Advertising in Social Networks: Business-oriented Check-ins

A new business model and mobile service

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***Abstract* — This paper describes a new model for check-in process: customized (or business-oriented) check-ins. This approach introduces a new mobile service that lets any business publish customized records (statuses) in social networks (Facebook in the current release) in exchange for some benefits (discounts, gifts, coupons) provided for the customers. For the business, this service introduces a new way for advertising in the social networks. For the consumers, this service introduces a way for exchanging access to the own social graph for some benefits (e.g., gifts, discounts, coupons).**

Keywords — check-in; social network; mobile; HTML5; QR-code; coupon; Facebook

I. Introduction

Social networking has become very popular in nowadays' society. People will sign up for multiple social networking websites like Facebook, Foursquare, Twitter, etc.

At this moment, one of the popular models for the modern internet services (especially – for geo services) is "check-in". Check-in is a record with presence status, associated with some particular location. For example, in Foursquare users "check-in" at venues using a mobile website, text messaging or a device-specific application by running the application and selecting from a list of venues that the application locates nearby [1]. Each check-in awards the user points and sometimes "badges". This special status message is published in user's timeline (e.g., on the wall in Facebook).

Points are awarded for "checking in" at venues. Users can choose to have their check-ins posted on their accounts on Foursquare (communication service), Facebook (social network) or both. The common practice is to duplicate (translate) records in communication services to the social networks. Users can also earn badges by checking in at locations with certain tags, for check-in frequency or for other patterns such as time of check-in. Foursquare (communication service) was created with a core set of 16 badges, designed to reward and motivate all of users. The company has stated that users will be able to add their own custom badges to the site in the future.

So, earned points (badges) are finally the things users can exchange with some benefits at venue (e.g., discount, free offering, gift, etc.). Of course, it is true only if/when business that owns this venue participates in Foursquare's programs. In other words – venue owner participates in the program, developed by the communication service. It is very important for our future development. Let us just highlight again an important note for our future discussion – badges are being developed by the communication service, not by the business. And any customization here is actually an agreement between the business and communication services. The business (the source for rewards) is actually not free in the forms these rewards will be presented for business users. The format for the conversations is dictated by the communication service.

Figure1. Check-in record

The rest of this paper is structured as follows. We present the background to our QRpon mobile service in Section 2. In Sections 3 and 4 we present QRpon model and algorithm. We discuss the future work in Section 5 and conclude the paper in Section 6.

II. Related works

The similar model is actually reproduced by the various implementations of "Places" services: Twitter places, Facebook places, etc. For example, as per official page, Facebook places let you easily share where you are, what you're doing and the friends you're with right from your mobile. You can check-in and your updates will appear on the Place page, your friends' News Feed and your Wall [2]. The business model is similar. You can check-in to get individual discounts, share savings with friends, earn rewards for repeated visits, secure donations for good causes, etc. Figure 1 shows a typical example for the check-in record:

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But here is at least one serious remark that remains true for all these services. All they are communication services at the first hand. And any check-in at the first hand solves communication tasks: how to let my friends/followers know where I am. The biggest question that remains is very simple and natural. Why do we ask business to deliver benefits via advertising some 3-rd party service? It looks very natural to let business define the format that should be used (exchanged) for benefits. It is actually the main idea our QRpon mobile service [3] was born from.

In this paper, we present QRpon– a new mobile service aimed to help connect sales with social networks. We are going to replace generic check-ins with the customized analogues. We are talking here about the check-ins used for the benefits delivery. That is why we have the words "business-oriented" check-ins in the title. We are not going to replace (dismiss, etc.) existing check-ins, this service also does not touch locations, etc. We are talking below about the special (user generated actually) forms for check-ins, that could be used in exchanges for benefits.

What are the advantages of suggested approach, what is missing the current models and why do we think it is a new model. Currently all the monetization efforts in LBS applications [4] like Foursquare, Facebook Places, etc. are based on the attaching (connecting, linking) some deals to the locations. Each deal (badge) is a position at the first hand. It is simply due to originality of the above mentioned systems. They are LBS (location based systems) applications originally. But it is very easy to conclude, that in the real case any business could offer several deals within the same location simultaneously. So, actually we should check-in in the deals (products) rather then in the places. On the other hand, the ability for the businesses to create any "deal" (discount, advertising) by themselves is obviously a big advantage too. They do not need to wait for any external development, deals could be created on the fly, etc. The open API for QRpon system lets create mobile sites (deals) automatically, getting data right from corporate ERP system.

The ability to collect stats directly from social network related to QRpons is the next big advantage. And we can note again as a big advantage the fact that statistical data is related to the products rather than to the places.

QRpon does not introduce any new social network, does not introduce any new authorization system, etc. Having a Facebook account is fully enough for using QRpon.

Lastly, QR-codes [5] simplify check-in process.

III. THE QRPON MODEL

Let us start from the business side. Here QRpon offers a specialized CMS (content management system) that lets any business create a special mobile web site. This web site lets users automatically, just after confirming the identity, post business-defined information on the Facebook's wall. In the exchange for this posting (action) mobile web site will show a confirmation for the benefits. For example, coupon, discount info, etc. In other words – anything that could be presented to the staff on the business side for claiming the benefits. All elements in this approach are user-defined: the offer, check-in info (what should be posted to the net), confirmation (badge) and even the rules for presenting badges.

How to present this mobile site for the potential users? It is where QR-codes help us. CMS lets businesses create mobile web site and an appropriate QR-code. Because it is mobile web (HTML5) application there is no need for downloading. Just scan QR-code and get URL opened.

Let us recall that HTML5 represents the cornerstone for modern Web [6]. There are several APIs for complex web applications. For example, we can easily add location info to our check-in process.

Automatically, this approach supports also physical check-ins. There is no way to mark you "at this location" being actually nearby (based on GPS location) or even far away (via API). QR-code should be scanned, and it is a physical action that could be performed on-site only.

So, for the business, this approach offered a mobile web site (sites – business can create more than one site, update them often, etc.), presented on-site with QR-code sticker, that lets visitors exchange posting in the social network (e.g., Facebook's wall) for some benefits. And all site's aspects (what is presented on the site, what should be posted to the social network, what should be presented as a confirmation) are defined by the businesses themselves. Another possible explanation from the business point of view – try to think about the current check-in system (e.g., Foursquare) and just replace the standard posting (notice) from Foursquare with your own text. Obviously your potential users do not need to download (install) mobile application and do not need to register in some new service (beyond their Facebook accounts). And another important difference from Foursquare (Facebook, Twitter, etc.) check-ins is the need for the physical presence.

The mobile CMS mentioned here is really simple. Practically, the business just needs to provide 3 pieces of text: the description (text for the first page of future mobile site – our offer and place for Facebook Connect button), the text that should be posted to social network and the text that should be displayed on the mobile site after the posting. So, the mobile site itself has got just two pages: the offer and the result (coupon, gift/discount info, etc.). And the transition from the first page to the second pages posts data to social network.

CMS creates a mobile site as well as the QR-code for the link to that site. This QR-code could be placed anywhere on the business side (Fig. 2). So, for access to the benefits (coupons, discounts) potential users need scan it with own mobile phone. QR code usage is very natural here. As per Google, the mobile phone acts as a cursor to connect the digital and physical worlds [7].

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Figure 2. QR-code for mobile site

This QR-code points to the generated mobile web site. As soon as QR-code is scanned it is just one click deal to open an appropriate mobile URL. The user will see the first page, created by QRpon CMS (offer). After that user can confirm (accept) this offer, using his/her Facebook ID. Mobile site uses Facebook Connect [8] here.

So, our initial screen (offer) is user-defined text (probably images) plus automatically added Facebook Connect button. Actually it is some like Figure 3 shows (a screen shot from the service test page):

Figure 3. First screen

As soon user's identity is confirmed, the status text (also defined previously in our mobile CMS) is posted to the user's wall. And as a confirmation for that, mobile web site shows its second (final) page. It is a confirmation for getting benefits (coupon, discount info, etc). It could be presented to the staff at the business side, etc. Figure 4 illustrates this (the same text is already posted to user's wall in Facebook).

Figure 4. Confirmation screen

So, all the steps in this process are:

a) completely defined by the business
b) do not use any intermediate site / service beyond the social network itself

It is a fully customized check-in process (or completely customized, user defined badges in the terms of exiting communication services).

IV. QRpon Algorithm

QRpon service lets business completely customize check-in procedures: define an offer, check-in text (post) and badge (confirmation). It lets business ask clients check-in through the customized mobile web application and get reward for that. Lets consumers post links (data) in social network and get bonus for that.

Get coupons (bonuses, prizes, etc.) right on your mobile just for telling your friends about it. Deliver coupons (bonuses) right to mobile users shared info about your business.

Thus we have: bonus for link, on-site check-in for coupons, links building in the real world. Ask visitors to endorse your business in the social networks and deliver bonuses (coupons, discounts) for them. Just a simple sequence of steps: create mobile web site with your offer, prepare QR code for it, put QR code on your desks, walls, product wrap, etc. Ask users to scan QR code (check-in) in order to get confirmation for the reward. All the software you need is here.

Algorithm for business:

1. Create a mobile web site with your offer (coupon, discount info, prize, etc.). All the software you need is here. Just fill a simple form

2. Basically you need the following things for creating your mobile site:

- your offer
- text for publishing in the social network
- response (confirmation) for the endorsement (coupon info, discount, prize, etc.)

3. Create a site (web page) and QR code for it
4. Test this QR code and the whole process right from your desktop and/or mobile
5. Print QR code and use it on-site. Place it on the table, wall, product's wrap, etc.
6. That is all. Ask your visitors/clients to scan this code for the reward. As soon as he/she scans your QR code and login to the network, your text is getting published in user's social circle (wall, timeline). And as a confirmation for that our service provides the above-mentioned response (badge). This response (data on the mobile screen, mobile web page) could be presented to staff at business location and used for claiming benefits.
7. Create a new site (a new check-in procedure) for new product (offer, etc.). See step 1 above.

Algorithm for consumer.

1. Make sure you have QR-code reading application on your phone (it is free).
2. Scan QR code from your iPhone, Android, etc on-site.
3. Open suggested mobile web page.
4. Login with your Facebook ID (check-in)
5. See bonus (discount, prize, gift, etc.) info right on your mobile
6. Show this info to the staff on-site and claim your benefits

Thus, we have win-win case: business get social networks marketing, consumers get rewards.

V. Discussions and Future Work

What could be added here in the future versions (or as some premium service)? This service at the moment of posting data to the social network has got access to the user's social graph. And it is very important moment. It means, particularly, that we can program output (our confirmation page) depending on the social graph size for example. For example, the more friends our customer has, the more potential readers will see our posting. So, the benefits could be increased for example, etc. Actually we can make our final screen (confirmation) depending on the social graph data.

In other words, the confirmation screen generation might be actually some production (rule based) system. It could be a set of rules (productions) like this:

IF (some condition) THEN (some conclusion)

where conditional part includes a set of logical operations against user's social graph data and conclusion is our output (coupon, gift confirmation, etc.). So, we are going to say here, that our system could be actually some sort of expert systems (production based) that generates conclusions (badges) by the social graph defined conditions. And our store for rules will present if the future versions some implementation of well known Rete algorithm [9-12].

The Rete algorithm is an efficient pattern matching algorithm for implementing production rule systems. The Rete algorithm provides a generalized logical description of an implementation of functionality responsible for matching data tuples ("facts") against productions ("rules") in a pattern-matching production system (a category of rule engine). A production consists of one or more conditions and a set of actions which may be undertaken for each complete set of facts that match the conditions. Conditions test fact attributes, including fact type specifiers/identifiers.

Also, because the output (badge) is actually programmatically controlled, it is very easy to add some randomness. So, our output (badge) could be randomly varied.

Another interesting stuff for the future development is open API for this QRpon service. It lets any business prepare custom check-in sites right from ERP system for example. Collect some stuff (items) from ERP database for rewards and create mobile web sites (check-ins) for them programmatically.

The next important thing here is the statistics. Obviously, that can collect the traditional web statistics for our mobile sites. For two pages site the most important value is the bounce rate – how many visitors do not accept the offer. But it is also obvious, that the proposed approach lets us accumulate an interesting statistics for the business from the social networks point of view. Facebook API has got a TOS (terms of services), we can not simply log raw data, but even the accumulated info could be very interesting. Just because our application gets access to the basic social graph data at the moment our user accepts an offer we can accumulate for example sex-age histogram for our buyers, etc.

In the same time, TOS for social networks API let us keep ID's for users. Just for keeping that info (without any data) we can easily discover new and returning user and easily implement such feature as "Majors" - users with the most visits, or users with the most visits within the given interval. In other words all the functionality (related to the business delivery) check-ins in the modern communication services could be provided directly. We simply do not need any intermediate communication service (e.g., Foursquare) for that.

And of course, the above-mentioned statistics could be processed programmatically too and could be used in the badges-generation expert systems. For example, the output (badges) could depend on the current (past) performance too.

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VI. Conclusion

We presented a new service model for customized check-ins. This model lets businesses provide own forms for badges exchangeable for some benefits (e.g., discounts, gifts, coupons) without the external communication services as well as own rules for badges generation. It provides actually a new approach for advertising in the social networks. In this approach check-in records posted as exchange for some benefits (e.g., discounts, coupons, gifts) playing the role of ad messages. Finally, QRpon model presents mobile service that lets any business exchange some benefits for the clients with posting (advertising) in the social networks.

This service does not require downloadable mobile applications and based completely on the mobile web (HTML5). Via extensively used QR-codes this service builds a bridge between the virtual world of social networks and traditional retailing.

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References

[1] Washington Post (2009, March 18): "SXSW: Foursquare Scores Despite Its Flaws" http://www.washingtonpost.com/wpdyn/content/article/2009/03/18/AR2009031802819.html

[2] Facebook Places (2011, May, 1): http://www.facebook.com/places/.

[3] Qrpon (2011, February 1): http://qrpon.linkstore.ru.

[4] A.C. de Paiva, E.F. Monteiro, J. J. Leal Rocha, C. de Souza Baptista, and A.C. Silva, “Location Information Management in LBS Applications”, Encyclopedia of Information Science and Technology, Second Edition, pp. 2450-2455, 2009

[5] BS ISO/IEC 18004:2006. Information technology. Automatic identification and data capture techniques. QR Code 2005 bar code symbology specification. London: BSI., pp. 126, 2007

[6] Geolocation API Specification (2010, September 7) http://www.w3.org/TR/geolocation-API/

[7] Google Will Connect the Digital & Physical Worlds Through Mobile (2011, March 11) http://mashable.com/2011/03/11/mayer-sxsw-talk/.

[8] Facebook Connect (2011, May 1): http://developers.facebook.com/docs/guides/web/

[9] Rete Algorithm (2007, Dec 14): http://en.wikibooks.org/wiki/Expert_Systems/Rete_Algorithm

[10] C. Forgy, "Rete: A Fast Algorithm for the Many Pattern/Many Object Pattern Match Problem", Artificial Intelligence, 19, pp. 17-37, 1982

[11] D. Liu, T. Gu, and J.-Pi. Xue, “Rule Engine based on improvement Rete algorithm” Apperceiving Computing and Intelligence Analysis (ICACIA), 2010 International Conference, 2010, pp. 346-349, 2010

[12] M. Palomo, F.J. Martin-Mateos, and J.A. Alonso, “Rete Algorithm Applied to Robotic Soccer” R. Moreno Diaz et al. (Eds.): EUROCAST 2005, LNCS 3643, pp. 571–576, 2005

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