Search Engine Optimization in E-Commerce Sites

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Abstract - Search engine optimization is the method of optimizing your website for the purpose of getting free traffic from search engine. SEO has gained popularity in the past few years in digital marketing with the increase in the use of mobile phones and tablets. With the growing craze of online shopping the e-commerce websites are in competition with one another. Their profit earnings play a major role in their business.

KEYWORDS: *Search Engine Optimization, Search Ranking, Web Crawling, Internet Marketing, Website Promotion, Re-ranker*

1.INTRODUCTION

SEO (Search Engine Optimization) is the development of subsequent the principle of the search engine such as site structure, webpage language and interaction diplomatic strategies for the balanced planning to improve the site search performance in the search engine and increasing the opportunity of customer discovery and access to the website. SEO is a scientific development idea and methodology, which develops beside with the development of search engine, and promotes the development of search engines at the same time [7]. The major factors for good ranking positions in all the main search engines are:

1.1 On-page optimization

Matching web page content and key phrases or keywords searched. The main factors to optimize web pages are keyword and key phrases density, keyword formatting, putting keywords in anchor text and the document meta-data (page title tags, Meta description tags, Meta keyword tags etc). Each web page on some website should have different title tag, Meta tag description and Meta tag keywords. The number of times the key phrase is repeated in the text of the web page is a key factor in determining the position for a key phrase [7].

1.2 External links (back links, backward links) and inbound links

Google and other search engine counts link to a page from another website as vote for this page. In other words, web pages and websites with more external links from other websites will be ranked more highly. The quality of external links is also very important factor, so if links from other web pages are from a website with a good reputation and with relevant content and key phrases, then this is more valuable. Many of web focused companies should improve this aspect of search engine optimization in process called external link building and internal link architecture. Web centered companies should always try to get links from web pages with the higher Page Rank (PR) or from web pages with a PR rating at least four. Page Rank is a scale between 0 and 10 used by Google to determine the importance of websites according to the number and quality of inbound links and external links (back links). Incoming or external links to website should always come in natural textual form, rather then in graphic form (Banner adds images etc). Google and other search engines does index or evaluate image links, but without textual links web companies won't increase website rank or popularity. The Domain name maturity, Internal link structure, URL structure, Bounce rate etc. factors are very important for good ranking position in the search engine.[7]

1.3 Off Page optimization

This is the technique for making back links. Back links are normally termed as link back from other website to our website. Back links are important for SEO because search engine algorithms give credit, if any website has large number of back links. As well as back links increase, website popularity will increase.[4]

2. Literature Review

2.1. Literature review process.

The literature review process is developed through the following three (3) stages:

1. Bibliography collection and search strategy: For the needs of the search, we have adopted "briefsearch" and "citation

pearl growing" search strategies. The first strategy helped us to collect a series of research works (quite fast). In order to achieve an adding value in the search process, a second search strategy is adopted, which helped us to identify some key research works in order to adopt the existing terminology and concepts, quite useful for the search of other research works. We believe that it was the most suitable approach in order to investigate a research topic almost unsearchable.

2. Based on the first stage, an extension of the literature review will be achieved progressively.

3. Abstractive synopsis and homogenization, based on the keywords, will allow us to categorize the research works. We believe that the G.I.S.T. principle will provide us with a safe guide in order to identify broader groups arisen from the research question.[8]

2.2. Based on the research papers previously proposed research papers are:

2.2.1. Page Rank Algorithm

Originate from Google's founder, Larry Page, is used to recognize the significance of web-pages separated in levels of 1-10 of which 10 represents full score, the higher PR value (Page Rank value), the more accepted the pages as in (1): when the PR value of a website has its score as 1, it means that this website has not popularity while the PR value of 7-10 shows that such website is very popular (or very important). In assumption Page-A has its page-t1, t2, and... tn linked to it, then Page-A has its PR value algorithm as follows:

$$PR(A)=(1-d)+d\{PR(t1)/C(t1) \ldots PR(tn)/C(tn)\} \ [7]$$

2.2.2. Hill Top Algorithm

There exists an essential fault for Page Rank Algorithm since a complete "importance value" is assigned to a webpage based on its linked quantity and quality. However, the "Page Rank value" is not a expression for a query, so even when a webpage just infrequently mentions key word departing from a thematic query in the content, the page can also get a higher ranking because of its high level of "Page Rank value" [18]. The Hilltop Algorithm is a speedy positioning method subject to classification of "experts" proposed by Krishna Bharat and George A. Mihaila, which has been applied by Google to the front-end of Page Rank. That is, the request is treated initially when it reaches using Hilltop Algorithm and given weight. Secondly, when nothing is searched out, it returns to "0" after which the Page Rank Algorithm is used for calculations. Finally, related ranking is conducted according to the result ahead the weighing of two algorithms.[7]

3. Problem Formulation

The algorithms take into account the number of clicks on the page of an e-commerce site which has been visited for searching a product despite the fact that the specific product has been bought from that same site or not. It is based on the number of clicks rather than profit earned from the site or web page. For example a customer searches more number of pages of a product and hence clicking more number of times on a particular website , while the same product is available more easily on some other website and the hence the number of clicks on the latter are less in comparison to previous one. In search engine the advantage is given to those e-commerce site which has higher number of clicks, no algorithm counts the profit of e-commerce site by counting the **profit clicks**. No algorithm checks that the item is searched has been bought or not by checking the **profit clicks** that is the "confirm payment" click or "place order" click.

4. Objective

The site which has a higher profit clicks and better reviews should be appear at a higher position in the search engine result pages rather than being based on number of clicks.

5. Proposed work

The following objective can be achieved by taking into account only the click which results into checkout click or the clicks that make it to the cart and are further processed for placing an order for the specific product. After the customer clicks on the 'place order' (we also call it as **profit clicks**) icon the customer will then be directed to a page where the customer will be required to fill in the necessary details for the delivery of the product and hence complete the order.Once the order is placed successfully , this click for that specific product which has been bought is shown as a 'yes' in the 'converted' column and 'no' if the order was not completed. The information about all the clicks will be stored in a database for further reference and evaluation .These clicks can be used to calculate the click through ratio (CTR) which is the ratio of number of yesses to total number of yes and no.
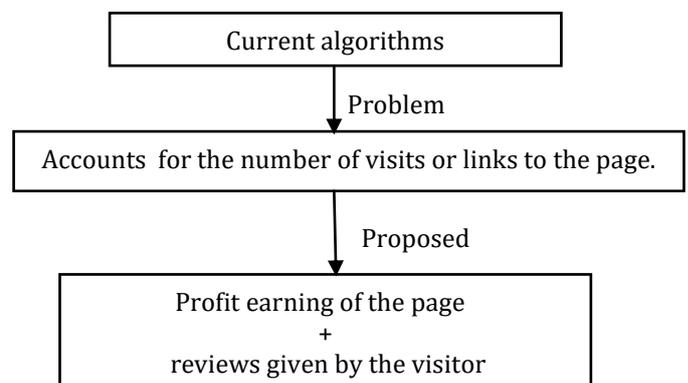
6.0 Result and Result Analysis

Below is given a comparison between the previous algorithms and our algorithm.

	Direct clicks	Indirect clicks	Profit clicks
Previous algorithms	Counts	Counts	Doesn't count
Proposed algorithm	Records but doesn't count	Records but doesn't count	Counts

7.0 Conclusion

Higher rank will be given to those e-commerce sites in a search engine which have a higher profit or earning this can be done by counting the profit clicks like the "place order" or the "checkout" click.

If profit is same then the reviews will be taken into consideration, this can be done by checking which e commerce site has got more and better reviews

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