Krishi Suchna: Review Paper On Mobile Based Android Application On Agriculture Scheduling System For Farmers in Regional Language (Hindi) Using Weather Conditions

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Abstract - In Indian agriculture, farming activities like sowing, harvest, and irrigation all these activities must be performed in appropriate manner and most significantly at appropriate time in order to get good yield. However, sadly most of the farmers unknown concerning the impact of these activities on yield of their crop. Thus, a mobile based application is developed to teach farmers concerning it. The developed mobile application is essentially for dissemination of data to farmers concerning the right approach of playing varied farming activities in regional language Hindi, of two main crops of Haryana- Wheat, and Paddy. The system is an android based application developed using android studio which is the official Integrated Development Environment (IDE) for developing an Android application.

Keywords - Android, Scheduling, Farming Activities, Wheat, Paddy, Hindi.

I. INTRODUCTION

ICT as very important tool which may be to get development goals in developing countries. That can facilitate individuals to fight against illiteracy, disease, state, poverty, agriculture, and different development issues. Agriculture plays key role within the society, and in the economy of the country. In Asian country like India nigh to concern 59% population derive their bread, and butter from agriculture sector, and this sector contribute to 17.9% in India GDP. According to census 2011, (Released on 2015) 68.9% population is live in rural backwards areas Agriculture sector continuous dissemination of recent technology to fulfill world food security, poverty reduction, and atmosphere property. These days newer advanced technologies used for agricultural development like satellites (GIS)(geographicinformationsystem),webportals (http://agriculture.gov.in/), mobileapps (kisan suvidha, pusa-krishi, mkisan), and socialmediaetc. ICT give information, and guidance to farmers at the doorstep, and provides information like weather & climate condition, fertilize consumption, online request, and persecutor management, and rate output within the market etc. Through ICT's Government officers, and agricultural consultants connected to with a network, and supply useful information to village level employees, and this VLE ahead info to the farmer to tell them how to use ICT application or devices like tv, cellular phones, computer

hardware & package, Short message service (sms),loan facility etc. This reason we can say ICT is a terms which includes communication devices or application technology. In last decade ICT has modified the approach the globe works. The central, and state ministry has been introduced ICT centers equipped online (CSC) center that give knowledge based information over internet, and various mobile apps based internet portal, and web portals, farmer's internet portal (www.farmer.gov.in), m kishanportal (www.mkishan.gov.in), kishan call center etc. The center government has introduced several schemes collaborating with state government like Gyandoot project, GIS project, E- Chaupal, IFFCO-ISRO CYBERDHABA, AMARKET, VISTANET etc. There over the 80 or more internet portals, and mobile based apps that facilitated information based knowledge to the farmers to through subject consultants. All these internet portals co-operation with national information center, and department of agriculture. Some essential portals: NFSM(National food security mission), NHM(National Horticulture mission) ,SEEDNET, DACNET,RKVY,INTRADAC,APY(Acreage, productivity,andyields)etc.

Maximum portion of inhabitant that lives in rural Areas earn their bread, and butter though agriculture.

The Expected contribution of the study: This research analysis has given importance to grasp concerning

numerous project of ICT 's run in Haryana for agriculture development, and what initiative taken by the government for agriculture sector, and these governments initiative reach to rural farmers. As well as, A mobile based application is developed for farmers to help the farmers in lingual barrier of farmers.[1]
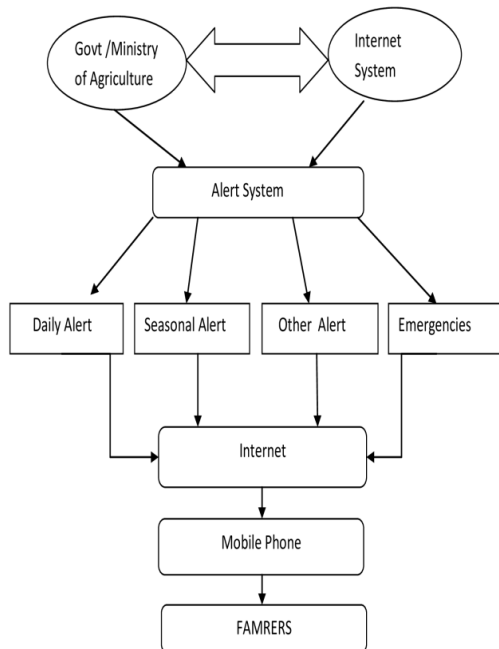

Fig. 1 Architecture of Modern ICT system

II. LITERATURE REVIEW

Silva, and Ratnadiwakara (2005) studied regarding using ICT to cut back dealing prices in agriculture through higher communication in sri lanka. They found that there have been notable prices connected to data search, and hence dealing prices connected with all six stages of the agricultural price chain with the choice to grow and over sale of turn out at the wholesale market. Within the judgment stage and selling stages, the relative proportion of knowledge search prices was found to be highest among the farmer cluster with in the case study of farmer vegetable farmers in rural srilanka. The study additionally found that if farmers had used the phone at numerous points within the agricultural price chain their data search prices might have been reduced significantly.

Consequently, it was fair to suggest a cohesive methodology employing a portable platform that addressed the whole info required from the decision-making stage to selling stages of agricultural manufacture to help farmers considerably small info search prices. [2]

Singh (2008) At the near of 2006-2007, there were ninety million mobile subscribers in India this was more than as compared to landlines subscribers. After the

introduction of mobiles within the country the mobile phone was more than as compared with landlines.

This study was to estimate future trends and analyze the pattern. For this, He used S-shaped curve models. In this study found that mobile phone -density in India increased, there was 8.1 in 2006-07 to 36.05 in 2011-12 and 71 in 2016-17, and nearly 900 million in 2018-19.
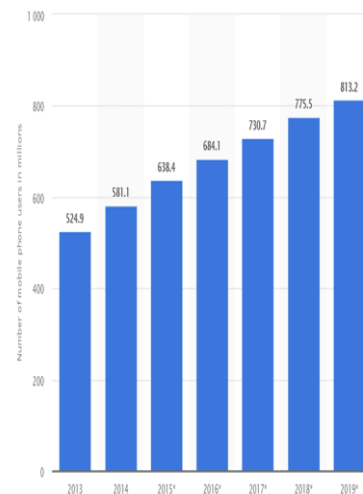

Fig.2 Number of mobile Phone users in India[3]

The expected rising within the mobile subscriber base would have important implications for future plans of mobile operators, infrastructure suppliers, phone suppliers and vendors etc. [4]

Mittal and Tripathi (2009) conclusion over on the role of mobile phone technology in raising miniature farm productivity. Mobile phones have the potential to provide the answer to this information property in varied insulation sectors like agriculture. Asian country like   India's agricultural sector suffered from lower growth rates and lower productivity. There some problems in access to information and knowledge were weak points at each stage of the agri-supply chain. For the small farmer-based economy like Asian nation, access to information may perhaps alter improved income and efficiency to the farmers. Through cluster discussions and in-depth interview with farmers, they tried to hunt out answers to the utilization and impact of mobile phone and mobile-enabled services on agricultural productivity. The answers to those queries were of affiliation to develop higher policy surroundings motivative for little and average farmers and have repercussion for the movable operator, Data service suppliers, and policy creator. The study had disclosed that though, mobile phone work as the activator to rising farm production/yield and rural income, the prevalence of

knowledge, appropriateness of knowledge and trustworthiness of information were the three very important choices that had to be delivered to the farmers to satisfy their wishes and expectancy. There exist very important necessary constraint that restricted the liability of the agricultural population to understand full-potential gains and it had been extra thus for small than huge farmers.[5]

Sahota (2009) accompanied a study on the usage of mobile phone for accessing farming data underneath the Indian farmer's fertilizer Cooperative restricted (IFFCO)-Airtel Kisan Card initiative and located that proactive use of the service by the farmers was little. Nobody had sent any SMS or voice call the service suppliers to hunt further agricultural info. This was noticed that whose farmers who bought mobile phones for part of the initiative ,they were utilizing this for social interaction, this had been also found that due to lake of technical skills the farmers not used this.
Further, small farmers feelt that the advice wasn't possible, because the inputs prompt by the consultants were either not accessible within the near market or were too costly.[6]

Alibaygi et al. (2010) surveyed, how Rural ICT centers was effective in the rural area. They concluded that Rural ICT centers played an essential role in improving e-governance in rustic areas. The aim of this study was to analysis the rural ICT Centers for developing e-governance within the rustic societies of the Kermanshah administrative district, placed in the west of Iran. The information was collected in two phase. The firstly Delphi technique was used, to check the effectiveness of indicators by ICT experts The second part engaged a structured interview employing a form. the greater part of people does not use internet/web services despite its accessibility inside the ICT Centers. The ICT Centers, in addition, have terribly little usefulness in rising rustic family' gain, labor rate, dispersion of farming material among farmers, and e-commerce. They were to some extent effective in reducing the relocation of rustic individuals to town areas, their every day visits to shut city, and activities need additional as rising e-governance in rustic areas.

Masuki et al. (2010) advised that the role of mobile phones in rising communication and data delivery for agricultural development in South Western African nation. They highlighted that mobile phones have critical role in farmers life and it have greater efficiency in rural setting. One of the key findings was that mobile phones were reached to the lower- class people in rural areas. "As of from the discussions and observations made, it was found that farmers were more enthusiastic regarding the use of phone to access data on agriculture, natural resources management." The more use of mobile phones in agriculture sector it improving the GDP growth in

developing country and improve the product value chain more than 30 percent of the nation's Gross Domestic Product (GDP) given the rapid evolution of the mobile in the nation." More Chances arise from the spreading of mobile phone in most rising country like Asian country required to be explore particularly within the absence of different ICT infrastructure, like fastened phones and net."[7]

Maumbe et al. (2010) described the development of data and communication technology application in crop growing and rustic growth on the concept of proportional experiences of state and African nation. The framework postulates that complete readying of ICT in farming and rustic growth would be results of many phases of the amendment that started with e-government policy arrange, growth and job. They argued that Information communication technology used in farming and rustic growth was a dominant equipment for rising predial and rustic growth throughout the geographical region. There have been such a large amount of impairments enclosed the shortage of awareness, low acquirement, infrastructure deficiencies, language and cultural hurdles in ICT usage. They examined ICT applications which used in agriculture and urged the larger use of ICT-based tools in farming as a medium for encouraging rustic growth in Africa.[8]

Qiang et al. (2011) explicit the role of mobile application in agriculture and rustic evolution. They told that m-ARD apps offered innovative, dynamic, knowledge domain services. Their main findings were: Enable platforms were seemingly the foremost vital issue for m-ARD apps is the pilot phase to the quantifiability and property stages—beyond giver and government financial support. Such stages made on the links b/w technology, computer code, and payment tools that supported interactions among stakeholders within them-app system. This stage might give right of entry to additional user, provide effective technological standard, and incorporate payment mechanism. Varied different mechanisms, like incubators and essential hub that support the improvement of ecosystems for m-ARD apps. variety of m-ARD apps were doing well, with an honest moderation of value, marketing, with evaluation methods. "Occupational m-ARD apps required to enhance or enlarge their services in response to user desires and guarantee that they provided enough value to turn out sustainable demand and revenues etc." [9]

Ramaraju et al. (2011) studied regarding ICT in agriculture. ICT in farming, is a growing field focused on the improvement of agriculture in India. The essential key issues in adopt ICT by farmers were technological illiteracy, handiness of relevant and restricted contents in their several language, affordable and simple handiness and different problems such as awareness and willingness for adoption of recent technologies etc. The study was to develop how ICT issues tackled by the farmer's in varied

agro and socio-economic situations; with force on the tiny and marginal farmers. A survey was piloted using structured Schedules / Questionnaires, Focus Group Debates and Participatory Rural Evaluation. "There were Overall total twenty-six ICT initiatives in agriculture was studied:- It covering 1381 agrarians in 57 selected sample villages in twelve states of Bharat (India) to elicit the necessity felt by farmers, place their realization and fetch out the problems concerned within the development of ideal ICT applications for agriculture." The research confirmed that farmers used the cell phone Phone (82 percent) followed by TV (73 percent) and the Newspaper (67percent). "Most of the Indian farmers had mobile phones, and they were also attracted to use their mobiles for retrieving information. Farmers found it more suitable with voice based advices/information, as they opined that they could discuss their queries while communicating with experts in their own language."[10]

Gichamba and Lukandu (2012) suggested a model for designing m-agriculture applications for dairy farming. They over that Mobile technology can be apply in farming to enhance the assorted process that were concerned among the assembly of turn out within the farming. The M-Agriculture model offered a practicable answer towards the planning and execution of mobile application in dairy farming. From the analysis, it absolutely was marked to the majority of the area with inadequacies can be solved by victimisation mobile tools. This type of design model can be utilized by developers to make mobile applications that were centered on dairying and to apply the various business processes concerned there in rural division. The prototype model may even be adopt by policy organizations and government and researchers moreover. any work could be done to check the model in alternative area of farming, e.g. harvest [11]

Lomotey et al. (2013) developed MobiCrop: "which Supporting crop farmers with a cloud-enabled mobile application. These days Mobile technology was increasingly being adopted in the agricultural space as a measure to assist farmers in decision." This assignment was started by the College of Agriculture at the University of Saskatchewan, Canada. The purpose of the project was to provide information to farmers about pesticides and fertilizer etc. MobiCrop was designed as a mobile distributed system that followed a three-layered readying. Since the info was being pressed to the mobile reside on the info server, caching procedure on the mobile had been planned to maintain offline convenience of insect killer info. [12]

Ghogare and Monga (2015) discussed the introduction and figuration of E-agriculture applications. E-Agriculture is an growing field which focusing on the improvement of rustic and farming development through superior technological processes. Some issues with cultivation and rustic improvement were discussed. The

main purpose of their research was to arrive the farmers for their alertness, usage and vigilance in e-Agriculture. E-Agriculture is a place where give information though electronically(web) to farmers. The work on E-agriculture give the information to farmers via message etc. The information such as every day alert, seasonal alert and other details can be send to farmers. The every day alert can be send to all farmers while cyclic alert could be sent to farmers only for selected farmers based on cluster result. Finally, the other detail which was proclaim by agriculture can be send to all farmers.[13]

Mohan (2015) stated the importance of mobile in dissemination of agriculture information among Indian farmers. Applications such as text and Multimedia Messaging Service (MMS) and Voice Stream, are used to disseminate information to the farming community. "These objectives suit market (input, output) paddy's, availability status, agricultural extension, social connectivity and financial-support systems." In agriculture domain, last two decades ICT initiatives have come a long way in India. The penetration of mobile phone in the rural sector had opened up vast possibilities. Initially mobile was used as the communication medium by rural sector but now it had been used as information dissemination tool. This tool could also be used in the area of agriculture information, rural health and rural education sector. There was a greater need to identify the underlying factors that supported the adoption of mobile-based services in the rural sector so that a more focused approach could be taken by the government agencies as well Private sector.[14]

Sharma et al. (2015) developed E-Agro Android Application. E-Agro offered experience service to farmers regarding cultivation of crops, pricing, fertilizers and diseases etc. and even suggestions regarding trendy techniques for cultivation, usage of fertilizers etc. Their main aim was focused on delivery the trendy agricultural techniques to the remote farmers. The persistently increasing importance and application of data Technologies in Agriculture had born to a replacement field referred to as E-Agro, that targeted on up agricultural and rural development through a range of technologies. The interface of the appliance is in English.

Ghanshyam et al. (2017) developed agronomy-an android application regarding farmer utility. The availability of agricultural information directly to farmers by a single tap of their finger without him being dependent on anyone, the farmers to take superior decisions shortly. In this way of a digital era, this will improve productivity and also be instilling enthusiasm to learn a new technology which is essential in this era of Digital Revolution. Some other information is regularly required by farmers are about seeds and fertilizers, the loan schemes, etc. The application was offered in Indian regional languages (Hindi) but agricultural data from web services was only in English which was not easy access by farmers.[15]

Table 1: A brief overview of this literature review

YEAR	AUTHOR NAME	SUMMARY
2005	**Silva and Ratnadiwakara**	He studied regarding using ICT to cut back dealing prices in agriculture through higher communication in sri lanka and increase the agriculture knowledge of the farmers. This study found that if farmers had been used mobile phones in agricultural price chain and data search it will be helpful for farmers to significantly decreased information search costs.
2008	**Singh S K**	He conducted study regarding the diffusion of mobile phones in india. At the near of 2005–2006, there were ninety million mobile subscribers in india as compared to fifty million subscribers for landlines. The rise in mobile phones had been fantastic as compared with landlines since the introduction of mobiles with in the country. The most aim of this study was to estimate future trends and analyze the pattern of mobile phones in India.
2009	**Mittal and Tripathi**	He conclusion over on role of mobile phone technology in rising small farm productivity. He conclude their some issues in access to data and information and some weak points at every stage of the agri-supply chain. Through cluster discussions and in-depth interviews with farmers, they tried to seek out this problems.
2010	**Masuki et al**	He advised that the role of mobile phones is necessary in rising communication and data delivery for agricultural development. They highlighted that mobile phones have critical role in farmers life and it have greater efficiency in rural setting.
2010	**Alibaygi et al**	Surveyed the effectiveness of rural ICT centers. They concluded that Rural ICT centers played important role in rural development through improving e-governance in rural areas. The purpose of this survey analysis the rural ICT Centers for developing e-governance within the rural societies.

2015	Ghogare and Monga	He discussed the introduction and figuration of E-agriculture applications. "E-Agriculture is an emerging field that focusing on the upgrading of rural and agricultural development through advanced technology, information and communication processes". E-Agriculture is a platform for supporting marketing of products related to agriculture.
2015	Sharma et al	Developed E-Agro Android Application. E-Agro offered expertise service to farmers concerning cultivation of crops, pricing, fertilizers and diseases etc. and even suggestions concerning modern techniques for cultivation, usage of fertilizers etc.
2017	Ghanshyam et al	Developed agronomy-an android application regarding farmer utility. The availability of agricultural information directly to farmers by single tap of their finger without him being dependent on anyone and enable the farmers to take superior decisions shortly. This will not only substitute greater productivity but will improve a farmer's life reducing stress.

III. CONCLUSION

Today is era of technology. Due to easy availability of Smartphone's and internet everything is available just at a single click. So if all these information related to farming activities is provided to farmers in proper organized way then they will be more interested in using it. In order to channelize proper availability of information to the farmers the scheduling app is developed that reminds farmers about various farming activities of two crops, wheat and paddy, by giving notifications to them about timing of upcoming farming activities. So that they can perform them on time and also make proper utilization of available resources.

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