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AN ANALYSIS: NEED OF TECHNOLOGY IN VOTING SYSTEM

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ABSTRACT

Revolution in technology is increasing rapidly these days. Technology based solutions are being provided to many unsolved problems of the society. Voting is one such issue which is a process of electing a right candidate for the further administration of the system which has technology based solution but needs betterment for making it more efficient. Hence to elect a right candidate each one of the citizen needs to participate in the elections which is not being achieved due to various reasons. One of the reasons for non participation is the migration from their voting places. In this paper we have conducted a survey and compared the opinions of different class of people and the need of technology in voting system.

Keywords: *Online Voting System; Need of Technology; Pearson Correlation.*

I. INTRODUCTION

Advances in science and technology has brought people closer to each other and also created employment opportunities throughout the globe. Availability of global opportunities for employment has led to the migration of people to the different parts of the globe in pursuit of jobs. These migrations within and away from the country is common due the increase in the job opportunities for both literate and illiterate people in the current scenario. This migration has forced people from participation in voting during elections in electing the right leader. This may be one of the reasons for the reduced percentage of voting in elections. Involvement of technology could lead to the active participation of migrants in the election and thereby enhance the voting rate in elections. This paper proposes the methodology for assessment and analysis of the opinions collected from different class of people regarding the requirement of new system and need of technology in voting system.

II. LITERATURE SURVEY

A. Migration

Migration of the citizens from their original place of residence to other places is increasing drastically due various reasons such as marriage in case of female and employment in case of males. As represented in Figure 1, Census Statistics of 2011 indicates that there is an increase in migration rate from 31.45 crore to 45.36 crore which is nearly an increase by 47% compared to the census of 2001. Among the migrants 70% of them are females who relocate from their original place of residence and 49% of them relocate due to marriage [1]. Around 14 Crore male migrate every decade for the reason of work and employment which may lead to non availability of such citizens during elections which is a factor for reduction in the voting rate. If Voting system is implemented online with proper security, migrants can also participate in voting which increases the rate of voting.

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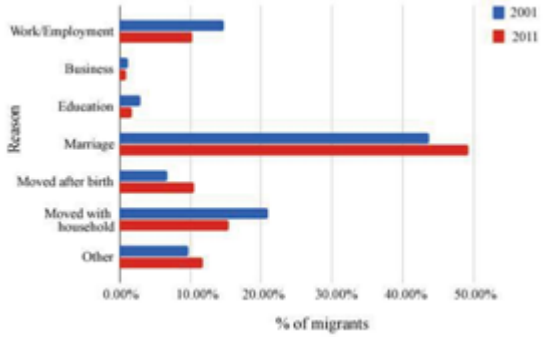

Figure 1: Migration Statistics as per Census – 2011. [1] B. Online Voting systems

Online voting system involves the aspects of belief and security which is essential in the process of electing the representative by the citizens of a democratic country. In the current voting system the voting rates is comparatively less due to various reasons such as migration and lack of computer literacy. Online voting system is a means through which the citizens can cast their votes in a more secured manner as it is unique for every citizen [2]. Social media can be used to predict the results of the voting as twitter was used in the general election of 2014 in India. Based on the data volume of twitter sentiment analysis is carried out to analyze the results of voting. In India apart from the twitter data analysis the regional dynamics should also be considered for the accurate prediction of the results. Sentiment analysis using the tweet data also leads to ambiguity as the sentiment analysis using twitter data may not provide the accurate opinions of the public [3].

When the Data is increased, Big Data and Analytics using Apache Hadoop can be utilized for the analysis of the Indian election strategies. Big Data provides the greater benefits for the analysis of huge data with varying complexities. Big Data provides mechanism for Data collection, extraction, integration, processing and interpretation of the data with relatively greater accuracy. Political parties can concentrate on the technical aspects in analyzing the strategies for the participation of the elections [4][5][6]. Big Data Clusters performance is based on various factors such as Cluster string, Map Reduce algorithm, input data set, data node, data locality, concurrent activity and network considerations. Efficiency of the Clusters is based on the CPU Core, memory, disk and network capacities [7].

III. METHODOLOGY

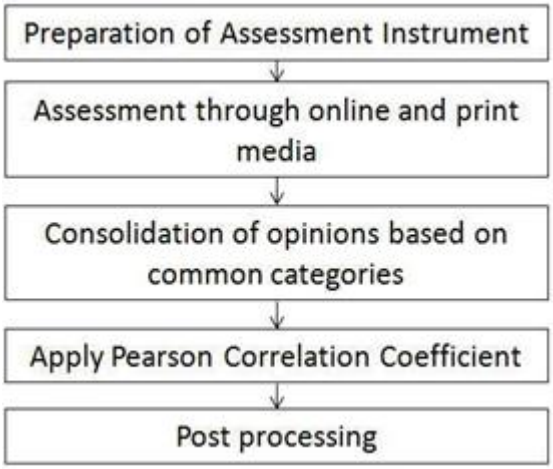

Figure 2: Methodology of the proposed system

Figure 2 provides the methodology adopted for the analysis of need of technology in voting system.

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A. Preparation of Assessment Instrument

For the analysis of the need of technology a proper and well defined instrument is necessary. Proposed instrument is able to reach the proposed objectives of the research. This instrument is verified for its validity and reliability using cronbach's alpha model. Cronbach's alpha is most commonly used when you want to assess the internal consistency of a questionnaire (or survey) that is made up of multiple Likert-type scales and items. A Likert-type scale is used to analyze the information gathered in marketing, business, emotions, opinions and description of people involved in an environment [8][9].

B. Assessment through online and print media

The proposed instrument has been made available online through Google forms. Some of the nearby villages have been visited and data has been collected for carrying out this research. Print media has been used at some remote places where internet facility was not available. Assessment has been conducted for data collected from both print as well as online media.

C. Consolidation of opinions based on common categories

Based on the parameters namely migration and literacy, all the assessed samples are merged together by applying simple average estimation.

D. Apply Pearson Correlation Coefficient

Pearson Correlation Coefficient is used for measuring the non parametric association of two random values. It provides the useful estimate of the opinion matching of two classes of people based on their assessments.

E. Post Processing

Certain conclusions are drawn based on the coefficient value. Coefficient '1' indicates that both the categories have similar kind of opinion on all questionnaires. Coefficient '-1' indicates reverse opinions and 'zero' indicates that they are not comparable.

IV. RESULTS

Table 1: Assessment Data of Computer Literate and Computer Illiterates.

Computer Literate (CL)	2	3	2	3	4	2	2	4	4	4	3	3
Computer Illiterate (CI)	1	1	2	2	4	2	2	4	2	3	3	2

Table 1 represents the assessment taken from the samples of two classes of people namely computer literate who knows how to carry out online transactions; computer operations and others are the illiterates.

Table 2: Pearson Correlation Coefficient (PCC) estimation between Computer literates and Computer illiterates

	Computer Illiterate (CI)
Literate (CL)	0.649519

Table 2 clearly reflects that the opinions collected for assessment has reached to almost 64%. It indicates that computer illiterates and Computer literates have encouraged for the use of technology in voting system.

Table 3: Assessment Data of Working with Migration and Working at One Place

Working With Migration (WWM)	4	2	3	4	4	2	4	4	4	4	4	4
Working At One place (WAO)	2	2	2	4	4	2	4	4	4	4	4	2

Table 4: Pearson Correlation Coefficient (PCC) estimation between Working at One place and Working With Migration.

	WAO
WWM	0.649374

Table 4 represents the results of the assessments carried on the parameters collected from samples of two classes of people namely who Work At One place (WAO) and who Work With Migration (WWM). The Pearson Correlation Coefficient between these two categories is around 65% which indicates that these categories of people are of the opinion towards the introduction of technology in the voting system for the forth coming elections.

V. CONCLUSION

Voting is mandatory for the betterment of the society. Consolidation of the opinions of different category of people and deriving the conclusion will definitely lead to improvement in the way the election process is handled so that the voting percentage can be enhanced. As per the availability of the technology and the need of the systems, in this paper we have tried to consolidate the opinions from the various classes and categories of people through the online and offline surveys. Data collected through the survey is analyzed using the statistical tool namely the Pearson Correlation Coefficient. The questionnaires were more focused towards the need of online voting system based on certain factors like migration and computer literacy. As per the available sample space the opinion is around 65% with respect to the questionnaires framed in the assessment scale for two classes of people namely Computer Literates and Illiterates as well as the Working with Migration and Working at One place. As per the result of the survey, the online voting system using the available technology may be necessary for the current environment where migration is a major concern in order to enhance the voting rate in elections.

VI. ACKNOWLEDGMENT

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