

E-KRISHI – An Application for Smart Farming & Overview of Agriculture Applications

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Abstract— India is an associate agriculture-dominant country. Agriculture sector's internet share within the country's GDP is seventeen.32%. Hence, the dissemination of knowledge to the farmers at the time once it's needed becomes vital. With the widespread handiness of smartphones and web, there's a large potential for activity essential info via this suggests. This paper presents an outline of mobile-apps targeted to the agricultural sector presently obtainable in Google Play Store, mechanical man software package. This paper explores however mechanical man Apps of agricultural services have compact the farmers in their farming activities. The paper conjointly discusses the scope of the applications and what enhancements should be created so as to form them to reach a wider audience.

Keywords: Smart Phones, Mobile Agricultural Applications and Platforms

I. INTRODUCTION

Agriculture is the principal means of livelihood for most of India. Our agriculture dependent population has grown by 70% in 2017-2018 which is the largest any country has grown in the same duration. The sector provides livelihood to about 50% of the country's workforce.

The largest producers of rice, wheat, pulses, and spices, and additionally the second largest of fruits and vegetables at intervals on the planet. we have a tendency to tend to contribute 7.68% of total international agriculture output. At intervals the light-weight of the given facts, it's self- informative but huge of a task the agriculture plays in Indian economy. This codependency helps us notice that advancement in agriculture will in turn largely profit the economy. To support this sector, the government launches new reforms, schemes and policies annually. New techniques and inventions square measure created to help the agriculture domain, but the data can't be reached to farmers. The problem comes at intervals of the dissemination of this knowledge. Though, data is out there at intervals in the forms of written media, audio and visual forms, newspaper, Internet, etc., but it isn't offered at a constant place. The formats and structures of the offered data are also dissimilar. For a typical farmer, it becomes very exhausting to understand and build usage of this knowledge. One resolution to curb this disadvantage is with the usage of smartphones. At intervals in recent years, the usage of smartphones and internet property has largely inflated in rural areas that shows their potential in spreading agriculture based knowledge to the people. Smartphones have penetrated within the majority the environments where people do their everyday activities, and perform tasks that square measure sometimes run on personal computers. Also, mobile accomplishment is high on computer accomplishment, albeit mobile devices might have inconvenient user interfaces. thus mobile applications square

measure Associate in Nursing amiable selection for transmitting knowledge to the people in villages and rural areas. Lately farmers square measure receiving varied facts or knowledge regarding farming like seeds, crop selection, crop processes, weather, fertilizer, pesticides etc. from varied resources that square measure distributed on many different locations keep with its origin, its processors, producers or vendors. it's true that the data is out there by suggests that of the many applications, videos, images, but the matter lies at intervals the indisputable fact that the knowledge is not offered at constant platform- a system that covers all the important data regarding all the domains of agriculture, and offered at their location. This paper presents an Associate in Nursing outline of the form of mobile applications presently offered in Google Play Store, and discusses their choices, functions, and also the method they are lacking in some domains.

II. AN OVERVIEW OF THE AGRICULTURE MOBILE APPLICATIONS

There are several domains which are of an interest to a farmer. A farmer might need information about the listed categories:

Crop planning (when to grow the crop, which crop to grow, seed variety related to the soil type, the time of harvest). Buying seeds, pesticides, farm-equipment, and fertilizers, contact with the respective dealers. Marketing applications (the available price in the current market).

Information applications (about the latest schemes, weather forecast, soil type, new techniques and tricks to increase productivity).

For contacting farm specialists.

For checking the available storage facilities.

For post-harvest technologies.

- Keep records for all assets of his farm (Fields, Machines, Raw-Materials).
- Get access to pesticides, fertilizers and seed databases.
- Manage all inputs inventories and stock, keep track of inflow and outflow.
- Plan farming activities, monitor execution and have a full log of all farming activities.
- Receive information, warnings and alerts regarding natural calamities and weather disturbance and also comes with proper suggestions.
- Prepare financial budgets and monitor its execution.
- Monitor detail farming Costs Per Crop, field, task and individual task input and have a complete picture of financials of his farm.
- Full Portability: All required data is available locally on the mobile device. No internet connection is required to operate the application.
- GPS Location Tracking.

- All landfills and farming tasks can be located and annotated on Google Maps.
- Use of device camera to capture images/photos.
- Associate/Store with fields, persons, machines, crops.

For an application to be useful to a farmer, it must have at least these features:- information of soil, crop varieties to plant, market prices, fertilizer and pesticide types, and information about how to increase the productivity of the crop. Some questions are discussed below which must be answered so as to have better crop production:

- Crop to plant and variety of seed.
- Weather forecast information and protective measures in case of some unexpected forecasts.
- Best practices to increase crop productivity corresponding to the soil type.
- Current market prices, information about available storage.

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III. REVIEW OF THE APPLICATIONS AVAILABLE FOR AGRICULTURE SECTOR

Application	Features	Language Supported
UHSB HORTI APP [6]	Gives information related to fruits, vegetables, plantation, flowers, medicinal, and postharvest technology, also provides the contact of SME's	English, Telugu
Kisan.net [11]	Gives information and notification pertaining to 25 different domains Agriculture, horticulture, irrigation, animal husbandry, farm allied activities.	English, Hindi, Marathi
Kisan Suvidha [12]	Multi-purpose application. This application provides information about the daily weather, dealers contact, and current market price, along with features like calls to KCC.	English
Krishi Vigyan [16]	Daily notifications and updates related to agriculture and weather forecasts.	Hindi
Maha Kisaan [17]	Information about market rates, and current weather and forecast with phone number	Marathi
IFFCO Kisan [19]	Provides weather forecast, current market prices, notifications related to agriculture and information about different crops.	Punjabi, English, Malayalam, Kannada, Telugu, Tamil, Gujarati.
Kisan Yojna [20]	Notifications about latest schemes launched by govt. in eight states	Marathi
Agrofarm [22]	A small scale farm management application	English
Unnat Kheti [23]	Information about the harvest, new schemes, technologies and notifications	Hindi
Agro Connect Kheti Badi Kisan [25]	Information- based application which provides daily notifications about latest schemes and inventions related to agriculture.	Hindi
Big Haat [26]	Application designed for purchasing seeds, plant nutrients, pesticides.	English

Table 3.1: Review of Applications

IV. AGRICULTURE APP CATEGORIZATION

- Business Apps
- Conference Apps
- Disease and pest Apps
- Farm Management Apps
- Location based apps
- Market based apps
- Weather apps

Market applications are the ones containing the information about the market prices, give access to the available SME (Small and Medium Enterprises) in the area near the user based on their locations, and also contain e-commerce applications related to agriculture. Information Based applications are the knowledge-based applications, the ones containing the information related to the crops and their varieties suited to different soil types, the best practices to adopt for increasing the productivity. This category also includes the applications containing information about latest government schemes and plans which can benefit the farmer. Weather applications contain the information about the weather and forecast of a particular location as entered by the user or detected by GPS. Advisory applications are the ones which allow users to contact the labs, scientists, or KCC (Kisan Call Centre) near their location. Management-based applications are the ones which facilitate users to manage small or medium sized farms. Figure 3 depicts the graphical representation of different categories of applications with respect to their percentages. The graph clearly displays that information-based applications contribute the highest percentage while Advisory applications the lowest.

Another criteria on the basis of which the given applications can be categorized is the languages they support. Among the total of 41 applications covered 23 of them are available in English, 10 are in Hindi, and 8 have the option of regional languages like Marathi, Punjabi, Odia, Telugu, Tamil, Kannada, etc. This is depicted in the form Venn diagram in Chart-3. A total of only 3 are multilingual out of 41 applications overviewed.

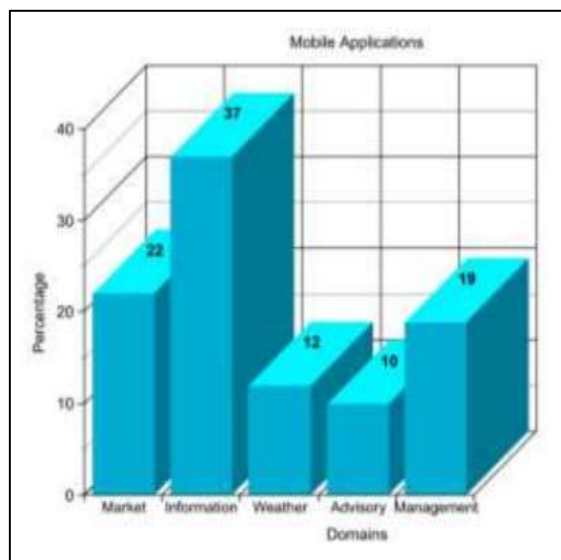


Fig. 4.1: Percentage-wise domain distribution of mobile application

V. FUTURE SCOPE AND E-KRISHI

After measurement and analyzing all the applications available, we tend to design our own mechanical man application e-Krishi. It displays the Market prices, Machinery costs and forecast of the approaching week. So, it combines 1st 3 aspects of the categorization of applications i.e.; Information, Market and Weather. In future, the other aspects like management and informative can also be more to confirm that application presents an entire resolution to any or all the mentioned problems. Mobile applications and services build things simpler fulfilling our daily wants for info, communication, recreation or leisure. Mobile Applications have brought a brand new revolution. we offer one such mobile application “e-Krishi – a sensible Farming Application” beneath development by the US, which can result in a healthy life. e-Krishi –A good Farming Application could be a mobile application designed keeping the farmers in mind and also the requirements and issues visaged by farmers. It keeps a farmer updated with all the data related to crop, pesticides, pesticides, financial sector etc. It provides careful info about that crop to grow during which season and which crop is appropriate for that specific space in which the farmer lives. The Government of Republic of India is defraying ample cash to form ICT helpful for agriculture purposes however the hindrance is the skill of farmers mobile being a standard device now, with this application we tend to aim to form it friendly for farmers.



Fig. 5.1: Weather section of E-Krishi



Fig. 5.2: Information section of E-Krishi

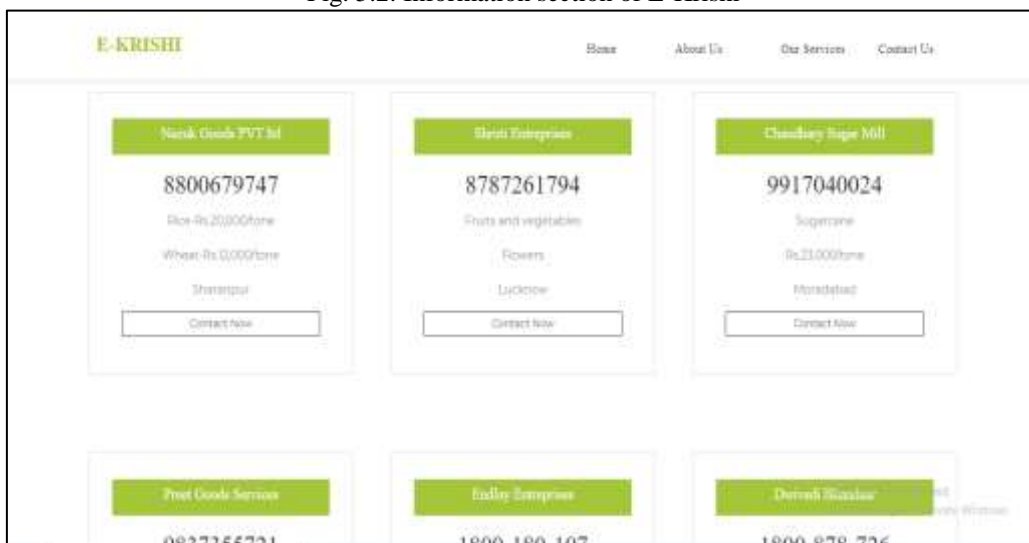


Fig. 5.3: Market section of E-Krishi

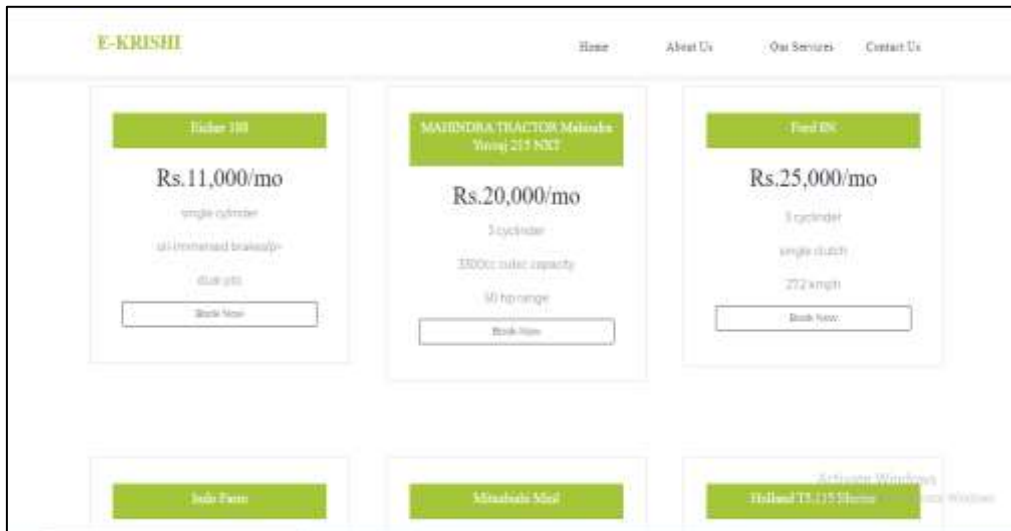


Fig. 5.4: Renting Machinery section of E-Krishi

This application is targeted on Indian farmers and Indian market because it addresses the key issues of obtaining the market updates of various products, weather updates and knowledge regarding the rain and conjointly provides multiple language support, providing offline support. This may effectively facilitate farmers to sell their product in market at correct costs by eradicating the center men profits and earn exceptional profit, dealing with facilities of machinery and labor in cropping seasons. This application provides AN offline mode to combat unreliable net property in geographical area and it's connected to the NGOs to produce facilitate and provision for various career path for farmers which may encourage be a life-safer just in case loss of crops and absolute dependence on farming and might be terribly useful for the farmer's family for extra financial gain. This application can give all kinds of info among one system; find it irresistible includes the crops connected info, includes new technologies connected news and alternative agricultural news, weather info (i.e., current, historical), various career arrangements, machinery dealings. This technique will give info exploitation golem good phones from anyplace. This good phone app is simple to use and at a cheap value also as it needs less memory.

VI. CONCLUSION

Smartphones can play a vital role in transmitting information to farmers. Many mobile applications are being developed by keeping the farmers in mind. All the applications overviewed in the paper are developed by keeping in mind some specific purpose and provide the functionalities for the same. The functions are diverse ranging from cropping information, market rates, online shopping for farmers to weather forecast, and daily agriculture news. Yet, only few were able to capture all the needs of a farmer in its totality- some applications were only in their testing phase, while some were not dynamic. A barrier of language is also the cause of the problem as half of the applications currently available for farmers are in English language, and only a few farmers are able to understand the language completely. We conclude that the functionalities listed in the different applications should be available in a unified one, one which will be easy to access and in the language easier to comprehend.

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