

Gamification in Tourism Mobile Application Development

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Abstract: - The purpose of this paper is to outline the gamification techniques domains and applicability methods and their integration into the development of a mobile application dedicated to tourism. In a first attempt of developing a tourism specific application we used one of the newest mobile application tools, MIT app inventor. This specific app contains gamification elements in order to make it more challenging. The application refers to an area with a big touristic potential, which is not promoted at its real value. This combination between the unexplored area and gamification techniques will represent a progress for tourism.

Key-Words: - gamification; challenging travel; rewards; interactive mobile application; be active and win.

1 Introduction

The gamification term was introduced in 2002 by Nick Pelling [1], an English programmer, but it only gained popularity starting with 2010. [2] Gamification represents an application of design elements and game principles in non-game contexts. [3]

Considering the fact that only in 2010 this concept started to be used more often, currently it registers an ascending trend in various activity fields.

This paper presents some activity domains in which these techniques are used and proposes a mobile application dedicated to tourism. Further research shall contain new suggested fields for which these techniques may represent a progress.

2 Gamification: An Overview

Although it is a recently used term, currently there is an important scientific interest related to the usage and application of these techniques. Articles and interviews on the internet, newspaper articles and papers presented at different conferences represent the proof of continuous research about the appropriate domains for gamification applicability. Hence, it turns out that these game techniques can very well be integrated into the majority of the activity fields. The child which lives forever inside the adult, comes out whenever any game appears so that it reminds him of childhood, but also offers him any kind of rewards. Therefore, for many individuals the competition represents the best motivation in order to get involved in various activities.

Gamification techniques are welcomed in any activity field.

Education is one of these fields. The professor Alexandru Iosup was rewarded with the title "Professor of the year" in 2015 in Holland. The professor Iosup teaches many engineering and IT classes at Technical University of Delft and he included gamification techniques in everything he teaches. He affirms that "a fundamental element for future education is personalized education" and he identified three types of students: the achievers – which are happy to receive lots of problems to solve, the explorers- which like to explore on their own in order to achieve the target and the winners – which are very competitive and wish to surpass everyone else. [4]

Human resources and personnel recruitment represent another applicability field of this concept. Gamification is a method which stimulates creativity and helps developing new communication abilities, time management and team work, improves efficiency and performance, but also the satisfaction and motivation level of the employees. [5]

It is well known that in a working place it matters not only the salary but the team and the working environment as well. Besides, in order not to have surpassed employees, which are caught into daily routine, the employers should continuously search for new inspiring methods for the personnel. Such a method may be the implementation of gamification techniques, which is already used in HR. HR specialist, Roxana Morozan, declares in an interview for StartupCafe that the gamification

based projects help in obtaining medium and long term commitments.[6]

People need recognition of their worth and efforts from the employer, seeking for appreciation at all times. Due to these techniques, the rewards must not necessarily be materialized, fact which brings advantages also to the employer being a win-win situation. Not only the employee is satisfied by feeling appreciated, but he will improve his work performances, which means increased production or profitability for the company.

The gamification solutions used in this activity sector, have been generally oriented towards the sales departments of the companies which chose to implement these techniques. Consequently, there have been created very well developed programs which include bonuses for the sales personnel. [7]

Fitness & HealthCare is another activity field in which gamification is present. It is very interesting even its implementation into the company policy in order to stimulate and motivate the employees. It was organized Get Fit week during which the employees had to reach a physical activity target; this activity was changed on monthly basis. For example, the daily number of steps made by each participant were counted. At the end of the week, the one who had walked the most received an one month fitness club subscription. Next, it was organized the Nutrition week. Some healthy products were chosen and the participants were challenged to cook these ingredients. At the end of the week, everyone tasted the dishes and the best chef was rewarded with a cooking book for a healthy life.

Pharmaceutical companies have also considered useful these applications for medical representatives and managers in order to increase productivity. Such an application is Charisma Mobile Gamification for Sale which represents a system created for customer service, which integrates game principles in order to improve the employees' involvement level and to increase the data collection quality. [8]

A field which should not be forgotten is marketing. There are lots of situations which we encounter every day in all the supermarkets. One method is the points' collection as a result of shopping over an established amount of money and discounted products purchase based on the points collected. Another well-known method is code finding inside the products and registering these codes into a raffle with many rewards. Some companies had even created web-sites with mini-games which were available only after introducing such a code. The goal was also the registration into a raffle. In this

domain, the methods are so many that an entire book with these examples can be written.

Prestigious names on the market integrated gamification techniques into their brand/product/company promotion.

One of them is McDonalds which introduced such a method since 1987. As a result of buying their products, the customer received a sort of Monopoly piece. This method of promotion made the customers return in order to find all the collection's pieces. Because they could have the bad luck to find duplicates, real communities were created in order to exchange these pieces. [9]

Nike has created a mobile application for runners. This app allows the user to personalize the data and the taken exercises, but also allows the direct competition with other users of the app. [9]

Samsung gathered a real on-line community, by giving rewards to the customers which participate in discussions, watch video clips, write reviews and get involved in different activities.[10]

M&M launched a web game. There was a page full of colourful candies and the big challenge was to find the lucky one. [9]

Star Foods, the Lay's potato chips producer, promoted its products by designing a pursuit challenge of the bags which contained hidden money. As a result, in Romania, both children and adults were seeking for these bags.

Tarom offers its customers the possibility of collecting the air miles which can be exchanged into flight tickets or other facilities available in their offer at the moment of conversion.

The Magnum brand, released on the market a new ice-cream with the help of a game based on the well-known Mario. Their customers collected points and prizes which could be traded for products. [9]

U.S. Army uses gamification techniques in order to catch the interest of potential recruits, by creating the Virtual Army Experience units. [10]

Pierce County Library initiated a program for the students so that to convince them to read during summer vacation. This program represents a challenge, the students being taken into a fascinating adventure adapted to the interest field chosen by the future readers themselves. [10]

3 Research Methodology

Without claiming to have wasted neither all the gamification techniques applicability fields nor the "big players" from the market, we point out that these gamification techniques are very useful also for the tourism development and promotion.

We integrate hereby the development of the submitted mobile application, with the interest in the

first stage for the integration of gamification techniques into the requirements capture. [11]

There can be designed mobile applications focused on certain touristic areas that can include different benefits based on the visited locations. Interesting for this field is that besides the virtual benefits, partnerships with surrounding accommodation owners can be established in order to offer discounts. Regarding the tourism, there are many game elements which can be included: travel by respecting an application indicated route, uploading photos with locations – all these elements bring rewards to the user and makes the journey more exciting. [12]

As a result of our research, we present hereby the mobile application we have designed to promote the tourism in Hunedoara District, Romania. Hunedoara District includes many important and beautiful places and ruins included into UNESCO heritage, but not enough promoted at its real potential.

Although the application has a simple structure, its features are rather complex. Therefore, the application consists in many screens which are shortly detailed below.

The application starts with a log in section where the user has to create an account by introducing an e-mail address and create a password. The background of this screen represents the application icon.



Fig.1- Log in screen

The next step is choosing the user's hometown and country. We have considered this as being very important information. By creating a database with this info, we can evaluate in which geographic areas the application should be promoted more or which other language should be displayed in the app. The background for this app is represented by the Hunedoara District's map.



Fig.2- Where are you from screen

Further, the app asks for a season and interest selection in order to indicate the user only the desired locations. Three options were created:

Summer, Winter and All-season, each of them consisting in certain interests. Summer includes sight-seeing, museums, ruin/castles, monasteries/churches, hiking, climbing, rafting, fishing, swimming and festivals. Winter includes sight-seeing, museums, monasteries/churches, hiking, skiing, snowboarding, sledding and festivals. All-season combines the interests of these two chosen seasons.

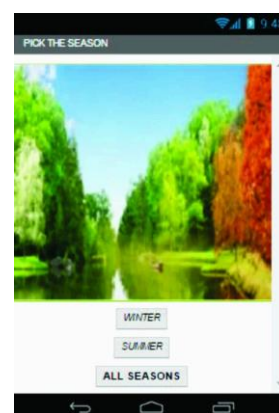


Fig.3- Season & interests screen

By selecting the season and interest, the user is taken into the next screen where he may choose from a list the location he desires to visit. After a click on one location, another screen opens and displays the location name, pictures, GPS coordinates and/or address and a short description and history of it. This screen consists in an upload button which allows the user to participate in developing the app.

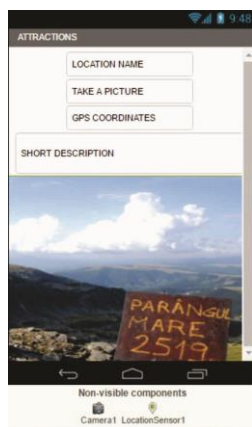


Fig.4 – Location screen

In order to meet the visitors' needs, the following screen includes a list with the available surrounding accommodation premises.

To make the app interactive and more interesting, many gamification techniques are applied in its different sections. Each location is rated with a score (the further it is, the more unexplored it is, the less visited it is the score becomes higher).

When uploading pictures with the location, the user is rewarded with a bonus consisting of points that shall be added to his score.

All the collected points reflect into a leaderboard structured into four levels: level 1 – Passer-by, level 2 – Traveler, level 3 – Explorer and level 4 – Conqueror.

As a result of the agreements with the accommodation owners, the user shall receive rewards consisting in discounts for their stay. The discount percentage is calculated based on their achieved level within the app, such as: level 1 – receives 5% discount, level 2 – receives 10% discount, level 3 – receives 15% discount and level 4 – receives 20% discount.

Fig.4

The application also includes a review section which refers both to the app and accommodation that also generates collected points if fulfilled. The review is structured as a form with given questions. The feedback section is very important for the application's further development, by helping its designer to identify the minuses and also to implement new ideas and features based on the users' suggestions.

4 Conclusions

Gamification techniques are often integrated in various activity domains. It seems they are used even before they have received the given name in 2002. Even in everyday life we use these techniques.

It is obvious that their use brings many benefits – gaining new customers and awarding existing ones, motivating the employees, increasing work efficiency and decreasing the expenses.

As further enhancement, extremely useful and important would be the designing of a recycling program which includes gamification techniques. Selective waste collection, unfortunately, does not work properly. People should be motivated with the help of these techniques in order to create a cleaner, more civilized and eco-friendly world.

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