Volume 1, Issue 4 November 2015 ISSN NO: 2454 - 7514

North Asian International Research Journal Consortium

North Asian International Research Journal

Of

Science, Engineering and Information Technology

Welcome to NAIRJC

ISSN NO: 2454 -7514

North Asian International Research Journal of Science, Engineering & Information Technology is a research journal, published monthly in English, Hindi, Urdu all research papers submitted to the journal will be double-blind peer reviewed referred by members of the editorial board. Readers will include investigator in Universities, Research Institutes Government and Industry with research interest in the general subjects

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EFFICIENT DECISION MAKING SYSTEM FOR FARMERS

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ABSTRACT

The app, which is a distributed mobile application has been proposed to help crop farmers with timely decision making on the use of pesticides (i.e., which pesticide to apply, when, where, and how to apply them). Due to the large amount of pesticide and crop data, the application is designed that uses the three-tier architecture technique which uses mobile devices, a cloud-hosted middleware, and cloud-based database. The concept is to use the mobile device to retrieve the required pesticide data from the back-end and when needed, sort of the data can be stored on the mobile for offline accessibility through caching .

INTRODUCTION

India is developing in every part in today's world of competition. Our country enjoys second position all over the world in terms of agricultural production. Agriculture field is the backbone of our nation. The only reason for this progress is farmers of India. But even today, due to improper facilities farmers of our country lack behind. The main purpose of developing this system is to reduce the manpower, save time and increase the productivity. Farmers can upload their data on Cloud Database. Data include parameters such as name of farmer, crop, season, time, pesticides and profit. The data will be shared among all other farmers. Farmers on farmland can easily refer to work plans, enter field data into the cloud system by using PC. The Cloud provides feature of unlimited storage space. In this system, farmers use mobile phones to access the database. It stores all the past agricultural records of the farmers. Any farmer before cultivating a new crop can access the database for reference. Also he can upload his own crop with details. And get the geological and analytical result from his input using data mining algorithm

Existing System

Farmers can upload their data on Cloud Database. Data include parameters such as name of farmer, crop, season, time, pesticides and profit. The data will be shared among all other farmers. Farmers on farmland can easily refer to work plans, enter field data into the cloud system, and share them with head office in real time by using PC. Cloud Computing is used to share the data stored on Database. The Cloud provides unlimited storage space. In this system, farmers use computer to access the database.

Proposed system

The goal of this project is to help crop farmers to make quick decisions on pesticide applications. In the initial design of the application, the caching technique is used as a measure to support offline accessibility of data in the event of a network disconnection. The challenge is that, the caching method can lead to state of stale data on the mobile that means, the farmers will not be able to access updated information but outdated information. This situation comes when farmers are on the farm where network signals are weak or totally unavailable.

Furthermore, the initially designed caching update technique is not good for bandwidth management

System architecture

The diagram shown below gives thought about the architecture of system. The user can communicate and fetch data from server by using web service. Web service acts as a middle ware which communicates or transfers the input action provided by user to server which then processes the request. Depending on request type the server decides if call to web server is required or not. E.g. If user wants the weather report of the location user is standing. Then server gives call for location mapping web server. Web server then performs their own methods to retrieve location of the user by the request received then web server checks for weather report for that location confirmed.

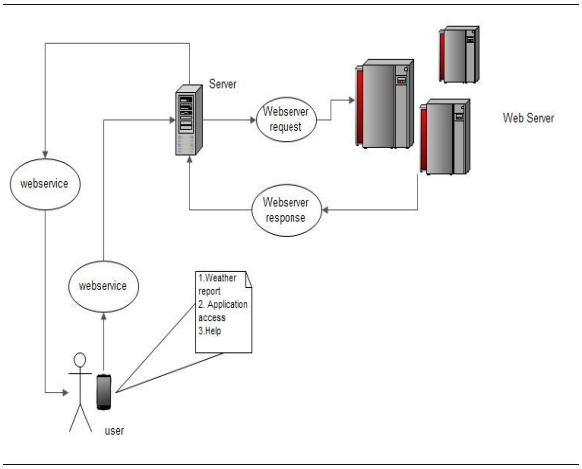

Fig1. System architecture

Then user can use various functionalities for controlling flow of the application. The various functionalities provided by application are-

- Fetching various latest information regarding to crop, soil, fertilizer etc. Along with latest updates for current situation.
- Latest weather reports and beneficial crop for that season.
- Call the expertise on single click.
- Help for illiterate persons by reading out loud some important modules.

For security keeping and efficient and password authentication we have used algorithm. It is explained as follows,

RC6:

In cryptography, RC6 (Rivest Cipher 6) is a symmetric key block cipher derived from RC5. It was designed by Ron Rivest, Matt Robshaw, Ray Sidney, and Yiqun Lisa Yin to meet the requirements of the Advanced Encryption Standard (AES) competition. The algorithm was one of the five finalists, and also was submitted to the NESSIE and CRYPTREC projects. It is a proprietary algorithm, patented by RSA Security. RC6 proper has a block size of 128 bits and supports key sizes of 128, 192, and 256 bits, but, like RC5, it may be parameterized to support a wide variety of word-lengths, key sizes, and number of rounds. RC6 is very similar to RC5 in structure, using data-dependent rotations, modular addition, and XOR operations; in fact, RC6 could be viewed as interweaving two parallel RC5 encryption processes, however, RC6 does use an extra multiplication operation not present in RC5 in order to make the rotation dependent on every bit in a word, and not just the least significant few bits

```
// Encryption/Decryption with RC6-w/r/b
//
// Input: Plaintext stored in four w-bit input registers A, B, C & D
// r is the number of rounds
// w-bit round keys S[0, ... , 2r + 3]
//
// Output: Ciphertext stored in A, B, C, D
//
```

```
// ”’Encryption Procedure:”’
B = B + S[0]
D = D + S[1]
for i = 1 to r do
f
t = (B*(2B + 1)) ¡¡¡ lg w
u = (D*(2D + 1)) ¡¡¡ lg w
A = ((A Ł t) ¡¡¡ u) + S[2i]
C = ((C Ł u) ¡¡¡ t) + S[2i + 1]
(A, B, C, D) = (B, C, D, A)
g
A = A + S[2r + 2]
C = C + S[2r + 3]
// ”’Decryption Procedure:”’
C = C - S[2r + 3]
A = A - S[2r + 2]
for i = r downto 1 do
f
(A, B, C, D) = (D, A, B, C)
u = (D*(2D + 1)) ¡¡¡ lg w
t = (B*(2B + 1)) ¡¡¡ lg w
C = ((C - S[2i + 1]) ¿¿¿ t) Ł u
A = ((A - S[2i]) ¿¿¿ u) Ł t
g
D = D - S[1]
B = B - S[0]
```

SCOPE

The main goal of the project is to support crop farmers to use their mobile devices to access timely information on pesticides. The crop farmers will have to be facilitated to access the pesticide control data on how, when, where, and what chemicals should be applied. The application is a distributed mobile cloud architecture that enables the user (farmer) to access the pesticide information on the mobile from the cloud-hosted back-end

CONCLUSION

The use of Cloud services and mobile computing in agricultural field provides high potential benefits which are economically worth in the field of agriculture. In this paper we have proposed the Smartphone application through which farmers can refer and access the data stored on Cloud Database on their Smartphone’s. Farmers can receive the information about water level, light, and temperature conditions during cultivation. Database is secured. Hence, this system provides the necessary data mining and sensors that works in an automated fashion and can be easily adapted to an existing system.

REFERENCE

[1]MobiCrop: Supporting Crop Farmers with a Cloud-Enabled Mobile App. Lomotey, R.K., Dept. of Comput. Sci., Univ. of Saskatchewan, Saskatoon, SK, Canada Yiding Chai ; Jamal, S. ; Deters, R. IEEE 2013.

[2] M. Hori, E. Kawashima, and T. Yamazaki, "Application of Cloud Computing to Agriculture and Propects in Other Fields," FUJITSU Sci. Tech. J., Vol. 46, No. 4, pp. 446-454 (October 2010)

[3] Wang, Z., Das, S., K., Che, H., and Kumar, M., 2004. A Scalable Asynchronous Cache Consistency Scheme (SACCS) for Mobile Environments. IEEE Trans. Parallel Distrib. Syst. 15, 11 (November 2004), 983-995.

[4] Ren, Q., and Dunham, M. H., 2000. Using semantic caching to manage location dependent data in mobile computing. In Proceedings of the 6th annual international conference on Mobile computing and networking (MobiCom '00). ACM, New York, NY, USA, 210-221.

[5] Falaki, H., Lymberopoulos, D., Mahajan, R., Kandula, S., and Estrin, D., 2010. A first look at traffic on Smartphone's. In Proceedings of the 10th annual conference on Internet measurement (IMC '10). ACM, New York, NY, USA, 281-287.

[6] Wang, Z., Das, S., K., Che, H., and Kumar, M., 2004. A Scalable Asynchronous Cache Consistency Scheme (SACCS) for Mobile Environments. IEEE Trans. Parallel Distrib. Syst. 15, 11 (November 2004), 983-995.

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