

Object Selection Method in Proposed Farmer's Online Grocery Portal Platform to Exchange Natural Products using Algorithmic Approach

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Abstract

In the market products are selling online through different platforms and common platforms. Ecommerce is the best way to sale or buy the product with appropriate utilization of efforts, cost and time. In proposed approach, multiple components are considered like grain, vegetable, fertilizers, seeds and fruits. Five tier frame work is used to manage the online platform. Computational way is considered to sale or purchase agricultural products. Common web portal is proposed to sale and purchase the agricultural products. Proposed platform can overcome societal issues also like illiteracy about selling products, low rate problem, gap between farmers and customer, vendors ruling, transportation problem etc.

Keywords: E-Commerce framework, online portals, Enterprise resource planning

I. INTRODUCTION

Till a generation ago, the word 'agriculture' evoked cinematic images of happy farmers, winnows in hand and water pots on heads, joyously harvesting their wheat and sugarcane fields. But today, in India agriculture has become synonymous with farmer suicides, heartless lenders and capricious weather and price volatility, all loaded against the sons and daughters of the soil. While there has been consistent reportage on farmer suicides and dying farmlands, particularly in Maharashtra, there are experts who believe that the sector can be uplifted with more visibility and technology. On April 14, PM Narendra Modi launched a new initiative – an online platform for farmers. Named eNAM (National Agriculture Market), it is a single-window service integrating mandis (agriculture markets) online so that farmers and traders can view all APMC (agriculture produce market committee)-related information and services. Our project i.e. OGP (Online Grocery Platform) is developed with the same thought as eNAM. This includes commodity arrivals and prices, and buy and sell trade offers, thereby helping farmers bid for the best price across markets [1]. Transformation of agriculture sector via the online medium will not happen overnight. However, OGP hopes to go beyond the perfunctory, connecting mandis, enabling farmers provide information on what they want to sell, thereby eliminating middlemen. This will give a platform for supply chain members to source directly from farmers, who otherwise have to go through multiple agents [2].

II. SURVEY ON EXISTING SERVICES

A. Existing common platforms for social networks

Web front-end written in PHP. Facebook's HipHop Compiler then converts it to C++ and compiles it using g++, thus providing a high performance templating and Web logic execution layer. Because of the limitations of relying entirely on static compilation, Facebook's started to work on a HipHop Interpreter as well as a HipHop Virtual Machine which translate PHP code to HipHop ByteCode [3]. Business logic is exposed as services using Thrift. Some of these services are implemented in PHP, C++ or Java depending on service requirements. Services implemented in Java don't use any usual enterprise application server but rather use Facebook's custom application server. At first this can look as wheel reinvented but as these services are exposed and consumed only (or mostly) using Thrift, the overhead of Tomcat, or even Jetty, was probably too high with no significant added value for their need. Persistence is done using MySQL, Memcached, Hadoop's HBase. Memcached is used as a cache for MySQL as well as a general purpose cache [4]. Offline processing is done using Hadoop and Hive. Data such as logging, clicks and feeds transit using Scribe and are aggregating and stored in HDFS using Scribe-HDFS, thus allowing extended analysis using MapReduce.

BigPipe is their custom technology to accelerate page rendering using a pipelining logic. Varnish Cache is used for HTTP proxying. They've preferred it for its high performance and efficiency. The storage of the billions of photos posted by the users is handled by Haystack, an ad-hoc storage solution developed by Facebook which brings low level optimizations and append-only writes. Facebook Messages is using its own architecture which is notably based on infrastructure sharding and dynamic cluster management. Business logic and persistence is encapsulated in so-called 'Cell'. Each Cell handles a part of users; new Cells can be added as popularity grows. Persistence is achieved using HBase. Facebook Messages' search engine is built with an inverted index stored in HBase Facebook Search Engine's implementation details are unknown as far as I know The typeahead search uses a custom storage and retrieval logic Chat is based on an Epoll server developed in Erlang and accessed using Thrift They've built an automated system that responds to monitoring alerts by launching the appropriated repairing workflow, or escalating to humans if the outage couldn't be overcome [5].

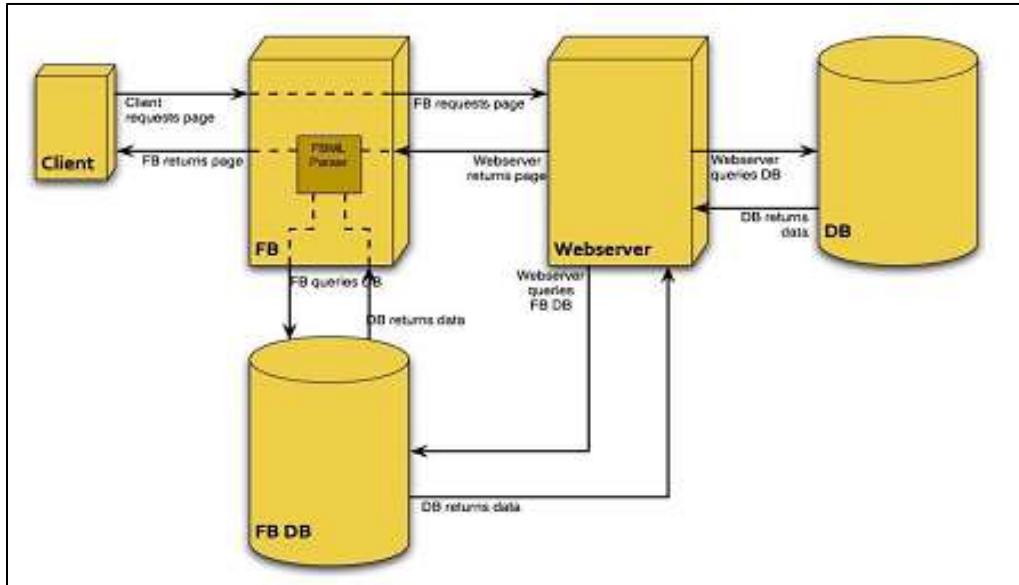


Fig. 1: Facebook framework [5]

B. Existing common platforms for data exchange

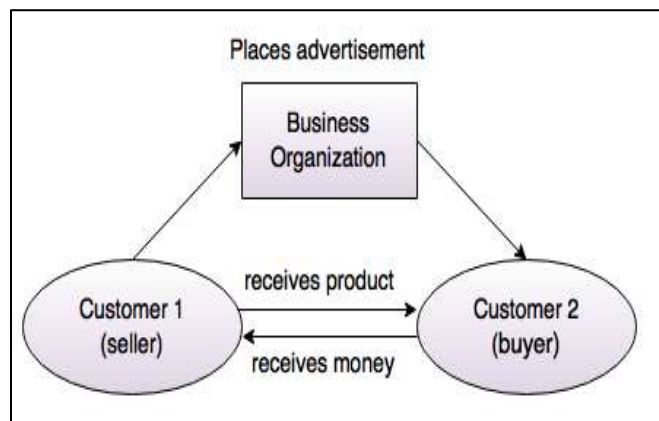


Fig. 2: C2C relationship model [6]

OLX (Online Exchange) is developed in PHP language. The best way for developing E-commerce websites in the easiest way is to use wordpress or Opencart platforms which provide you with both Front-end and Back-end stuff. It provide multiple choices for selections like data management, security and others. There is no need of much technical knowledge. If we consider PHP as your platform, there are many aspects like UI, back-end framework, database etc which have to be taken care manually. Its better way is to proceed with "wordpress" or "Opencart". OLX mobile version is using a JavaScript framework to serve the data from its API. User can build the same with any backend. You can write the backend in whatever language you want to select for development like PHP, Ruby, Python, Scala etc with APIs at endpoints to serve the frontend. However using Node.js with Express will be an appropriate choice because node.js is non-blocking and user have to write the frontend in JavaScript due to which user don't have to switch programming languages. If user is extended from Ruby/Python/CJava, its necessary to learn about CoffeeScript. For the frontend, users have different of choices [6].

III. NEED OF TECHNOLOGY

A. Illiteracy problem

Modern farmers face many challenges today, not the least of which is climate change and drought. But they also face problems like agricultural illiteracy, they even don't know how to access the internet. Agricultural illiteracy is the general lack of understanding about our food where it comes from, how it is produced and most importantly who grows it. This gap creates lots of problems between farmers and customers. Internet is rapidly becoming a primary source of knowledge for rural populations in developing countries. But not every one of the world's 500 million smallholder farmers is connected to the Internet which means they can struggle to solve daily agricultural challenges. Farmers don't have way to access to information on things like planting, growing and selling, farmers in Asia. Still Farmers don't know the uses of internet because of illiteracy and accessibility problems, yet mobile internet technology is growing rapidly in India but still in rural areas people are unaware of its uses. Our new government is trying hard to bridge this gap and launching several like eNAM, Kisan Suvidha, Farm-o-pedia App, AgriMarket, Crop Insurance Android App [7].

B. Transport

While analyzing transport of agriculture produce, it is identified that transport costs has critical role in recognizing the link between accessibility and agricultural development. Good transport system is critically important to competent agricultural marketing. For distribution of agriculture produce, road transport has vital role because it is the major means of transporting agricultural produce from the farms to the markets as well as to various urban communities. It is the only means by which food produced at farm location is transported to different homes as well as markets. Transport creates market for agricultural produce, improves interaction among geographical and economic regions and opens up new areas to economic focus. There are intricate relationships that vary both spatially and over time between transport and development. However, for any development to take place, transport plays a crucial role. There are many issues and constraints associated with transportation of agriculture produce. If transport services are uncommon of poor quality or expensive then agriculturalists will be at a disadvantage when they try to sell their crops. An expensive service will naturally lead to low farm gate prices (the net price the farmer receives from selling his produce). Seasonally blocked roads or slow and infrequent transport services, along with poor storage, can lead to losses as certain produces such as milk, fresh vegetables, tea, deteriorate quickly over time [7]. If agricultural produce is transported through rough roads then other crops (e.g. bananas, mangoes) may also suffer losses from bruising. This will also result in lower prices to the agriculturalist. One of the main handicaps with Indian agriculture is the lack of cheap and efficient means of transportation. Even at present, there are lakhs of villages which are not well connected with main roads or with market centers. Most roads in the rural areas are Kutcha (bullock- cart roads) and become useless in the rainy season. Under these circumstances the farmers cannot carry their produce to the main market and are forced to sell it in the local market at low price. Linking each village by metalled road is a gigantic task and it needs huge sums of money to complete this task [8].

C. Societal issues

1) Inefficient price signals:

The government has been buying almost one-third of all rice and wheat produced in India through the PDS system, but in other kinds of grains, fruits and vegetables (both being highly perishable), the role of the government is limited. This leads to MSPs being ineffective as both price signals and as insulators from the perspective of the larger agricultural population.

2) Limited reach of mandis:

Also, this procurement system has failed to cover the entire country evenly (back of the envelope calculation suggests that on an average, a farmer needs to travel 12 kms to reach the nearest mandi and more than 50 kms in NE India) while according to the recommendations by National Farmers Commission, availability of markets should be within a 5 km radius.

3) Too many intermediaries, information asymmetry:

The above mentioned problems have led to formation of long marketing channels, with multiple intermediaries, adding to the woes of the producers of perishable agri goods. These intermediaries have led to a cost inflation of ~250% (over the cost of production) and have exacerbated the existing information asymmetries in agriculture, especially for non-MSP crops [9].

IV. PROPOSED APPROACH

A. Five tier architecture

In proposed approach 'Farmer's Grocery Portal', five tier framework is defined. Five tier framework includes five segments including Administrator, Users, Common platform, web server, Data Centre and Data base. There will be two admin segments. Administrator's role is to manage working model of 'Farmer's Grocery Portal' including website and database maintenance. Data Centre segment manages all Data Centre admin activities. In proposed approach, data centers are established to exchange data retrieved from farmers directly due to illiteracy problem of some farmers.

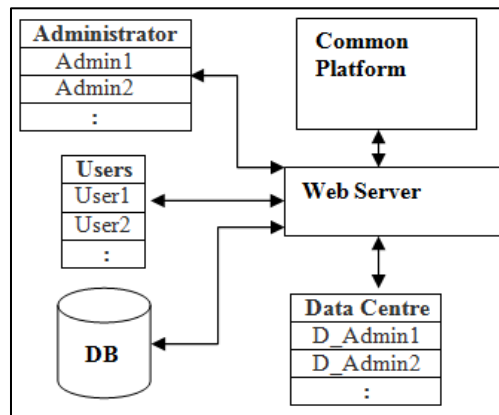


Fig. 3: Proposed five tier framework for Farmer's online Grocery Portal

Common platform is created to where all grocery related products including grain, fruit, vegetables and fertilizers can sale and purchase. In additional, delivery and cold storage options are available to the users who may require storage and transport or courier service. In its working, database is connected to the web server which regularly updates and synchronizes according to portal's usage. Users can upload and view their required product as per requirement. Selection options are available including state, city, type of product and product. In type of product, listing is added including grain, vegetable, fruits and fertilizers. This platform will help farmers to sale their product without wasting extra cost, time and effort. Also, their product will be preserved if hard to sale. Actual market value will be given to the farmers who actually disserve to work hard. Online platform provides additional features, including storage and transport options. Web server acts as middleware for the system. User is will be registered based on his or her credentials including adhaar number, mobile number and name. Based on OTP approach, security will be maintained. Login functionality can be done through one time password only. While registering user, its mandatory to submit user details with learning IT laws to stop offenses.

B. Randomized based sorting algorithm

In proposed five tier framework, priority based algorithm needs to be applied where all data will be posted based on components including demand, time, validity and search constraints. Search constraints are the values allocated based on the mostly selected products from list. Example if In grains sections, basmati rice maha is mostly preferable product by the users, then based on this some priority will be allocated. Priorities will be defined based on Search constraint S_T .

Table – 1
Priority allocation based on S_T

S_T Counts	Time Constraint T_C	Product ID	Priority
2800	09:21AM	#ID_Bas_Maha_	P_1
2400	09:19AM	#ID_Bas_Ker_	P_2
1900	08:19AM	#ID_Bas_Raj_	P_3
:		:	:

In above table it is S_T counts are given which are stored according to the viewers are opening the data posted by registered user. If $S_T = 2800$ then it will be allocated has highest priority. But Time constraint has highest priority in all components. So even if anybody has posted his or her data after the data which got more views, recently posted data will appear first

Table – 2
Components priority

Components	Priority
T_C	p_1
S_T	p_2
V_D	p_3
D	p_4

After all setup, security will be focused. In current security approaches, cryptographic techniques are applied like attribute based encryption, cipher text policy and other approaches. Some enterprise resource planning is coming like SAP HANA to which attribute based encryption techniques are applied [10]. Online cloud will be also applied which will be segregated with cryptographic techniques to enhance the security [11], [12].

V. CONCLUSION

Proposed approach "Farmer's Online Grocery Platform" shows the e-commerce power to overcome with societal issues. By using this portal, farmers can easily sale or purchase required product by saving real time problems like time, cost and effort. Proposed approach is applied with five tier framework due to which it can work with good efficiency. In additional, if dead about

product is done, transport or courier facilities including cold storage facilities will be available. Farmer will get better cost of effort due to online portal and comfort due to courier facility. \

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