SEO-A Review

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Abstract— **Search Engine Optimization (SEO) is the process of affecting online visibility of a website or web page. This is important to improve rank of search result for website and get more page views, which are requested by user and these users can be converted into customers. A Search Engine Optimization may target on different search engines like image, video, academic, news, industry etc. and using these engine ranks they provide better and optimized result for user. These ranks help them to view popular page among the number of page available in the (non-paid) search result. Also, SEO is to help website managers to improve traffic of website, to making site friendly, to building link, and marketing unique value of site. SEO classified in two categories as either white hat SEO or black hat SEO. White hats tend to produce results that last a long time, whereas black hats anticipate that their sites may eventually be banned either temporarily or permanently. SEO is used to improve their frames and create more economic effectiveness and social effectiveness and also they can focus on national and international searcher(s).**

Keywords— **Search Engine Optimization, White Hat, Black Hat, Link-Building, Marketing, Website, Social Sharing, Ranking.**

I. INTRODUCTION

A search engine is software that is designed to search for information on World Wide Web. The information may be mix of pages, images or other so such traffic is generated on sites. For solve this problem, Search Engine Optimization techniques are used. SEO is a very broad topic. It is a part of search engine marketing. SEM is a paid and organic type of search engine. Search Engine Optimization is a technique, which is used to improve visibilities of websites and also improve rank of search result. The term search engine optimization implies a relevant history must be considered after the development of search engines. Day by day different search engines are created. This is show in fig. 1. In recent era, used and popularity of internet is increased. It creates difficulty for site seeking, public visibility [1]. According to study, growth of internet used is about 3 million on the internet each moths [1]. So, number of user become large. It is difficult for websites to be visible for all the other sites. SEO helps search mangers to solve traffic problem which are generated on site and also making site friendly, to build link and making unique market value of sites.SEO may target different kind of search, which are show in fig.2. Seo is used for website improvements and understanding the ways individuals may look for it. SEO is a method to get a better ranking for a website in search engines such as Google, Yahoo or Bing. [2].Cause of many uses and sites are available, delay problems are generated.
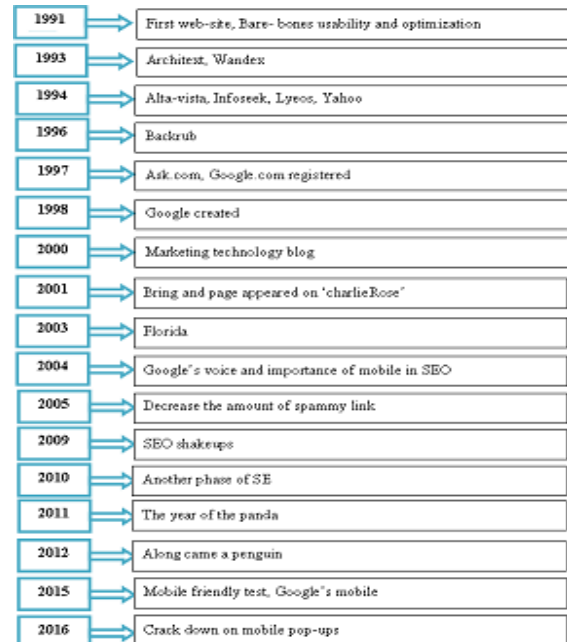

Fig.1 History of SEO

So using cluster k- means algorithm solve delay problems, improve search time of search engine and also easily used Message Passing Application Programming Interface (MPAPI) technique. The search engine Sphider, which is a popular open-source web-spider. It includes an automated crawler, which can follow the links found on a website and an indexer, which builds an index of all the search terms found in the pages and uses the Porter Stemming Algorithm in a process of removing. The commoner morphological and database are used K-Means Algorithm and MPAPI to reduce the time of clustering for all the keywords [2]. Furthermore, Search engines face some difficulty this difficult was maintained by query log.

Fig. 2. Architechture of SEO

Every search engine maintains a log of what users search on sites and also it including user ID, query, clicked URLs, rank of URLs and time of access. This huge amount of information from query logs can provide user browsing behavior and user's information which are needs for search [3]. SEO consider how search engine work, what people search and which type of keyword used in search engine.

II. ARCHITECTURE OF SEO

The Web create better business platform for different companies, they changed work strategy and plans and gives better performance. So to extent today's marketers and achieve goal and profit, its compulsory to know about SEO. In SEO architecture internal as well as external both webmasters are following and affecting to improve their sites. This is show in fig.3.

Fig.3. Architecture of SEO

SEO needs to be defined in a holistic sense meaning that it is part of, characterized and explained by its relation to your website (the whole) [4]. Different character which are show in fig play different role in SEO. Using them we get better performance for good business and get profit too.
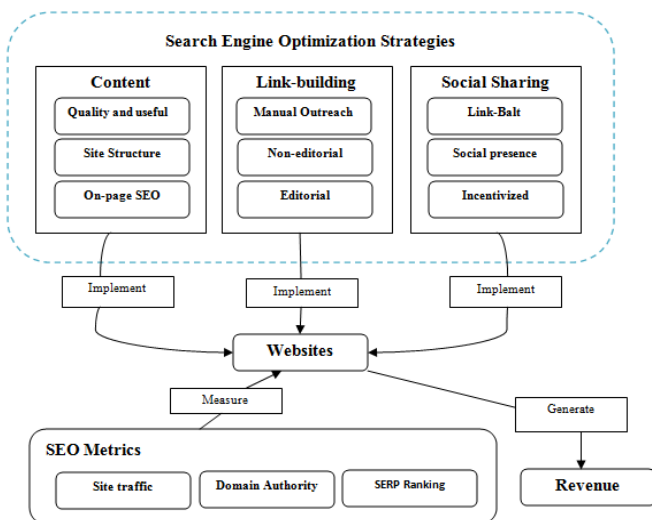
A. SEO for websites

Fig.4. SEO for Website [5]

In SEO, they have two types of search results: organic and paid. SEO technique is used to optimize website and makes good rank in organic search result. When traffic generated on sites, that time new sites rank become lower compare to other. So, using SEO we can overcome traffic problem and site rank become higher easily. For improving ranking problem as well as traffic problem SEO follow such steps:(1) Check site-structure, quality, useful content and on-page SEO;(2) Page link using Link-building and check popularity; (3) Social sharing-focus on viral and interesting content; (4) Implement all strategies detail on websites; (5) SEO Metrics like sit traffic, Domain authority and SERP franking measure; (6) Generate Revenue [5].

B. SEO Area, Libraries and Ranking

1) SEO Area: SEO work for different area of search engine such as; (1) Google; (2) Bing; (3) yahoo, etc. These all search engines are use for searching. In SEO they work in three level: (1) bot/spider: Crawls web and indexes web pages; (2) Index: Contain all information on a page; (3) Search Query: A search engine to find content [1].

Fig.5. How search engine work [1]

2) SEO Libraries: SEO libraries provide collection of information which is written in SEO. Such as;

- SEO: Blogs & Feeds
- SEO: Cloaking & Doorway Pages
- SEO: Content and Writing
- SEO: Crawling and Robots
- SEO: Domains & URLs
- SEO: Duplicate Content
- SEO: Flash
- SEO: General
- SEO: Image Search
- SEO: Local
- SEO: Mobile Search
- SEO: Redirects & Moving Sites
- SEO: Spamming
- SEO: Submitting & Sitemaps
- SEO: Tagging
- SEO: Titles & Descriptions
- SEO: Video Search, etc [6].

3) SEO Ranking: The rank optimization technique works by understanding the query logs. Using clusters of queries by finding similarities using proper keywords, we regenerate rank of search engine [3]. For this work SEO ranking architecture is used. In SEO ranking architecture, some modules are included such as: Transaction logs, Query similarity Analyzer, Query cluster making tool, Relevancy finder tool, URL rank updater, sequential pattern generator algorithm, Rank updater.
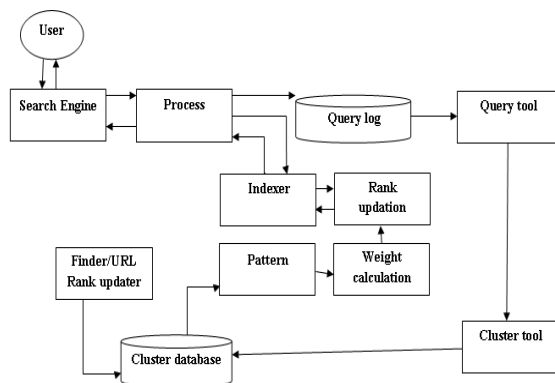

Fig.6. SEO Ranking [3]

III. SEO TYPES

A Search Engine Optimization technique is used to improve a traffic to a website by obtaining a high-rank placement in the search engine result page (SERP).SEO has different type of techniques which are helps to improve website position in SERP [7].

A. On-page SEO: On-page SEO is also known as an "on-site SEO". It is act of optimizing different parts of your websites which affect on search engine ranking and change own website too. Such factors included in on –page SEO like title page, headings, URL structure, Keyword, etc [8]. This is showing in below fig. 7. On-page SEO gives information about your sites.
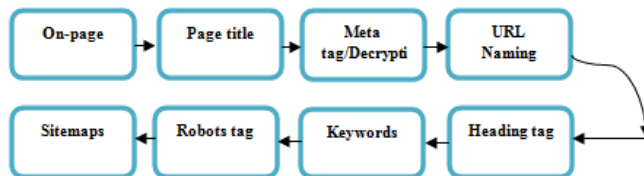

Fig.7. On-page SEO work [9]

B. Off-page SEO: It will help to your website become more popular on internet and get more visibility too. It also helps to improve your websites potions in SERP [10].

C. White-Black hat SEO:

Fig.8. White-Black hat SEO [11]

White-Black hats both are techniques/strategies of SEO, which have same goal likes on-off page. These hat SEO wants to improve site rank and visibility too [12].

1) White-hat SEO: It is a used to create high quality content with specific keywords which are relevant to increase your ranking in search engine. It has different types of techniques such as Developing of high-quality content, Keyword research, using keyword-rich Meta tags along with the description, HTML optimization of website and restructuring of pages, Link building, Manual outreach and research, Link acquisition campaigns, reach out influencers to let them discover your unique and high-quality content [12].

2) Black-hat SEO: It is deals with the search engine algorithms and manipulates to obtain higher ranking for a website. This SEO technique does not follow the principles or guidelines of services of search engine algorithms [12]. Keyword Stuffing, Cloaking, Doorway Pages, Duplicate Content, Link Schemes, Article Spinning, Link Farm, etc. this all techniques used in Black-hat SEO [12].

IV. LITERATURE SURVAY

The following table 1 contains study of 12 most important papers on the Search Engine Optimization for improve search engine used, popularity, visibilities and ranking. It also includes the overview of each paper with their positive and negative aspects. Publishers and publication year are also included in the table.

Table 1: Literature Survey

Publication/ Year	Title	Overview	Positive Aspects	Disadvantage / Future work
Springer /2017	Optimizing search results for human learning goals [13]	Keyword density generally take more time to spent reading per word, so using optimizing search ranking	An algorithm that not only gave relevant, diverse results to explore	Implementation proposed in this study was not focused on the simplest level of cognitive complexity

Source	Title			
		novel algorithm for education utility leads to retrieved document sets and give more efficient result.	new topics, but also emphasized efficient keyword coverage in the results content.	and vocabulary.
IJESC/2017	Review Paper on Search-Engine Optimization [14]	The visibility of a website or a web page in a search engine's ("organic") search results considers how search engines work, what people search and which search engines are preferred by their targeted audience.	The search engines are getting more and more advanced in determining, and webmasters are doing some work to get the rankings.	SEO techniques on your website alone aren't enough to guarantee that your site will reach in the search engine. SEO is a process that takes time to deliver results.
INFORMATIK/2016	SEO4OLAP – Search Engine Optimized Presentation of Statistical Linked Data [15]	SEO4OLAP is used to generate webpage for every possible view on statistical dataset and also present mathematical model to compute the overall number of dataset.	SEO4OLAP approach is feasible in practice and has benefits for data publisher, provider and web user.	SEO4OLAP is not able to achieve better rankings and published only small dataset.
Emerald Insight /2016	Estimating Google's Search Engine Ranking Function from a Search Engine Optimization Perspective [16]	This study provides web market and make simple way to searching the ranking of an SEO.	This study considered a limited set of ranking factors.	The new and original result sets are quite dissimilar.
Journal of Computer Information Systems /2016	Search Engine Optimization: Comparison of Link Building and Social Sharing[6]	Social media can be an effective method for quickly building traffic and building provides better return on investment in the long run.	The link building and social media both improve website traffic and revenue.	Only three websites are used in this study and that all three websites have a local appeal because the content is geographically based.
IEEE/2016	A Novel Approach for Rank Optimization using Search Engine Transaction Logs [3]	This paper is to present a way for investigation of transaction logs obtained by search engines.	This procedure is improved ranking with the help of weight calculation	The boundaries of clusters overlapping not define clearly.

Source	Title			
		.		
ELSEVIER/2015	Video Search Engine Optimization Using Keyword and Feature Analysis [17]	This research paper proposes a method to optimize the video rank by exploiting video search engines and thus promoting corresponding website for every visit.	This technique can be applied to improve the ranking as per the methodology.	When the content is not original and trustworthy then these methodologies not work properly.
IEEE/2015	Understanding Search-Engine Optimization [18]	Users rarely click on links beyond the first search results page; boosting search-engine ranking has become essential to business success.	Organizations can avoid unethical practices and effectively monitor strategies approved by popular search engines.	To better understand SEO's relationship to business success.
IJCEA/2015	Search Engine Optimization Using Data Mining Approach [2]	This paper decided to use the Message Passing Application Programming Interface (MPAPI) technique with the K-Means to solve the delay problem during search.	The search engine Sphider It includes an automated crawler, which can follow the links found on a site, and an indexer which builds an index of all the search terms found in the pages.	Increasing keywords datasets, the normal K-Means clustering is becoming very slow.
IEEE/2015	Search Engine Optimization: A Game of Page Ranking [19]	This paper tries to explain the comparison of quality content of different google search algorithms.	SEO can never have a short life compass.	Required more iteration for search.
ResearchGate/ 2014	Academic Search Engine Optimization (ASEO): Optimizing Scholarly Literature for Google Scholar & Co.[20]	This article introduces and discusses the concept of academic search engine optimization (ASEO).	Studies and guidelines are provided, how to optimize scholarly literature for academic search engines in general and for	Do not know whether any academic search engines are considering these data or not.

IJCSNS/ 2014	Factors Affect Search Engine Optimizati on [1]	The most popular techniques used to rank a web page highly in Google.	Google Scholar. SEO methods will keep growing in relevance and research in this area is bound to grow as the Internet continues to grow.	The effective keyword research can be considered the most important part of SEO process.

V. SEO BENEFITS AND CAREER

SEO become widely adopted online site cause of its effectiveness. While the benefits of SEO are vast and cause of demand and popularity, carrier opportunity in SEO become increase in day by day.

A. *SEO Benefits:* In digital market SEO become very effective and popular so there are many benefits to a good SEO. Such as

    1) Increased traffic

    2) ROI and Cost effectiveness

    3) Increased site usability

    4) Brand Awareness, etc [21].

B. *SEO Career:* Career in SEO is become popular in recent era and different opportunities are available for choose SEO as a career such as;

    1) Great Demand

    2) Good Money

    3) Advertising and Marketing

    4) Large Brand publicity

    5) Organic and Direct demandable Ads, etc [22].

VI. CONCLUSION

Search Engine Optimization is a good keystone for any good web related strategy. In this study, we show that SEO have different types of techniques. Using those, users/managers can easily found any result by entering proper keywords and also improve sites visibilities, traffics, time and rank. SEO techniques can be applied and explored on other search, likes image, video, news etc. SEO technique is used to modify website and increase ranking in organic (v/s paid).This study conclude that SEO gives more advance search result and using log tool and cluster algorithm get high ranking by comparing different sites and URL.

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