SEO Techniques for a Website and its Effectiveness in Context of Google Search Engine

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Abstract— Due to the exponential growth of the Internet, search engines have the complex task of sorting through billions of pages and displaying only the relevant pages for the submitted search data. Google has become an essential link to search the information online. Due to this reason, Search Engine Optimizers should actively learn the techniques that drive visitors to their site. Searching online has become a part of everyday lives of most people. Whether to look for information related to their daily lives, most people have made search engines part of their daily routine. Because of this reason, search engines occupy "a prominent position in the online world"; they have made it easier for the people to find the information among the millions of web pages on the Internet. Due to the large number of websites, search engines have the complex task of sorting through the millions of pages and displaying only the most relevant pages. This Research Paper provides the analysis of Search Engine Optimization techniques that can help to improve the ranking of a website or to get more number of viewers or to increase visibility of a website.

I. INTRODUCTION

We are living in the world of technology where internet is the primary source of information. Everyone is using the internet for small as well as large information either he/she is a student, a businessman, a shopkeeper, a manager in a multinational company, a professor in large university, or a scientist of NASA.

There are billions of web pages available on the internet. If the user searches for particular information then there are billions of web pages related to that particular information. So, it is tough to understand that which webpage is more relevant and which is less relevant. Sorting through billions of web pages and displaying only the relevant web pages is a complex task. There are billions of websites available on the internet and each of the website wants to get searched or wants to appear at the top of the search engine result page. [1]

In today's era, there are very less number of peoples who use traditional media such as Newspaper, Magazines, TV, and FM etc. [1]. In the early age, we were using newspaper as a source of employment or we used to travel to employment office for the job. The traditional media was the only link to connect with the services.

Now days, most of the users turn to search engines as a replacement of traditional media [1]. They can easily find the solutions of their problems on search engines and it was also stated in earlier papers that a business can grow more easily if

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the website is appear in the 1st page of Google search engine.

So, the question here comes is, what determine the ranking of a website? Or how is it possible to stay visible and found among the billions of websites available on the internet? The only solution of these questions is SEO (Search Engine Optimization), i.e. having a website optimized so that Google searchers are able to find it.

Due to the exponential growth of the Internet, search engines have the complex task of sorting through billions of pages and display only the relevant pages for the submitted search data. Google has become an essential link to search the information online. Due to this reason, SEO engineers should actively learn the techniques that drive visitors to their site. [1]

Searching online has become the part of the everyday lives of most people. Whether to look for information related to their daily lives, most people have made search engines part of their daily routine. Because of this reason, search engines occupy "a prominent position in the online world"; they have made it easier for the people to find the information among the millions of web pages on the Internet. Due to the large no. of websites, search engines have the complex task of sorting through the millions of pages and displaying only the most relevant pages. [1]

Paper Statement: This Research Paper provides the analysis of Search Engine Optimization techniques that can help to improve the ranking of a website or to get more number of viewers or to increase visibility of a website. I have searched

most of the techniques related to SEO and the importance of each technique.

Purpose and Motivation: In today's era, searching online has become part of the everyday life of almost every person, whether to look for information about the latest car or a bike or anything etc. Most of the people have made search engines parts of their daily life. Due to this reason, search engine occupies "an important position in today's online world." Due to a large number of websites available in today's world, search engines have the complex task of sorting through the billions of pages and display only the most relevant pages in the result page for the submitted search query. [1]
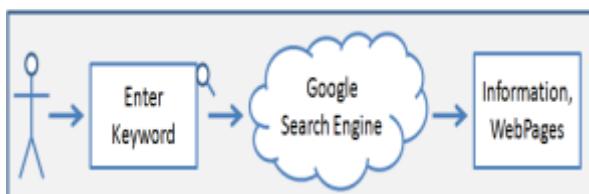

Fig-1.1 Google that connects searchers to information [1]

As we all knows, internet is the primary source of information whether a student using it for the assignments, a teacher using it for papers, an engineer using it for programs, a businessman using it for decision making or a scientist using it for new researches. As per the above Figure-2.1, User or Searcher will enter a keyword about which the user wants the information. Then Google search engine will available all the relevant websites/information's that are related to that particular keyword. These websites/Webpages may be billion in numbers. Google will rank all these websites as according to SEO techniques applied to them.

So, the purpose of this research is to understand that how can we increase the ranking of a website. The below mentioned SEO techniques given in section-V will help to improve the ranking of a website.

This section gives you the understanding of Search Engine Optimization and motivation of this research. Section II is about Search Engines and how search engines works. Section III will help us to understand a few of the Search Engine Optimization techniques/methods. Section IV is Importance of SEO techniques. Advantages and Disadvantages of Search Engine Optimization are in section V. Section VI is Tips to improve the ranking of a website in Google search engine. Finally the conclusion is in section VII and section VIII is scope or future work. Section IX is reference/bibliography.

II.   SEARCH ENGINE AND HOW IT WORKS?

Search Engine is a software system which is designed to search the information on the Web. Google Search Engine is the most used search engines among the all search engines on the web. [4]

Search Engine performs several activities in order to deliver search results like, Crawling, Indexing, Processing, Calculate Relevancy and Retrieving.

1. Crawling: Search Engine crawl's the web to check what is there.
2. Indexing: After the crawling, next step is to index its contents. The indexed page is stored in the database, from where it can be retrieved later.
3. Processing: In processing, search engine compares the search string with the indexed pages in the database.
4. Calculate Relevancy: There may be more than millions of web pages that contain the search string, the search engine calculates the relevancy of each of the web pages in its index.
5. Retrieving: Retrieving has been just to display the result in the browser. [4]

Fig-2.1 Different types of Search engines [3]

III.   TECHNIQUES (METHODS) OF SEARCH ENGINE OPTIMIZATION (SEO)

SEO techniques can be broadly classified into two categories. These techniques are more effective to improve the ranking of a website in the context of Google search engine if implemented in the right way:
1. On Page Optimization
2. Off Page Optimization

On Page Optimization: All these techniques can be used by the webmaster in the website. On Page Optimization includes:

1. Page Title: The page title tag <title></title> tells both the user and search engine about the topic of the particular page. The title is visible in the title bar of the   web browser as well as the headline of a search engine result. It is the first element Crawler examines while crawling the information. The title is a most important summary of what a page is all

about and therefore carries the highest weighting in the Google algorithm.

Example: <title>Shopping Mania</title>
By using this title tag you are increasing the possibility of high rank among all the shopping sites in Google. [2]

2. Meta Description: Meta description is a place where you need to put the brief description about your page. A page description meta tag may be a sentence or a paragraph.

   Example:
   <meta name="description" content="This is a shopping website where you can buy clothes and shoes."/>
   When Google creates search engine result page, the description tag may appear below the title in the result. [2]

3. Meta Keyword: Meta Keyword provides the information about the content of the web page to the search engine. Few search engines like, yahoo and ask.com always pay attention to the keyword tags while Google search engine is complex and has to consider lots of things.

   Example:
   <meta name="keyword" Content="men, kids"/>

   This will search all the keywords like men shirts and kids shirts on the web page. [2]

4. Heading Tag: The heading tag is the second most important SEO element after the title tag. It can also he handled by using CSS. HTML supports up to six levels of heading tags.
   Example: <h1>This is your first heading i.e. h1 in your webpage.</h1>. [2]

5. Image alt Attribute: Images are like the straight forward component of the website, but you can also optimize them as according to your requirements. Images have a distinct filename and ALT attribute, you can take advantages of this attribute and make your webpage more user friendly.

   Example:
   <imgsrc="manshirt1.jpg" alt="Mans Shirt"/>

   Optimizing your image filename and alt attribute makes it easier for Google image search to better understand your images. [2]

6. Include a sitemap page: Crawlers cannot index pages that can't be crawled. A site map helps spiders find all the important pages on your website, and helps the Crawler understand your website's hierarchy.

Example:
<urlset>

<url>

<loc>http://www.shoppingmaniasite.com/</loc>

<priority>0.8</priority>

<lastmod>2014-03-22T18:15:27+00:00</lastmod>

<changefreq>daily</changefreq>

</url>

<loc>http://www.shoppingmaniasite.com/about-

us.html</loc>

<priority>0.7</priority>

<lastmod>2014-03-22T18:15:27+00:00</lastmod>

<changefreq>daily</changefreq>

</url>

</urlset> [2]

Off Page Optimization: Off page optimization are the strategies for Search Engine Optimization that are done off the page or that is not directly related to page content. These are used to maximize the performance of Search Engine Optimization for the target keywords related to the page content. Off Page Optimization includes:

1. Groups: Join groups and post your comments with the link of your website or webpage. This type of optimization you don't need to perform on your website.[2]

2. Create company/your website page on Social Networking Sites: Place links of social networking sites like, facebook and twitter on your website. Also create webpage or links on these social networking sites by use your website contents and links. This will help to visit more users on to your website and probably increase the ranking of your website.[13]

3. Link Building: Link building is a process of building or creating the links in order to improve the ranking of your website. [7]Link building technique helps to create the link on well reputed websites and increase the ranking of your website. Google also provide Google Adwords, by which Google provides an area for the advertisement of your website and sure increase the ranking of your website.

4. Blogging: Someone said, Blog stands for Better Listings on Google. [9]Blogging may be explained as discussion forum or information site. Blogs is a type of open area

where one or more users can ask their questions and they can be responded with the relevant answers. You can provide the answers with your website links. The number of times you provide your website link; this will be accessed by more number of users or may increase the searching of your website. The more number of times your website is searched, the ranking of your website in the hierarchy will also improve.

IV. IMPORTANCE OF SEARCH ENGINE OPTIMIZATION (SEO) TECHNIQUES

Techniques	Importance
Page Title	Page Title is the first thing that **Google** search for. The title tag tells search engines, what the page is all about. So, it is important to always use the keyword which suits your webpage and which is in demand of users. The title tag will always appear in the web browser tag.
Meta Description	Meta Description Tag provides the short description of the page. This description may appear in the **Google** search engine result page. This description is more helpful for the user to understand about your webpage or your website. It is extremely important part of search marketing.
Meta Keyword	Meta Keywords are comma separated words that describe the contents of a website. This may or may not appear the search engine result page. This is less important as compare to Meta description.
Heading Tag	Heading Tags serve to divide the page into sections. Heading tags provide structure to your webpage and the structure webpage is easy to follow and can be rank better as compare to unstructured pages. H1 is the most important sentence which indicates the topic for the entire webpage. [10]
Image alt Attribute	There are number of users that may not view the images on their browser, like-users with slow internet connectivity, users that disabled the images on their web browser, etc. So, HTML provides us the facility of image alt to describe the image in readable text mode. [11] Search Engine use the alt attribute to determine the best image to return for a query and improve the ranking of the website.

Techniques	Importance
SiteMap Page	Sitemap offer the opportunity to inform search engines immediately about any changes on your website. The changes in a website will be indexed faster. Sitemap also help in classifying your website content. [12]
Join Groups	When you join groups, you have more chance to advertise your website. You can update your website link in the group, by which more number of users can search for your website and may increase the ranking also.
Social Networking Sites	Social Networking sites are also an effective way to improve the ranking of a website. Social Networking sites like facebook, Twitter are more famous now days. You can advertise your website there also. Advertising through these social networking sites are increasing day by day.
Link Building	Link building is a process of building or creating the link in order to improve the ranking of your website. You can build your link free or by paid some amount also. Like-**Google** Adwords, where you need to pay some amount to advertise your website.
Blogging	Blogging may be defined as discussion forum or information site. **Google** also providing the blog facility. You can create a blog and upload the link of your website for any queries to the user. They will contact to your website and may help to improve the searching of your website.

V. BENEFITS AND DRAWBACKS OF SEO

These are few benefits of SEO:
1. The primary benefit of SEO is you can be ranked up in top 10.
2. SEO helps to increase the traffic on the website and leads to higher sales for your business.
3. When your site is ranked up, the return of investment becomes greater as you get a lot of free traffic for your website.
4. SEO is a cost effective way of marketing. [2]

These are few drawbacks that I found in SEO:

1. There is no predefined standard among search engines. All most all of the search engines using different approaches for Search Engine Optimization. [2]
2. Another drawback with SEO is that you have to always update the information. [2]

VI. TIPS TO IMPROVE GOOGLE RANKING OF A WEBSITE

These are few tips to improve Google ranking of a website:

1. Google seems to give weight to the title tag of the webpage. Use this title as according to your web page Like- if your site is shopping site then use the title shopping. [5]
2. Always use the words or keywords that people are searching for. Any easy way to find this out is to go to Google's home page and start type your phrase slowly; you will find the correct word that is people searching for. [6]
3. Content is more important to increase the ranking of a website in Google. Your content should be forever useful, not trendy or disposal. [6]
4. Start posting on blogs or social sites, as blogs love fresh contents, and it's a great way to build links and increase the ranking of a site on Google. [5]
5. I suggest you to update your site more frequently. If you publish the contents to blog, Google start to recognize you as a great source of information. With each blog, you have another chance to increase the ranking of your website. [6]
6. Links are also so much important. Google love links, especially from other relevant websites. Join any with back link to your website and submit your site to any relevant directory to improve your ranking. [5]
7. Web sites which are already running or online can progress upward than uploading a new website on the internet because Google and other search engines carry out indexation of old websites more frequently, which ultimately helps in fast crawling. So, it is recommended you to link your website with some old famous websites.[7]

Therefore, SEO techniques needs to be implement to improve the ranking of a Website.

Fig-6.1 SEO improves Google ranking of a site [8]

VII. CONCLUSION

In the end, I would like to conclude that Search Engine Optimization is a very important internet marketing strategy that is the primary need of every company now a day. The optimized website appears at the better rank of the search engine result. This research paper is based on reviewing the available SEO techniques, i.e. On-site and Off-site techniques to optimize the website to make the website search engine friendly. These techniques can help to improve the ranking of a website if used in a proper manner i.e. suggested in the VII section.

The contents need to be updated on time to time basis to find the best result. The Google also offered the GoogleAdward i.e. paid advertisement.

VIII. FUTURE WORKS

As a further dimension in future, I will try to develop an effective and accurate system for SEO for obtaining the highest ranking of a website.

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