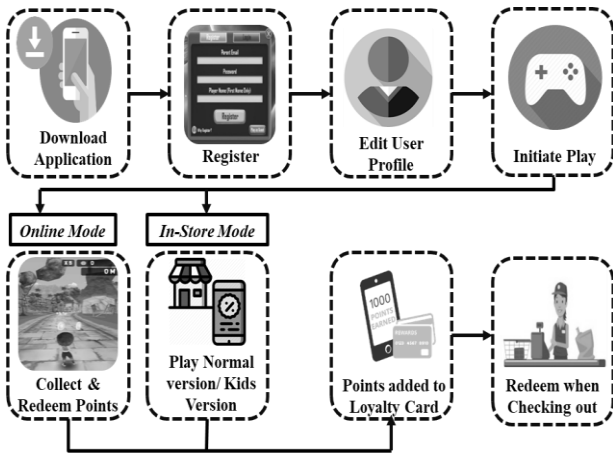


Fig.1.The basic concept for the proposed App

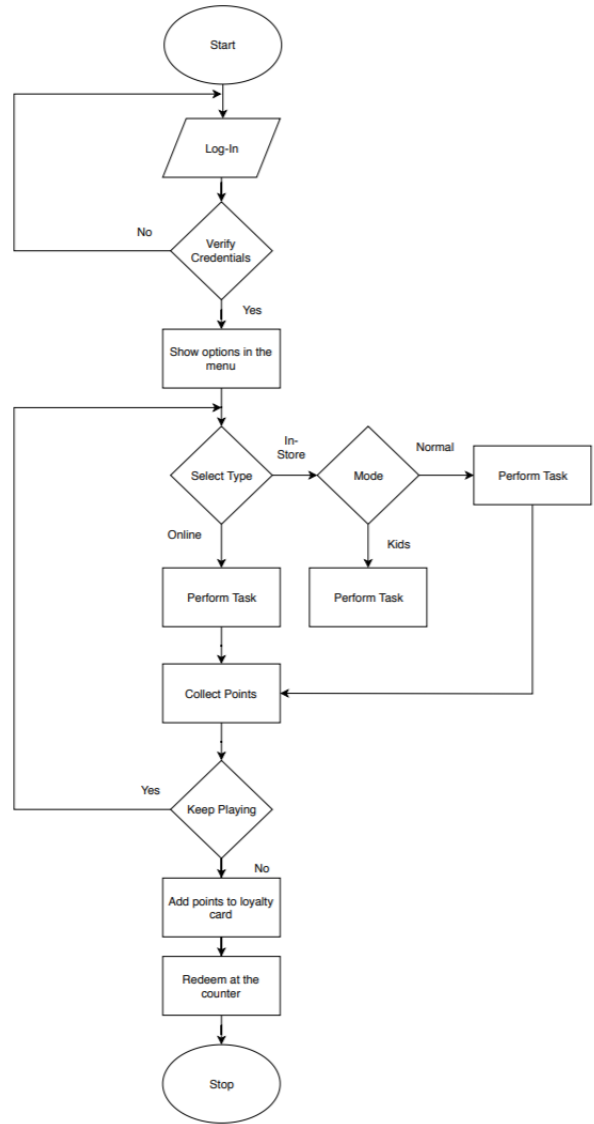


Fig.2. Basic concept for proposed App

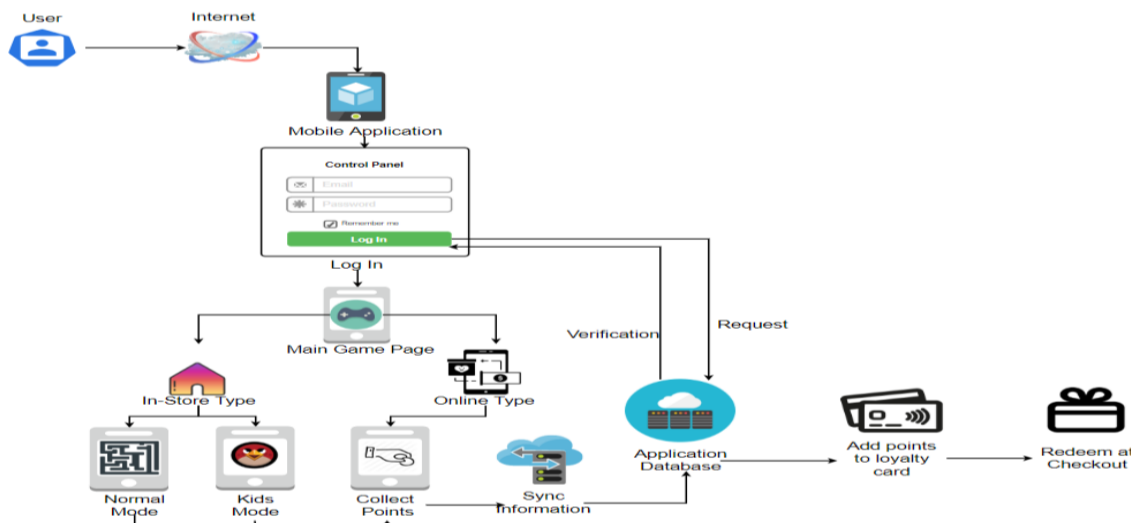


Fig. 3. System Architecture Diagram of proposed App

## V. CONCLUSION

Upon capturing a holistic overview regarding the current technology used by retail marketers, the paper focused on the adoption of Gamification. Although the concept is at its infancy, it acts as an innovative way in offering customers a unique shopping experience within the highly competitive modern retail environment and despite that this mechanism is being resorted to by many retail giants across the globe, it is yet to be fully exploited within the Sri Lankan retail sector. Research has discovered that people make purchases such as food/alcohol at the locations they visit while playing games like Pokémon Go and therefore emphasize the possibility of monetization of location-based Gamified apps [36]. This accentuates the potential success of the Gamified solution put forth in this paper.

This research centered around the modern-trade retail context specifically because a mechanism which can stimulate enjoyment in an experience which is perceived to be a tedious task such as grocery shopping, seemed worthy of exploration. However, since the core of a Gamified experience is deriving entertainment, the concept might be more suitable for shopping experiences which likely to be more relaxing like that experienced when shopping for clothes. Thus, future research work can explore on the use of Gamification mechanisms in other formats of retail, specifically, Softline retail stores - those that sell goods generally having a consumable lifespan less than three years - such as apparel stores.

Further, because the exploratory nature of the study driving the use of a qualitative approach, as well as a relatively smaller sample size poses challenges in generalizing the results. While this stands as a limitation, it should be noted that this technique was deemed best fit in meeting the objectives of the study which required gathering data from information-rich cases. However, future research can focus on quantitative approaches where the findings of this research can be further verified and generalized.

In conclusion, the main points of discussion in the study: current play of technology within the retail marketing context, the overview of the drivers and the challenges behind adopting Gamification, the understanding of user preferences for a Gamified app together with the proposed concept for a Gamified app; equips the reader with the knowledge to initiate the process of Gamification in this previously untouched domain of retail marketing.

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