Survey on Data Mining Techniques for Visual Impaired Entrepreneurs using Mobile Network

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***Abstract* — According to WHO there are around 280 million people who are visually impaired and out of them 246 million are low vision people and 82% are all blind as well as most of them are women. Data mining has already established as a novel field for exploring hidden patterns in the huge datasets. In Sri Lanka according to international agency for the prevention of blindness they identify 1.7% suffer from visual impairment and they are in 40+ age population as well as survey that revealed 1.6% and 15.4% severe visual impairment among study population. It varies from district to district. These people taking help from someone else for their every purposes. It is very difficult and risky when considering about the Covid-19 pandemic situation. Because according to virus it avoid close contact with people and guide to stay at least six feet away from people mainly always advice about the social distance among people using several techniques. In this paper, review some advances made recently in the study of mobile phone datasets. Mainly this paper contributes social networks that can be constructed with such data, the study of personal mobility, geographical partitioning, urban planning, and help towards development as well as security and privacy issues.**

Keywords — Entrepreneurship, Visually impaired, Automated Speech, Data mining

I. INTRODUCTION

Data mining has already established as a novel field for exploring hidden patterns in the huge datasets [4]. In WHO they identify there are around 280 million people who are visually impaired and out of them 246 million are low vision people and 82% are all blind as well as most of them are women. [1] In Sri Lanka according to international agency for the prevention of blindness they identify 1.7% suffer from visual impairment and they are in 40+ age population as well as survey that revealed 1.6% and 15.4% severe visual impairment among study population. It varies from district to district. There are several ways to define blindness. Most of are define it as the inability to see at all at best, to discern light from darkness. And main thing is not all blind people are 100%blind. These people taking help from someone else for their every purposes. It is very difficult and risky when considering about the [3] Covid 19 pandemic situation. Because according to virus it avoid close contact with people and guide to stay at least six feet away from people mainly always advice about the social distance among people using several techniques. When it turn to those people And not a lot is done from the perspective of those with disabilities. In that situation it totally impact for that community and mainly they suffer from that because of their disability. When compare with current situation always hear about the social distance. But when considering it with visual impaired community how they face for that virus without help of someone? How they navigate that issue successfully? According to current situation researcher try to provide solution for above matter using one of data mining technique which is called as K-means algorithm. K-mean algorithm is a distance based clustering algorithm which partitions data into predetermined number of clusters. It rely on distance metric used to measure similarity between data points. Data points are assigned to nearest cluster. [2] And also it is unsupervised learning algorithm for clustering a set of items into groups. Here is the method which is used for K-mean algorithm set of multi-dimensional items and a number of clusters, k, we are tasked of categorizing the items into groups of similarity. The centres of these groups are called means. Here is algorithm in pseudocode,

Input: Data Set

Number of Clusters(k)

Number of Max Iterations (maxIterations)

Initialize k means at random points

For i = 0 to maxIterations:

Iterate through items Assign an item to its closest mean Update that mean Return means

According to K-mean algorithm researcher hope to done it using mobile networks to identify locations of visual impaired community with the use following steps,

- Partition of objects into k non-empty subsets.
- Identifying the cluster centroids (mean point) of the current partition.
- Assigning each point to a specific cluster.
- Compute the distances from each point and allot points to the cluster where the distance from the centroid is minimum.
- After re-allotting the points, find the centroid of the new cluster formed.

II. METHODOLOGY

A.System Overview

Proposed system was e commerce based online platform for visually impaired entrepreneurs to sell their products using speech recognition. System is the one of the most significant and many useful projects in which proposed system the entrepreneurs should not go for the customers to sell their products and users can get their problems solved through the system. The main aim of this objective based application is to enable the handicapped specially visually impaired persons to access the ecommerce-based platform which are most widely used for online selling of items or

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products nowadays. So, proposed system will develop an ecommerce-based application using speech recognition to eliminates or reduces the various practical difficulties that the visually impaired persons come across. In ECSFE using speech recognition for login registration and other rest parts of the system and keyboard provide an extra advantage to visually impaired entrepreneur and allows them to use the application with more flexibility.

In proposed system provides facilities as follows,

- Registration is provided for both customers and employees. Mainly visually impaired persons navigate through system by using the audio technology.
- Complete information of employees with their name, product name, price, phone number, mail (if them have) and address.
- Products are categorized according to different sections. (ex-foods, clothes).
- Users can post comments and complaints.
- Users can request products from employees according to their choice.
- Users can request transport if they want (provide online location of employees).
- Employees Have facility to communicate with bank consultant regarding payment issues.
- Flexibility in the system according changing environment.
- Controlling redundancy in posting the same data multiple times.
- Provide orders with the constraint time.
- Notification will send to the employees when they have orders, messages, comments and other.
- Training feature available for new entrepreneurs to learn how to become self-entrepreneur.

III. THEROTICAL BACKGROUND

K-means clustering algorithm mainly define as a unsupervised learning method which consist with iterative process. With use of that data mainly grouped into k number of predefine sub- groups and also it makes data points into inter clusters. According to algorithm it need following outputs,

- K number of subgroups or clusters
- Sample or training set{x1,x2,x3…,xn}

Mainly algorithm built in hierarchical manner and also top and down built using binary splits and refinement of all nodes at the end. When there are missing values in columns k-means interprets them as missing at random. This can be done using two methods such as ,

- Elbow method
- Purpose method

According to above K-mean algorithm researcher hope to be done it using mobile networks. Mainly visual Impaired persons identify using their mobile networks with use of that identify their location and provide help them to prevent. Here are the methods which can be used for that,

- Partition of objects into k non-empty subsets
- Identifying the cluster centroids (mean point) of the current partition.
- Assigning each point to a specific cluster
- Compute the distances from each point and allot points to the cluster where the distance from the centroid is minimum.
- After re-allotting the points, find the centroid of the new cluster formed.

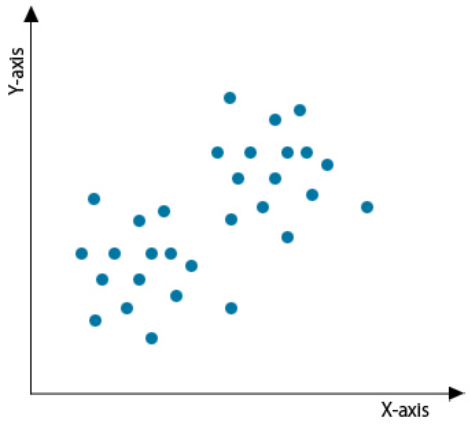

Fig. 1

A. Mobile networks

In enation, a dataset of people making phone calls to each other is represented by a network where nodes are people and links are drawn between two nodes who call each other. In the first publications related to telecommunications datasets, the datasets were rather used as an example for demonstration of the potential applications of an algorithm or model rather than for a purpose of analysis. However, it quickly appeared that the so-called mobile call graphs (MCG) were structurally different from other complex networks, such as the web and internet, and deserved a particular attention, review here the different contributions on network analysis. Will address the construction of a social network from CDR data, which is not a trivial exercise, simple statistical properties of such networks and models that manage to reproduce them, more complex organizing principles, and community structure, and finally we will discuss the relevance of the analysis of mobile phone networks.

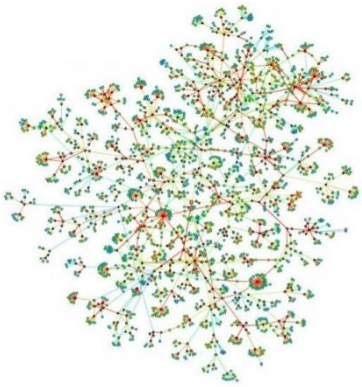

Fig. 6 System Process Module

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IV. RESULTS AND DISCUSSION

Used questioner to identify what are the factors more effective for my Entrepreneurship development for visual impaired entrepreneurs' problem. Have made a questionnaire distributed to 20 responds and collect the views and get the average calculation of the parameters. According to that take all the literature reviews and questionnaire have gathered what is the weight of that factors and how those factors influence to my case and in the above table it describes the final output of sample survey. It consists with 8 questions and percentage weight of each output. 90.5% responds response for first question. It is the main turning point for develop the system.

Table 2. Questionnaire Evaluation

Factor	**Questionnaire weight**	**Answers weight**	**Final weight**
Does disability is disturbance for doing entrepreneurship?	Yes	77.8%	77.8%
	No	11.1%	
	It depends on the attitude	10%	
How is acceptance from the market?	Good	66.7%	66.7%
	Bad	33.3%	
Do you have good relationship with customers when communicate with them?	Yes	66.7%	66.7%
	No	33.7%	
Can solve those problems using technology?	Yes	66.7%	66.7%
	No	11.1%	
	Other	22.2%	
What is the preferred way for visually impaired entrepreneurs to use this system?	Screen reader	66.7%	66.7%
	Brail system	11.1%	
	Touch screen	10%	
	Other		
Have face difficulties with screen reader?	Yes	75%	
	No	12.5%	85%
	Language difficulties	85%	
Is proposed system useful for visually impaired entrepreneurs to sell their products?	Yes	90.5%	90.5%

V. CONCLUSION

The researcher has highlighted what are the existing system, failures in existing situation and how is the new system, how the system works, who are the main users, services and how they can deal with the proposed system. And this paper gives an overview of the system architecture and implementation of the E-commerce system of visual impaired entrepreneur system as android and web based. Entrepreneur is the valuable resource in the organization they mainly inspire successful social development through of those entrepreneurs visually impaired resource is special and important to provide great service and product to customers. To meet the new challenges and requirements of the market, the business owners need to think and make better decisions. This study has limitations online accessibility evaluation tools and expert evaluation may report diverse web accessibility errors.

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