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Exploring Agriculture Sector Using Crowdsourcing Predictors

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Abstract— India is a nation where agriculture is considered as a basic occupation and the largest source of national growth. Farmer is said to be man of nation. We consider this as our responsibility and prime duty to explore this occupation and take it to a higher level from technology point of view .Our project emphasizes on describing a new approach to machine science which is representing for the first time that non-domain experts can collectively formulate features and provide values for those features such that they are prediction of some behavioural outcome of interest. This project will be focusing on the each and every single concept related to agriculture. It will also have a provision where farmers can share their experiences regarding best agriculture practices and methods. This will be accomplished by building a web platform in which human groups interact to both, respond to questions likely to help by predicting a their behavioural outcome and pose new questions to their peers, share their experiences and knowledge. This results in a dynamically-growing online survey, but the result of this outcome behaviour also leads to models that can anticipates users results based on their responses to the user-generated survey questions. The purpose behind developing such a portal based on agriculture is to make Indian farmer to interact with farmers over the nationwide using the technology. This portal can be used for multiple purposes where entrepreneurs can launch the products as well as acquire the feedbacks.
Keywords— Agriculture, Crowdsourcing, farmer, non-domain, outcome

I. INTRODUCTION

In India agriculture plays a significant role in socio-economic fabrication. As per the 2010 FAO world agriculture statistics. India is the world's largest producer of many agriculture base products like fruits, vegetables, dry fruits, grains, flowers and many more. India ranked within the world's largest five producers of over 80% of agricultural produce items. The economic contribution of agriculture to India's GDP with the broad based economic growth is steadily declining. In India agriculture is the basic occupation and the main source of income in the annual GDP. Farmer is said to be the man of nation.

Although agriculture is the basic occupation in India there is a lack of knowledge about agricultural practices and methods which is deteriorating the position of agriculture in world. The maximum population carrying agriculture as their basic occupation (a source of income) is unaware about the best practices and method so as to increase the productivity and annual yield of crops. There is large aperture of communication between the farmers. To have better achievements in agricultural field, the farmers need to interact more with each other and to get into touch with the emerging technologies.

There is a need of exploring agriculture sector. This can be done at its best by using the concept of crowdsourcing. Crowdsourcing is the process of gathering an information, number of services from different group of people, communities especially an online community. In simpler crowdsourcing is the way to gain the information from the large group of community either the same or different. Crowdsourcing reduces the work by distributing the task and provides a huge collection of data, information.

The impulsion behind taking the concept of crowdsourcing into picture was to emphasize more on the interaction process between the farmers irrespective of their region. In this system the farmers are free to interact with each other and to share the knowledge and their experiences about the agricultural practices. The key feature of the system is the involvement of farmer itself in all sorts of discussion, questionnaire where the role of domain expert is abandoned. The system will provide a solution to the every problem of a farmers in the language of a farmer straight from the other farmers. This system will provide a platform for Farmers where they can ask questions, share agricultural methods, their experiences and can gain tremendous information regarding agriculture nationwide. The system is accomplished by designing a web based platform where large group of farmer community interacts so as to respond to the questions which is likely to predict its behavioural outcome. The system can also be used for conveying feedback regarding the agricultural products like fertilizers and pesticides. This system will be open source of communication where anyone can be a part of the communication and system.

II. LITERATURE SURVEY

A. What Is Crowdsourcing?

Internet is the most popular example of crowdsourcing. Crowdsourcing is the process of getting work usually online from a

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crowd of people. The idea is to take work and outsource it to a crowd of workers. Harnessing the science, technology and effort of large number of people is known as "crowdsourcing" and has been used in many fields. The principle of crowdsourcing is that more ideas are better than one. By canvassing a large crowd of people for ideas, skills, or participation, the quality of content and idea generation will be superior.

How crowdsourcing can be useful, consider an example of Amazon's Mechanical Turk. A human describes a "human intelligence task" such as characterising data, transcribing spoken language or creating data visualizations in this crowdsourcing tool. The biggest benefit of crowdsourcing is the ability to receive better quality results, since several people offer their best ideas, experience, & solutions. Crowdsourcing allows you to select the best result from a sea of 'best entries,' as opposed to receiving the best entry from a single provider. As a crowdsourcing is a form of freelancing, results can be delivered much quicker than traditional methods.

The Crowdsourcing has been used in number of research and commercial applications. The Wikipedia is an example in which set of information is being published and later on number of people can add and enhanced the information finally the best of the best enhanced data is available for the user which cannot be done by using a single computer alone and could be expensive to achieve through expert domain process[2].

B. Amazon's Mechanical Turk

Amazon's Mechanical Turk is one of the example of crowdsourcing. It is an Internet market place where requesters post jobs and workers choose which jobs to do for pay. Requesters are able to post a job which is known as a HITs (Human Intelligence Tasks). HITs are individual task for which worker can work. Workers login to the online marketplace, check the available task and choose HIT they want to do and make a money by working on HITs.

Mechanical Turk is a popular crowdsourcing platform with 500,000 workers and offering over 180,000 HITs at any given time. HITs are provided by requesters to the workers. Requester create a HIT using developer tools provided by Amazon and pay a small amount to a worker on the completion of task.

III. METHODOLOGY

The basic concept of this system is to make available a place where farmers can ask questions and answer the questions asked by their peers. The figure shows the flow of the system. The new user has to register her/him to the system. After successful login existing user will select the category fruits, flowers, vegetables, cereals and pulses. According to the category she/he will post a question and can give an answer to unanswered question. The farmers can write a blog. The provision of posting the images of defected, damaged products is given. The role of domain expert is dominant. If user is not satisfied with the answers provided by other users then she/he can click on not satisfied. After that the question will send to the domain expert. Domain expert will give the answer to that question and that answer will be provided back to the users. A user can give a rating to the answer of other users. The below figure explains the detailed flow of the system and will explain the working of system.

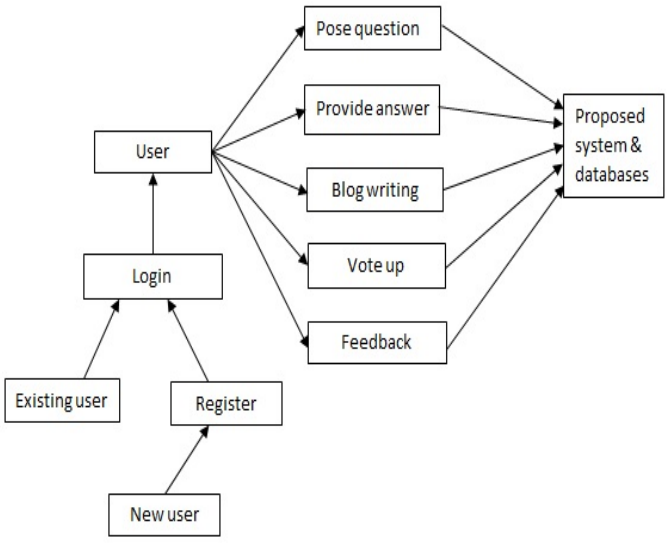


Fig 1:- Overall System Flow.

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IV. APPLICATIONS

It has been very challenging in our country to address the social issues such as food, poverty, security, unemployment, health and equity. Agriculture plays a crucial and dynamic role in the eradication of issues like poverty and hunger and leads to a sustainable development. There is a huge gap between the communication processes in agriculture field. Some mark able steps should be taken so as to achieve the food security, reduce poverty and generate employment focussing the unemployed population especially youth.

Like any other occupation, in agriculture also knowledge is the basic key for various activities and segments to make it more successful and to be implemented in order. For example land preparation, seedlings, which crop to be cultivated and accordingly the use of fertilizers and pesticides, its harvesting methods and the market values and many more. It requires intellectual capability which is a vital for integration of ideas, skills, intuition and most of all the experience.

This system has its application in various sectors related to agriculture. The application fields can be counted below as

A. Farmers society

But the major seeker of this system and its features is the farmer itself. This system will enhance the methods, implementation, practices and productivity of the crops. The farmers can acquire the complete detailed information regarding their particular problems. Farmers are free to ask questions and as well to answer the questions asked by others. They can share their views, ideas directly with the other farmers regarding new methods and practices. The centre point of the system is only to satisfy the farmer with a proper and understandable solutions.

B. Agricultural Institutes

Many a times we have observed the facilities provided by the government are not served to the farmers. Farmers are unaware about the latest provisions and facilities provided by the government due to which they cannot have the complete benefits of the governmental schemes and policies. Even farmers are not given the information related to the new researches carried out like improved methods in hybridization, germination of seeds and so on. This system will play an important role in bridging the gap between the farmers and agricultural institutes.

C. Agriculture related studies(students)

There are many students perceiving studies in the agricultural field. Our youth is preparing himself indulge into agriculture field and to improve the level of agriculture with the help of proper studies and technology. The students can use this system for the survey purpose and the detailed study of the each and every problem occurring during the farming process. It will prove to be a helping hand to the students to get connected with the real time experiences. It will be supporting the students in in-numerous ways.

D. Agro based industries

There are number of industries manufacturing agriculture related products such as seeds, fertilizers, pesticides and many more chemicals so as to increase the productivity and to gain a fruitful yield. These industries can use the system for the purposes of launching the products and advertising. Using this system will help to have door to door advertising of products and it will also bypass the intermediate stakeholders. The companies can have feedbacks and reviews straight from the heart of farmers. This system will assist the companies to produce the more effective products and ait will also reduce the costs of the products due to direct marketing and advertising.

V. ADVANTAGES

A. The biggest advantage of this system is, to bring the farmer community close so that they can interact with each other related to agriculture.

B. The system is providing the facility of local language like Marathi which will make farmers comfortable to correspond with the system.

C. The facility of providing images rather than using words to explain makes the system different from others.

D. The system is completely free of cost and just a part of service so as to serve the nation.

VI. CHALLENGES

A. The most important challenge of the system is to make the farmer familiar with the technology.

B. The system is lagging to provide, the facility to send the text messages from the mobile.

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VII. FUTURE SCOPE

This is the world of technology that is the mobile. We have each and every facility around us within a fraction of seconds just by clicking it on our mobile handsets. The mobile application have made life easier, with a leisure and comfortable. There are variety of applications varying according to the operating systems like android, windows, and mac OS. We are looking forward to develop a mobile application of this system. The mobile application of this system will be really a convenient way to help the farmers and to explore the agriculture field more effectively. Conversion of this system into a compact mobile application will increase the use of the system due to easy availability of information on the application itself. The challenges we are facing in this system will be an interesting part to overcome, in the future.

VIII. CONCLUSIONS

The project "EXPLORING AGRICULTURE SECTOR USING CROWDSOURCING PREDICTORS" is developed by focusing the farmers of India where there is huge gap between the technology and the proper implementations of methods and practices. The farmers need a proper guideline, a helping hand which will solve the commonly occurring problems. This system is the initiative to support and help the farmers by providing solutions to their problems. It will provide a place where one can give and take knowledge regarding agriculture. The system will also prove beneficial in many ways to the farmers, agricultural institutes, and agro-based industries. This system is an open source platform for farmers where they can share their views and can explore their knowledge. It will assist the farmers to increase the productivity of crops, to gain a better yield in less expenditure and to improve the quality of the crops, products and the ultimately the agriculture.

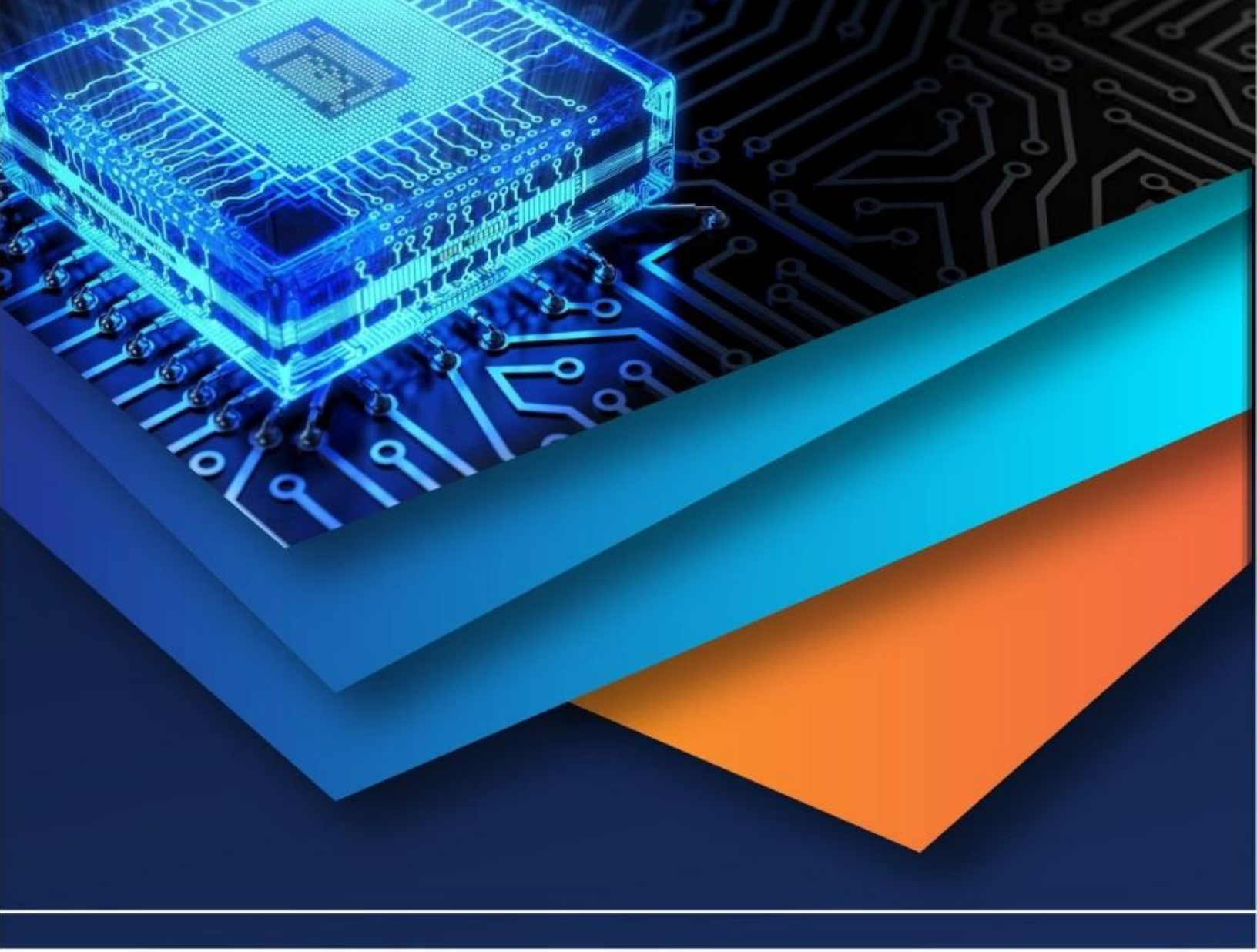
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