"KCV-A MODERN APPROACH TOWARDS BETTERMENT OF VILLAGERS"

[1]VARSHA S. SUREKA
Student-Final Year, Department of Information Technology, Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India
varshasureka5@gmail.com

[2]YASHASWI R. PATKI
Student-Final Year, Department of Information Technology, Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India
yashaswipatki27@gmail.com

[3]VRUSHALI R. KALE
Student-Final Year, Department of Information Technology, Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India
vrkale2361998@gmail.com

[4]VAISHNAVI P. CHIDRAWAR
Student-Final Year, Department of Information Technology, Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India
vaishnavichidrawar293@gmail.com

[5]PROF. SUMIT S. MUDDALKAR
Assistant Professor, Department of Information Technology, Shri Sant Gajanan Maharaj College of Engineering, Shegaon, Maharashtra, India
sumitmuddalkar@gmail.com

ABSTRACT: *Nowadays rural stakeholders have to manage heterogeneous and complex information ranging from selling techniques to product prices, this study investigates the potential of mobile apps to support them by providing detailed information of policies given by the Government. Moreover, android as operating system, most of its applications are freely available. The use of a Smartphone is an increase in every sector of business, education, etc. It is observed that the Indian Government provides lots of schemes to villagers for their development, but all schemes do not reach every villager. So to bridge this gap this system will help us. This system can provide information using an android Smartphone from anywhere and anytime in online mode. The application will available in English, Hindi and Marathi Language. The study proposes that the development of mobile apps should support village activities by providing information about all policies and scheme given by the Government to villagers.*

***Keywords*:** Android, Survey, KCV, Villager

1. INTRODUCTION

The active growth of mobile communications combined with the global use of all types of mobile devices has changed citizen's daily life and firm practice. There are various Village scheme App that are available for villagers. Agriculture profession, business profession, health profession, education profession are working. There is possibly a no better example of a smart village than with the mobile app. Mobile apps enable villagers to perform crucial tasks wherever and whenever they need it. From accessing scheme information and managing all data and getting surveys, there is practically no job that a village app can't do. To meet this growing demand, apps need to be launched that are useful, user friendly, and simple to use. The agricultural sector in particular constitutes an essential pillar of the marketplace and as a business division covers the food needs of the society. The term "mobile agricultural apps" is used to distinguish any mobile app targeting the needs of the agricultural division and its stakeholders, such as farmers, agricultural firms and co-operations. These apps cover a spectrum of ventures from the field to the agricultural market (e.g. buying and selling goods and products). More particularly, mobile applications allows various varieties of services, such as weather forecasting for farmers, agricultural related news, management of the agricultural commodity, dairy farming, management of irrigation systems, management of crop sensor, yield forecasting, and monitoring, registration of soil types, and calculation. Mobile apps can also be use for taking surveys. This study aims to reveal the information about KCV (Knowledge College Village), which is survey-based app for villagers. Firstly, this paper explains Background of KCV, KCV analysis, Design and implementation, Related work, Limitations of this app. Finally, we summarize the study, form conclusion.

2. BACKGROUND

In India there are 6 lakh villages out of them 1.25 lakh villages are backward so there is a need for designing and building the village as a smart village. Village is main criteria for development of nation. So, to develop the village in such a way that it is self-dependent in providing the facilities to its villager and well connected to the rest of the world i.e. smart village. [1]

Sustainable development is generally discussed in terms of environmental considerations, but from a rural community perspective, sustainable development must address how the people of the community generate the income to maintain their

rural lifestyle. While market signals alone can, in principle, provide the information and the conditions for this type of dynamic process, the argument of the paper is that the nature of rural areas makes it unlikely for markets alone to allow sustainable employment. [2]

Today mobile devices are used frequently by everyone, including the farmers and village side people. According to observations of Information and Communication Technologies (ICT) mobile plays vital role in daily life of villagers. In this paper we present various ways in which a farmer can utilize Mobile Computing (MC) on their handsets using application called "Kisan", to assist them for relatively better cultivation.[3]

India is a country dominated by villages. So that developing India it must to develop villages first, but Because of lack of communication problem in villages they do not have central communication system. Hence villagers not have sufficient knowledge about Ration status, Dairy Management, important announcement in village, Government Scheme, funds & Taxes. [4]

This is the era of digitalization. So, digitalization also is required in village. In this paper we are implementing android based services for village. The main aim of this paper is to collect data from multiple locations in a village. This data will be available to the villagers via the cloud service. [5]

Village is one of the most important field with the majority of rural population depend on it. So, Information and Communication Technology can be used in village which plays an important role in the development of village sector in India for connecting rural areas to rest of the country for overcome the challenges which the villagers face day by day [6]

Technological importance has been a great support for making decisions in various fields especially in village. The development of village has been on under development for the past few years due to lack of Village knowledge and environmental changes. The main aim of this paper is to reach village for their awareness, usage and perception in e-Village. [7]

Accurate and reliable village related scheme information is the basis of the implementation of digital village. Currently, the processing of village related scheme information collection and data acquisition is more complex. [8]

A huge change has occurred in the way people obtain information in the last few years and a large percentage of the population now get it on their mobile phones. There is currently a wide range of android application available. The rapid penetration of new broadcasting technologies strongly affects the way app are communicated to, and used by, people. [9]

In this paper a Smartphone-based autonomous management of Location is presented. When we develop a location-aware application for Android, we can utilize GPS and Android's Network Location Provider to acquire the user location. Android's Network Location Provider determines user location using cell tower and Wi-Fi signals, providing location information in a way that works indoors and outdoors, responds faster, and uses less battery power. [10]

3. KCV ANALYSIS

We study several apps in order to understand the need of the villagers and what are the facilities provided to them .In our initial investigation we have find several Problems with the conventional system which are explained below

- **Lack of Immediate Retrievals:** The information is very difficult to gather and too analyzed.
- **Lack of prompt updating:** Various changes in the survey are difficult where paperwork is involved.
- If an identification verification tool is not used, then it is difficult to know if the sample providing answers is the right person or if one person is submitting multiple responses
- Difficulty in reaching certain types of participants, such as those who do not have internet access or does not know how to use the smart phones.

KCV (Knowledge College Village) app will contain information about the schemes which are provided by the government for the villagers also this app will contain Survey form which will be filled by the villagers and on the basis of which the facilities to the village and villagers will be provided. Here we are presenting some features of the KCV:

- This application works on the 8 sectors that are: Health, Land, Education, Water, Energy, Forest, Transportation, Governance
- KCV app identifies villager's needs and priorities.
- This application has the multilingual support.
- KCV app provides information and latest schemes to the villagers.
- This survey-based app works for well being and welfare of village and villagers.

4. KCV DESIGN AND IMPLEMENTATION

KCV's primary goal is to bridge the gap between villagers and the government. Now a day's government provides various schemes, but every villager is not able to know about it and cannot take the benefits of it. The mediators are also not able to provide complete information. So for this taking survey is one option. Currently, traditional pen paper surveys are taken but to maintain these manual records is difficult and time consuming and it may also leads to fake data collection. So online surveys must be preferred because data will directly be uploaded to the server and also no editing is possible once survey is submitted.

We used the android studio for developing this dynamic analysis system that is designed to overcome the aforementioned obstacles. In this system there are two survey forms one is Village Survey which will be filled by head of every village. The head of the village will have unique id which will be given by the admin to head of every village. This feature provides authentication and confidentiality to the application. Another one

is house hold survey which will be filled by every villager. This application also contains the other tabs like Change Language, Government Schemes information and view profile. Here there will be three languages i.e. English, Hindi and Marathi, the government scheme will have scheme information which is divide in 8 major parts i.e. Health, Land, Education, Water, Energy, Forest, Transportation and Governance.

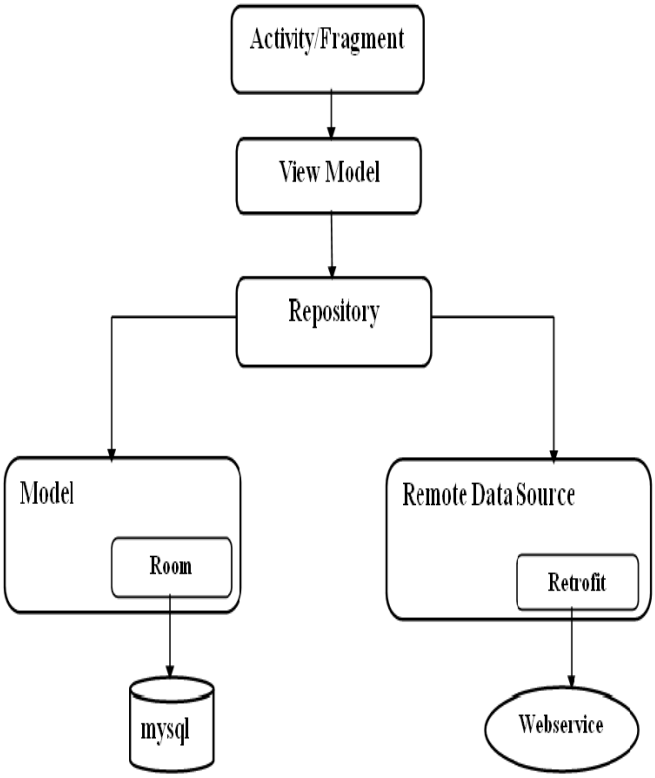

Figure 1: Architecture Diagram

4.1 KCV's ARCHITECTURE

In the above illustrated architecture figure 1, we shows different modules and how they will interact with one another after designing the app. In this application each module depends only on the module one level below it. For example, activity depends only on a view model. The UI consists of an activities and fragments and its corresponding layout file.

- A View Model object provides the data for a specific UI component, such as a fragment or activity, and contains data-handling business logic to communicate with the model. For example, the View Model can call other components to load the data, and it can forward user requests to modify the data.
- Repository modules handle data operations. It acts as a mediator between different data sources, such as persistent models, web services, and caches.
- Remote data sources are used to access the database of another system.
- MYSQL database is used in Android Application Development. It uses Single-tier database architecture.

4.2 KCV's DESIGN STRATEGY

In this part detail explanation of methodology that is being used to make the system complete and working well is covered. This part is also used achieve the objective of the system that will accomplish a perfect result. In order to evaluate this system, the methodology is referring to System Development Life Cycle (SDLC). Following are the steps of SDLC

a. **Project Initiation:** In this step actual system planning is done. In This phase the stack holders are interview, Budget of the system is decided, risk analysis is done also resources are indentified.

b. **Requirement Gathering and Analysis:** In this step we identify what are various requirements that are need for our system such as software and hardware required, database, and interfaces.

c. **System Design:** In this system design phase we design the system which is easily understood for end user i.e. user friendly. We will design some UML diagrams and data flow diagram to understand the system flow.

d. **Implementation:** In implementation phase of our application we have implemented various module required for getting expected outcome at the different modules. This application is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested to check its functionality.

e. **Testing:** The different test cases are performed to test whether the system module are giving expected outcome in assumed time.

f. **Deployment of System:** Once the testing is done, the product is deployed in the customer environment or released into the market.

g. **Maintenance:** There are some issues which come after deployment. To fix those issues different versions are released. Maintenance is done to fix the bugs in application.

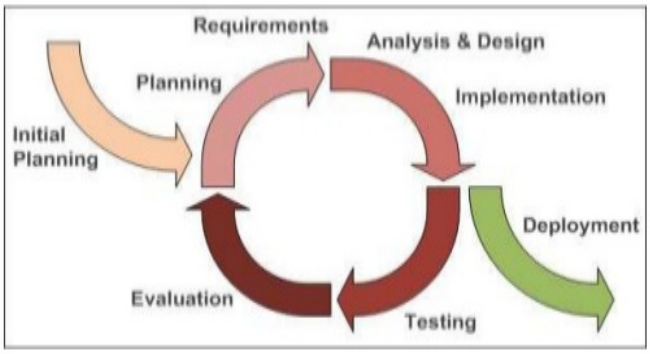

Figure 2: Iterative and Incremental Agile Development Proces

or development of this system we have used the agile software approach. Because of its several benefits like agile software development is highly collaborative and evolutionary approach, agile methods are iterative, evolutionary, and incremental delivery model of software development. Here, the entire application is distributed in incremental units called iteration. Development time for each iteration is small, fixed and strictly adhered. Each increment is mini increment of the functionality and is build on the top of previous iteration. Agile Software development uses short iterative cycle which offers an opportunity for rapid visible and motivating software process improvement.

The above figure 2 shows the iterative software process which is used in this system .Since the system is requirements were dynamic in nature therefore the agile development process is used in which in every iteration all the phases of SDLC are visualized. Every iteration is build on top of previous iteration. Agile model is also used due ability to respond to change that often determines the success or failure of a project. Agile Manifesto welcomes changing requirements even late in development, all agile methods are well organized accommodate to change requirement. So, using Agile Software process we were able to achieve objectives of the system that will accomplish perfect result.

4.3 IMPLEMENTATION STRATEGY

In this application we have first analyzed the need of the user. Based on the need we designed our application that includes the various tabs and their features. These features were developed by keeping in mind the need of user and also the properties of confidentiality, authentication, language barrier and requirement for system. The phase of design is of utmost importance while making strategy as it should cover all the need of project and any major changes should be made here itself. Later on it becomes difficult for developer to make changes in design.

After the phase of designing the system based on villagers requirement next step is coding where we need to select data structures, algorithms, user interface of application, database, etc. This phase can be most time consuming phase. In this application this phase was used to build application and linking with database.

Implementation strategy also included testing phase where each module needs to be tested separately and also entire system should be tested as one. Here the main test was to check whether the entries in database show correct data or not when data is send from application to database.

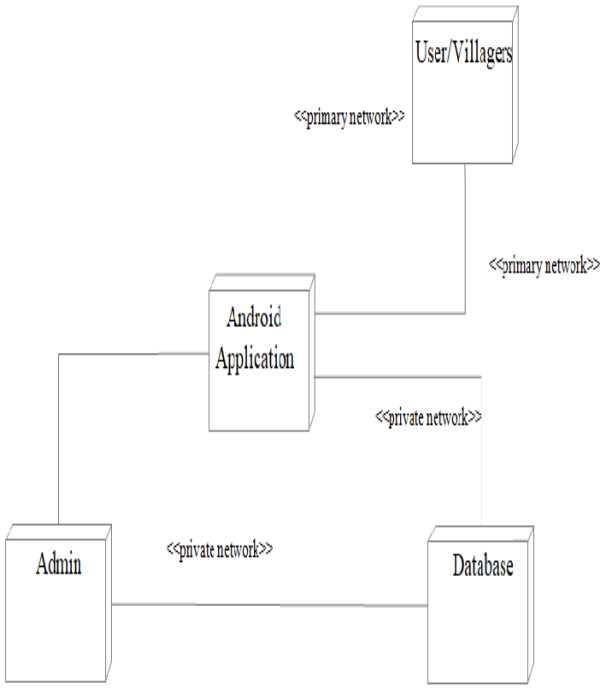

Figure 3: Deployment Diagram

4.4 DEPLOYMENT DIAGRAM

Above Figure 3 described the deployment those are used to visualize the topology of the physical components of a system where the software components are deployed. So, this diagrams are used to describe the static deployment view of a system. Deployment diagrams consist of nodes and their relationships. The name itself states the purpose of the diagram. But this diagram is special diagram used to focus on software components and hardware components. So most of the other UML diagrams are used to handle logical components but this diagrams are made to focus on hardware topology of a system. Deployment diagrams are used by the system engineers. The use of deployment diagrams can be described as:

- Visualize hardware topology of a system.
- Shows the hardware components used to deploy software components.
- Describe runtime processing nodes.

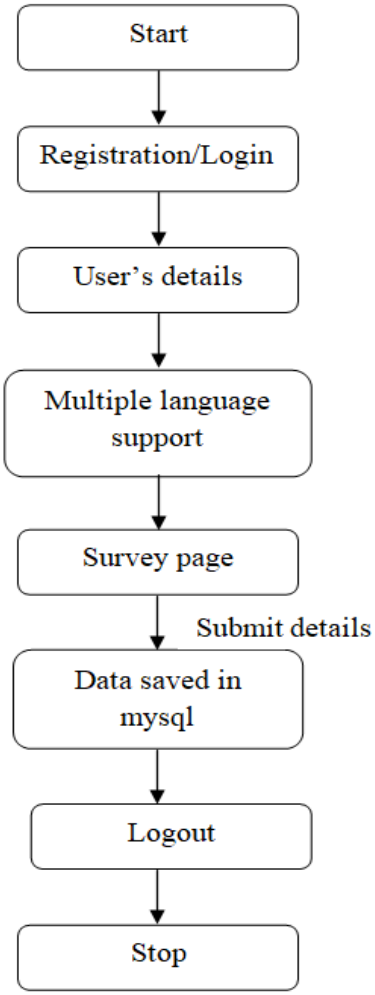

Figure 4 (a): Implementation Level Details

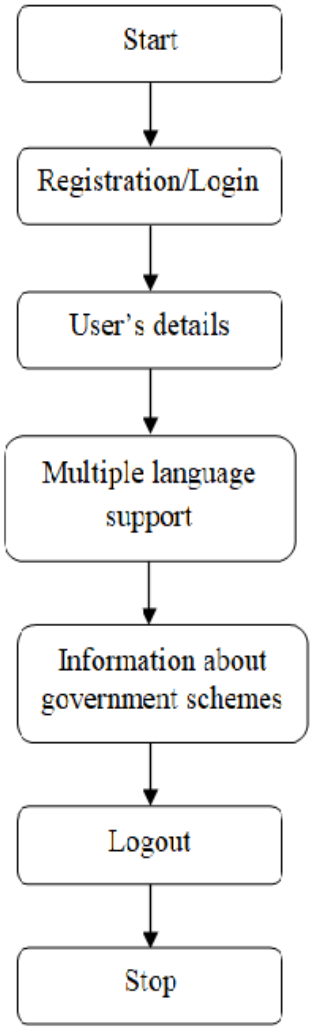

Figure 4 (b): Implementation Level Details

4.5 IMPLEMENTATION LEVEL DETAILS

Implementation diagram fig 5.2 describe that there are different application file in android but in the flow there are two flow charts. In this first one is for the survey and second one is for the villagers. So the first survey side can be start with user view in which there is getting the GUI effect in android language. In that the users are able to give the input according to fields is mention there. After successful input we need to store the information which will be displayed to the admin. In other part, the villagers can use this application for their benefit by getting information on government schemes. Finally, main purpose of this is to work in benefit of both for admin and Villagers favoring both. This first algorithm i.e. figure 4(a) here shows the flow of filling the survey form and second algorithm i.e. figure 4(b) shows the flow of getting the information about all the government schemes. In This application the multiple language support is also provided the user can use the app in English, Hindi or Marathi .In this application there are two survey forms that is household survey and head survey .The head survey can be filled by head of village only.

5. DATASET & EXPERIMENTAL SETUP

To check the quality of our system and whether it works as expected or not we have performed various test cases i.e. GUI Testing, Unit Testing and Integration Testing. Here we have tested manually by using android smart phones.

- **GUI Testing:** Graphical User Interface (GUI) testing is the one of the mechanism in which user interface developed under some graphical rules. In GUI testing we have checked various controls- menus, buttons, icons, dialog boxes and windows etc. We have tested our system for user inputs against different modules and also we have verified validations.

- **Unit Testing**: In this we have tested individual software units of the system; it is done after the completion of an individual unit before integration. In this we have design several test cases that validate the internal program logic is functioning properly or not, and also that program inputs produce valid outputs. All decision branches and internal code flow is validated

Integration Testing: After performing the units testing all the system components are integrated and after integration testing is done. This testing is done to check whether all system components perform well or not after integration or not. Here we have provided various inputs to check whether we get proper output or not.

6. LIMITATIONS

- This app will run only on the phone which will have an android operating system.
- This app will require an internet connection to fill the survey form.

7. RELATED WORK

There are several previous apps developed for the betterment of villagers but none of this app has all features required for development of villager. Here we only present the most relevant apps, and discuss how KCV improves upon or compliments, that work.

1) IFFCO Kisan

IFFCO Kisan is an Indian agriculture farmer App, which helps the Indian farmer to take decisions related to agriculture by accessing information related to their need. This app is for Farmers and provides the latest mandi prices, weather forecast, agricultural advisory, best practices tips related to agriculture, Animal Husbandry, horticulture; a buyer and seller platform, and all agriculture related news and govt. schemes. This Indian farmer app is for farmers to provide agriculture alerts and agriculture advisories, but this apps does not contains survey for farmers also it does not provide information about government policies.

2) SmartGaon

SmartGaon' connects Indian villages and their villagers to the world of internet. Its knowledge and information center, market place and help in make your 'gaon' a 'SmartGaon'. This app provides the villagers' directory, News and Events calendar, Health center, Information broadcasting and sharing platform, .Knowledge center about government schemes to the villagers, but this app does not contain survey and feedback forms which will help in development of the village and villagers.

3) My Village

The "My Village" app gives you details about what happens in your village and the surrounding rural areas. This app provides the all information and facilities in four areas that are village news, village calendar, village map, village lift but this app does not provide the information in another sector also this app does not contain any survey form. Almost applications provide various features to villager for their development such as advisories, weather forecast, mandi prices, etc, but none of this app has all the features. Overall the KCV is improvement upon these applications.

8. CONCLUSION

Several government schemes are provided for the well-being of the villagers. But due to some reasons, the villagers are not able to take advantage of schemes and also, they are not able to tell their dilemmas to the government. So, to bridge this gap between villagers and the government we have developed this application. This application contains two survey forms that are head survey and household survey. The head survey Form can only be filled by the head of the village. The head of the village will be given one id for filling the head survey form. The household survey form is filled by every villager. This application works on 8 problems sectors that are: Health, Land, Education, Water, Energy, Forest, Transportation and Governance which provide essential information to villagers about latest Government schemes.

9. REFERENCES

[1] Dr. V. S. Rajamanya, Prof. A. Deshmukh (2016). "Study and development of village as a smart village", IJSER, Volume 7, Issue 6, June-2016.

[2] David Freshwater (2000). "Cooperatives in Rural Community Development: A New Framework for Analysis." in JCDS 35(2):17-35 · September 2004.

[3] Santosh G. Karkhile , Sudarshan G. Ghuge "A Modern Farming Techniques using Android Application" International Journal of Innovative Research in Science, Engineering and Technology (An ISO 3297: 2007 Certified Organization) Vol. 4, Issue 10, October 2015 Copyright to IJIRSET DOI:10.15680/IJIRSET .2015.0410136 10499

[4] Mr. Milind R. Hegade "Smart Village System" IJSTE | Volume 3, Issue 04, October 2016 ISSN (online): 2349-784X.

[5] Agraj Aher, Janhavi Kasar, Palasha Ahuja, Varsha Jadhav. Smart Village using Clustering and IOT

[6] Swati Narkhede Kisan Monitoring System Focused on Android based Application International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395 -0056 Volume: 03 Issue: 02 Feb-2016

[7] Sumitha Thankachan, "a Survey Conducted on E-Village with Indian Farmers" Dr. S. Kirubakaran IJCSMC, Vol. 3, Issue. 2, February 2014, pg.8 – 14.

[8] Chen, X., Zhao, J., Bi, J., & Li, L. (2012). Research of real-time village information collection system base on mobile GIS. 2012 First International Conference on Agro- Geo informatics (Agro-Geoinformatics). doi:10.1109/agro-geoinformatics.2012.6311703.

[9] Zabini, F. (2016). Mobile weather apps or the illusion of certainty. Meteorological Applications, 23(4), 663–670. doi:10.1002/met.1589.24

[10] Rasool.R, Sabarinathan.K, Suresh.M, Syed Salmon.H, Ragavan 24hours GPS Tracking in Android Operating System

[11] https://www.cemaagri.org/images/publications/position-papers/CEMA-smart-village-for-all-farms_December-2017_.pdf