

FARMER'S PLAZA: A CLOUD-ENABLED MOBILE AND WEB BASED APPLICATION FOR FARMERS.

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Abstract – Cloud storage is one of the important technique for resources are sharing over the internet and in that to manage vast amount of data. Mobile technology is increasingly being adopted in the agricultural space as a measure to assist farmers in decision. It is an Android Application which provides essential way for selling farming products. We have adapted the dual caching technique where we store data on the mobile and on the middleware. It is designed as a mobile distributed system that follows a three-layered deployment; comprising of mobile nodes, a cloud-hosted middleware, and a cloud-hosted database server.

Key Words: -Android Application, Cloud Computing, Web Services, Authorized Communication, etc...

1. INTRODUCTION

Farmer's Plaza is an Android Application which provides essential way for selling farming products such as vegetables, sugar, wheat, etc also is a CLOUD based application which provides the different internet cloud networks on the server side so that wherever the farmer will be suppose in the farm he can easily access the database. It provides simple and easy way so that the customer and farmer can communicate easily related to their products of farm. We have provided the REST protocol for fast communication and security. This application is multilingual, web-based e-procurement solution providing comprehensive information targeted at the farmer. Farmers were unaware of the latest techniques in farming such as soil analysis, etc. This android application is provided on the smartphone, tablets, i-phone and also it is web based application so that the farmer can edit or upload their updates related to the farm.

This application work as a mediator between farmer and customer to provide the efficient way for selling and buying the item related to the farm. Also by using this application the farmer will get the proper knowledge of farm related concepts. The queries about the farm is been solved in this application by answering the appropriate farm related queries. For this purpose we have provided a Dashboard in this android application. This application provides the important links and the government policies for the farmers.

2. LITERATURE REVIEW

-Richard K. Lomotey, Yiding Chai, Shomoyita Jamal and Ralph Deters[1]-“MobiCrop : Supporting Crop Farmers with a Cloud-Enabled Mobile App” by using this reference we got that the mobile technology is increasingly being adopted in the agricultural space as a measure to assist farmers indecision. In this regard, the MobiCrop project was initiated by the researchers from the College of Agriculture at the University of Saskatchewan, Canada, and the Multi-Agent Distributed Mobile and Ubiquitous Computing (MADMUC) Lab. The aim of the project is to enable farmers to have mobile access to up to date information on pesticides and further make decisions on which pesticides to apply, how to apply them, when to apply them, and so on. Due to its complexity, MobiCrop is designed as a mobile distributed system that follows a three-layered deployment; comprising of mobile nodes, a cloud-hosted middleware, and a cloud-hosted database server.

-Yukikazu Murakami, Slamet Kristanto Tirto Utomo, Keita Hosono, Takeshi Umezawa, Noritaka Osawa [2]- “Agro-Sense: A Cloud-Enabled Mobile App and Efficient Farming System using WSNs” by using this reference we got that the Agro-Sense: A cloud-enabled mobile app plays an important role in improving farming activities. This paper focuses on using cloud computing and Wireless Sensors Network (WSNs) technology to enhance the application and its benefits to the field of agriculture. The paper focuses on the Cloud Database which gives details of past

agriculture work records of farmers. The farmers who have inculcated the system and installed the application on their Smartphones can register the application on their, so that they can access as well as upload the data stored on the server and use the system efficiently. Light, Temperature, and Humidity and Soil moisture will be the various WSNs used. The main activities of the sensors are to sense and measure the environmental data from the fields.

3. PROPOSED WORK

3.1 Problem Definition

The reason of choosing this topic is that in normal day to day life we saw that the farmer sells his product like vegetables, wheat, sugar, etc. through the help of the mediator. This mediator analysis the products of the farmer and decides the rate as he wants to get his benefit of his business. So he tells the farmer one rate and sells the product to the shopkeeper in another or different rate because from this he gets the benefit in this deal. So because of this scenario the farmer can't get the actual benefit as he wants. That's why he is in the dark.

So for removing the farmer from this darkness we are going to develop an android application as Farmer's Plaza which provides the simple and easiest way to the farmer to communicate with customer related to their farming products. So farmer can easily sell the products to customer by using this application.

3.2 System Architecture

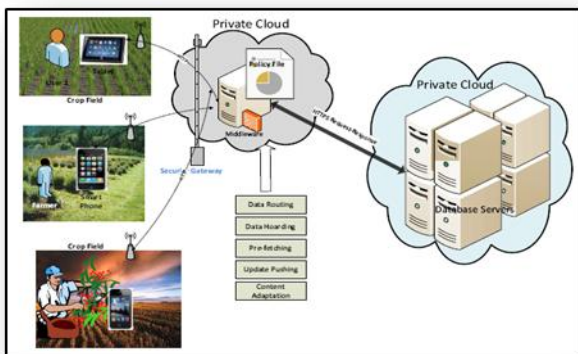


Figure : The architectural design of Farmer's Plaza.

The Farmer's Plaza architecture is designed above the mobile distributed architecture pattern. The work could not follow the standalone design due to the fact that the standalone app will defeat some of the requirements. For instance, there is the need to keep updating and monitoring the information on pesticides that are being

sent to the farmers. The architecture comprises of mobile participants, a cloud-based middleware, and a cloud-based database server.

3.3 Modules and their functionalities

3.3.1 Farmer Registration Module

Farmer creates its own account in Farmer's Plaza application.

Customer and farmer can make deal about the product.

Can update its queries on profile.

3.3.2 R & D Module

R&D is a portal in which the farmer can send the farm related queries to the R&D.

R&D also provides the latest research news about the crops, fertilizers, soils and etc.

3.3.3 Nursery Module

Nursery portal is used to supply the crop, seeds & other plants.

They can update their new crops plants on this portal.

3.3.4 Agro shop Module

- Agro shop module is used to supply agro products such as Fertilizer, Farming equipment's.
- Products are updated time to time.

3.3.5 Hotel Module

- They can make deal with farmer by using this concept.
- They can easily buy the products with the appropriate amount.
- Due to this the farmer as well as hotels gets the benefit.

4. METHODOLOGY

4.1 Slim Framework

Slim is a light weight PHP framework which is used for developing small and medium scale web applications. It is also known as PHP **micro framework**. Slim has Restful APIs using which we can build simple, secure and effective web applications. Typically a micro framework provides receiving and routing the HTTP request to a particular controller that returns the HTTP response. Micro framework also has additional tools for manipulating the HTTP response like HTTP caching, redirect, status updates with extensible middleware implementation.

The devices such as mobiles, tablets and computers send the HTTP request to the restful APIs. In this case, Restful APIs provide an interface between the database and devices. Restful APIs have the slim application methods that are used to process the HTTP request sent by the clients.

Restful APIs take the HTTP requests from devices and process them in the database. Database looks for the requested data and sends responses back to the devices through Restful APIs as HTTP responses.

PHP is a not modular to develop large scale applications. Slim framework is much better than PHP, which provides simpler programming interface than PHP. The 'New media campaigns' company sponsors the slim framework for more research and development. The latest version of slim framework is available in the GitHub website.

Following are the environment variables used in slim framework

REQUEST_METHOD.

SCRIPT_NAME.

PATH_INFO.

QUERY_STRING.

SERVER_NAME.

4.2 Cloud

Cloud computing provides access to the application as utilities over the internet. It allows us to create, configure and customize the applications online. The term cloud refers to a network or internet. Cloud can provide services over public and private networks. e.g- WAN, LAN, VPN. Applications such as Email, web conferencing, customer relationship management CRM execute on Cloud.

Cloud computing provides us meaning of accessing the application as utilities over the internet. It allows us to create, configure and customize the applications online.

Cloud computing refers to manipulating, configuring and accessing the hardware and software resources remotely. It offers online data storage, infrastructure and the application.

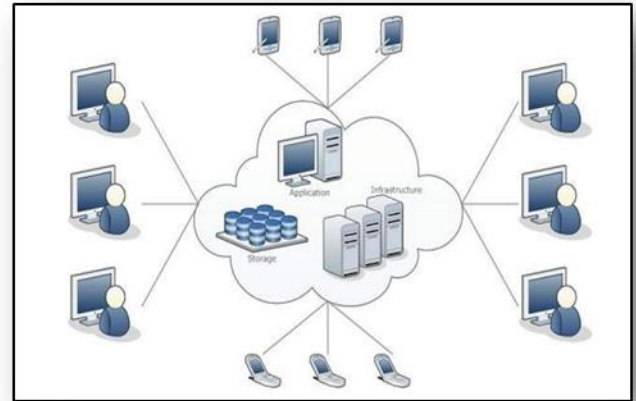


Figure : Infrastructure of Cloud.

4.2.1 Basic Concepts

Following are the working models for cloud computing:

Deployment Models.

Service Models.

4.2.1.1 Deployment Models

Deployment model is defining the type of access to the cloud, i.e. how the cloud is located? Cloud can have any four types of access: Public, Private, Hybrid, and Community.

4.2.1.2 Service Models

These are categorized into three basic service model which are :

Software-as-a-Service(SaaS)

Platform-as-a-Service(PaaS)

Infrastructure as- a- Service(IaaS)

Software as a Service (SaaS): It provides typically specific, already- developed applications running on a cloud infrastructure. A very famous SaaS is the web-based e-mail. Most software cloud computing services are web-based applications, which can be accessed from different client nodes using a thin client interface, such as a web browser.

Platform as a service (PaaS): It offers a managed higher-level application infrastructure, where clients can create and deploy particular types of software and services using the tools, environments, and programming languages supported by the cloud provider. The offers include the use of the underlying infrastructure, such as servers, network, storage, or operating systems. PaaS provides the runtime environment for application, development and deployment tools etc.

Infrastructure as a service (IaaS): It describes IaaS as “Cloud infrastructure as services in general provide virtualization platforms. They deploy their own software on the virtual machines and control and manage it. This is the most basic level of service. Each of the service models inherits the security and management mechanism from the underlying model. IaaS provides access to fundamental resource such as physical machines, virtual machines, virtual storage, etc.

5. IMPLEMENTATION

5.1 Mobile Application

To support this application the mobile as an interface between the end users has been used, So as to make the communication between the different users. The user at any time and anywhere can use this application on their mobile by logging in or by creating their own accounts or profiles.



Fig 1: Shows the Main Page of the application.

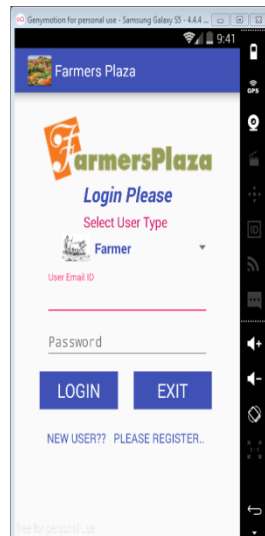


Fig 2: Shows the Login page.

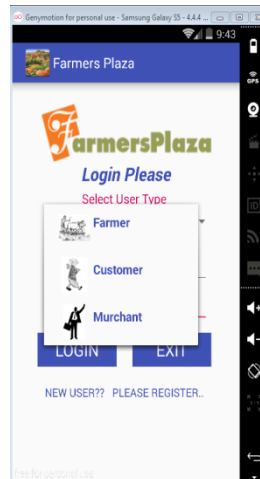


Fig 3: Shows the type's of users.

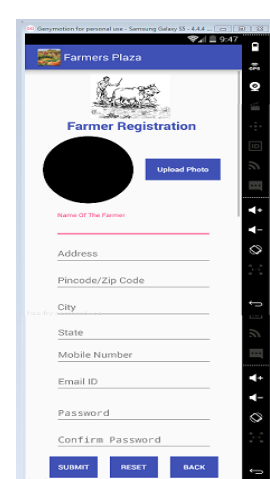


Fig 4: Shows the Registration form.

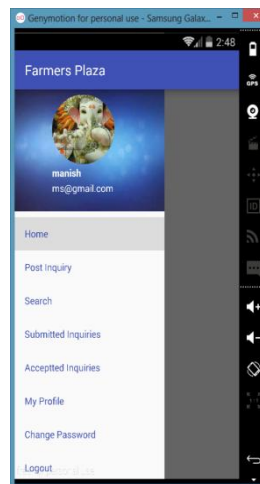


Fig 5: Shows the user's profile.

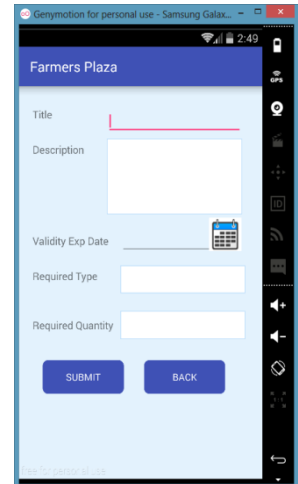


Fig 6: Shows post form where user can post.

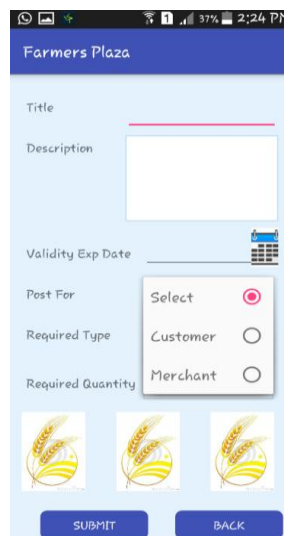


Fig 7: Shows the post form with image .

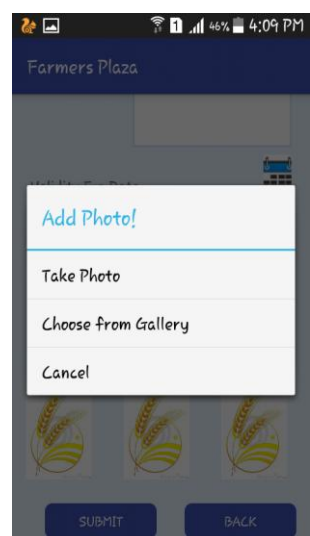


Fig 8: Shows the process of adding photo.

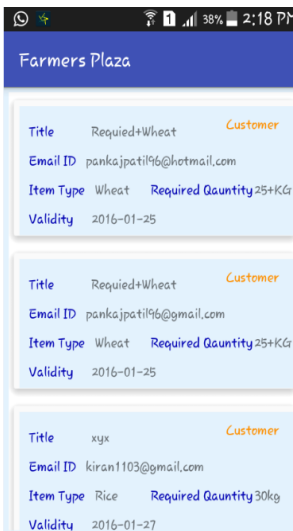


Fig 9: Shows the farmers home page.

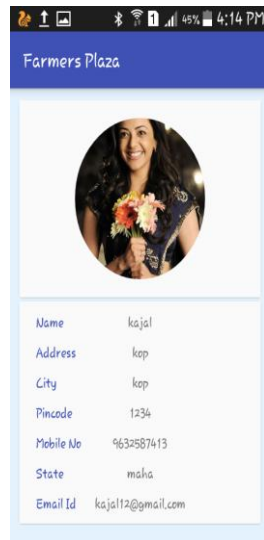


Fig 10: Shows the Profile.

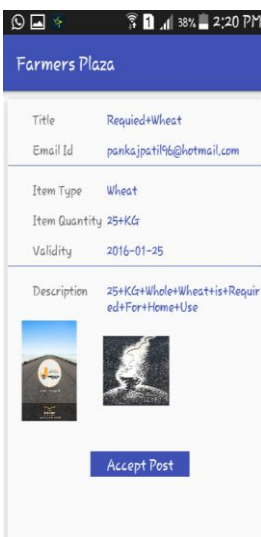


Fig 11: Shows for accepting home page.

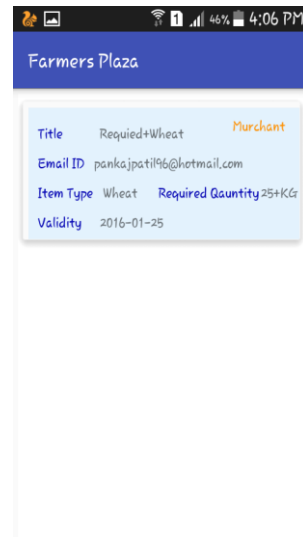


Fig 12: Shows the merchant home page.

5.2 Web Services

Restful web services are been used for GET, POST, PUT the data by calling the web services. REST is nothing but the (Representational State Transfer) which provides the client /server relationship and uniform interface.

Following web service method are:

GET

To retrieve information. GET requests must be safe and idempotent, meaning regardless of how many times it repeats with the same parameters, the results are the same.

POST

To request that the resource at the URI do something with the provided entity. Often POST is used to create a new entity, but it can also be used to update an entity.

PUT

To store an entity at a URI. PUT can create a new entity or update an existing one.

5.3 Dashboard

If the farmer, customer, merchant have any type of query they can post these queries on Dashboard. To solve the submitted queries the Dashboard is provided were the Dashboard is nothing but the simple user interface so that the every user can see the query and can give suggestion for this queries by posting their opinion on the same dashboard.

6. CONCLUSION

In our project we are going to see that by using this application the farmers can easily get the total benefit of the actual cost of product that he sold. Also all farmers are easily out from the darkness.

By using this application they also get the knowledge about how to operate the internet and how to use this type of facilities. We are going to develop this application by including three types of basic languages like Hindi, English and Marathi. So if farmer don't know the other language he can easily get the information by using this three languages that he known.

7. REFERENCES

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