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A Survey on Farmer's Need and Feedback Analysis System

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ABSTRACT: Now a day's farmers needs and suggestions are reach to agricultural department manually and rarely. In this paper we are going to discuss the survey of existing system work and a system through which farmers can give their problems directly to agricultural department in native language Marathi. So these problems can be analyze in the system and analysis report will be generated. This report will be useful for government officers to develop advices. After delivering these advices, farmers can also send feedback about these advices whether they are useful or not or they can also suggests some modifications.

These needs and feedbacks must be classified. Several supervised and unsupervised techniques are exists for the classification of text documents namely Decision trees, Support Vector machine, Neural Network, AdaBoost and Nave Bayes [1, 2, 3]. Several clustering techniques are also available for text categorization namely K-means, Suffix Tree Clustering (STC), Semantic Online Hierarchical Clustering (SHOC), Label Induction Grouping Algorithm (LINGO) etc. [5]. In survey we examined that vector space model (VSM) outperforms probabilistic model [1,2, 4, 5, 6, 7, 8, 9 and 10].

KEYWORDS: Analysis, Clustering, Lingo, K-means, SHOC, STC.

I. INTRODUCTION

In India, 60% people are directly relying on agriculture. There are many advices and schemes are developed weekly by government of India for farmers. In requirement gathering we came to know that government officers have weekly meetings for developing certain advices for farmers. These advices are sent by government to farmers on their registered mobile number. These advices contain weather information, crop disease information, pesticides information etc.

Farmers use these advices for their farms. Whatever procedure or information is given in message according to that farmers apply them on their farms. These advices lead to improve productivity of crop. But these advices are developed on the basis of knowledge of government officers. But it is equally important to develop advices on actual problems of farmers. Some farmers send their problems to agricultural department through letters. So main aim of the system is to give support for farmers to deliver their actual problems to agricultural government officers so that they can develop advices on actual problems of farmers.

II. SCOPE OF SYSTEM

In system only farmers across Maharashtra can register. Registration and all problems or feedback of farmers can be reported in native language (Marathi). So scope of the project is up to Maharashtra.

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III. LITERATURE REVIEW

A. *Existing System:*

Today needs and suggestions are sent by farmers through letters to government agricultural department. These letters come to government very rarely. So there is no automation and definite procedure to analyze these letters while developing advices. Farmers also sent feedback on these advices through letter. So government is not able to analyze these variable feedbacks.

Many models had been established to estimate the crop productivity in different studies. The crop productivity models can be classified into three categories: (1) Experimental models, such as such as Miami model[12], Wageningen model[13]and Agro-Ecological Zoning model(AEZ) [14], which calculate crop productivity usually using experimental expressions.(2) Productivity attenuation models, or can be called namely environmental elements step up model, which is put forward by Chinese scholar Huang Bing-wei, estimate crop productivity through step by step revising photosynthetic productivity, photosynthetic thermal productivity, climatic productivity and farmland productivity using environment factors[15]. (3)Crop growing simulation method, that according to photosynthetic process, physiological, ecological characteristics and outside environment factors to estimate potential land productivity such as CERES model [16] and EPIC model [17].

B. *Survey of machine learning Algorithms:*

To analysis and store needs we are going to use clustering algorithm. There are several clustering algorithms available.

- **Hierarchic Agglomerative Clustering and K-means:**

In each step of the Hierarchical Agglomerative Clustering (HAC) algorithm, an object and a cluster or two clusters that are closest to each other are merged into a new group. In this way the relationships between input objects are represented in a tree-like dendogram [9].

K-means is an iterative algorithm in which clusters are built around k central points called centroids. The algorithm starts with a random set of centroids and assigns each object to its closest centroid. Then, repeatedly, for each group, based on its members, a new central point (new centroid) is calculated and object assignments to their closest centroids are changed if necessary. The algorithm finishes when no object reassignments are needed or when certain amount of time elapses [9].

- **Suffix Tree Clustering:**

The Suffix Tree Clustering (STC) algorithm groups the input texts according to the identical phrases they share [19]. The rationale behind such approach is that phrases, compared to single keywords, have greater descriptive power. This results from their ability to retain the relationships of proximity and order between words. A great advantage of STC is that phrases are used both to discover and to describe the resulting groups. The Suffix Tree Clustering algorithm works in two main phases:

1) Base cluster discovery phase and
2) Base cluster merging phase.

In the first phase a generalized suffix tree of all texts' sentences is built using words as basic elements. After all sentences are processed, the tree nodes contain information about the documents in which particular phrases appear. Using that information documents that share the same phrase are grouped into base clusters of which only those are retained whose score exceeds a predefined Minimal Base Cluster Score. In the second phase of the algorithm, a graph representing relationships between the discovered base clusters is built based on their similarity and on the value of the Merge Threshold. Base clusters belonging to coherent sub graphs of that graph are merged into final clusters.

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- **Semantic Hierarchical Online Clustering (SHOC):**

The Semantic Hierarchical Online Clustering (SHOC) is a web search results clustering algorithm that was originally designed to process queries in Chinese. Although it is based on a variation of the Vector Space Model called Latent Semantic Indexing (LSI) and uses phrases in the process of clustering, it is much different from the previously presented approaches. To overcome the STC's low quality phrases problem, in SHOC Zhang and Dong [18] introduced two concepts: complete phrases and a continuous cluster definition.

- **Lingo Algorithm:**

When designing a web search clustering algorithm, special attention must be paid to ensuring that both content and description (labels) of the resulting groups are meaningful to humans. As stated on Web pages of Vivisimo(http://www.vivisimo.com) search engine, "a good cluster or document grouping is one, which possesses a good, readable description". The majority of open text clustering algorithms follows a scheme where cluster content discovery is performed first, and then, based on the content, the labels are determined. But very often intricate measures of similarity among documents do not correspond well with plain human understanding of what a cluster's "glue" element has been. To avoid such problems Lingo reverses this process we first attempt to ensure that we can create a human-perceivable cluster label and only then assign documents to it. Specifically, we extract frequent phrases from the input documents, hoping they are the most informative source of human-readable topic descriptions. Next, by performing reduction of the original term-document matrix using SVD, we try to discover any existing latent structure of diverse topics in the search result. Finally, we match group descriptions with the extracted topics and assign relevant documents to them [11].

IV. PROPOSE SYSTEM

So as discussed above, the main aim is to digitize the existing system. This system will be android based system. Firstly all farmers' registration can be done in system. Already government has registered all farmers for sending messages. Same registrations can be used by our system. Then registered farmers can login through their registration id. In GUI there are two parts one is for problems and one is for feedbacks. According to choice farmers can give needs or feedbacks in native language Marathi. Advices will be send in Marathi.

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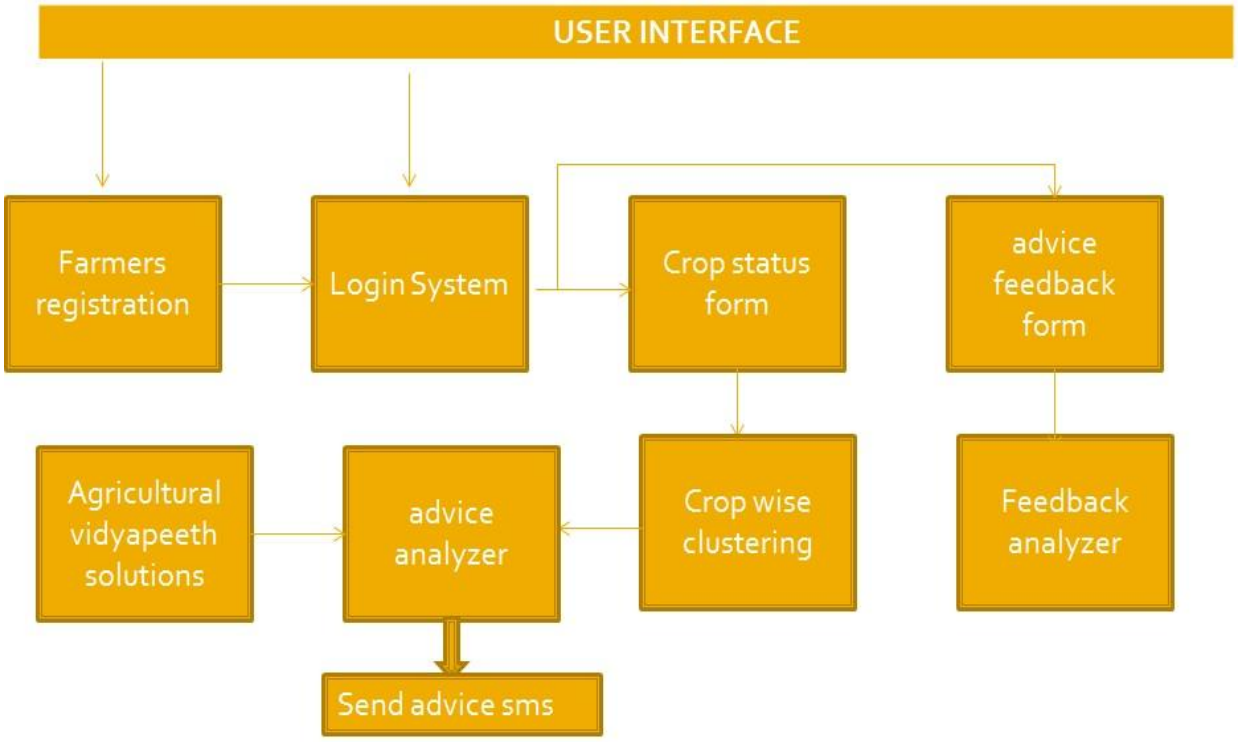

Fig.1. Block diagram of proposed system

V. CONCLUSION AND FUTURE WORK

In existing system work, advices are not developed on actual needs of farmers. Also these needs and feedback is gathered by letters that is manually.

By using our system farmers can put their needs and can get direct advices on their own problems. Also they can give feedbacks about these advices so government can continue the scheme or modify the scheme.

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