

Job Outsourcing Portal with the Aid of Grid Computing Architecture

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ABSTRACT

Over the years, businesses have been cringing under the heavy weight of insufficient resources for optimum business delivery. The field of operations research has helped a great deal in ensuring that decision variables are optimized (maximized or minimize) for maximum yield. However, in as much as these techniques are efficient in the management of the quantity of resources or number of people to be engaged in certain services, to ensure optimum results, it has not been able to create a way out of the dearth of expertise for the execution of certain specialized tasks.

The job outsourcing portal which was developed will be a hub for submission of jobs/projects (services), convergence of service providers (resources) and the allocation of available jobs (services) to relevant service providers (resources) in order to meet business goals and objectives much faster. The portal was developed using Hypertext preprocessor (PHP), incorporated with Hypertext Markup language (HTML) and MYSQL database was used for the backend support.

The adoption of this system will ensure a conglomeration of experts in a centralized location (the portal) and will aid the computerization of the outsourcing process, which will eventually have a ripple effect on quality job rendering in enterprise.

Keywords

Job outsourcing process, Service providers, Portal, Hub and Resource virtualization

1. INTRODUCTION

Building a business used to be all about ownership. In order to guarantee access to the skills, knowledge and assets necessary to deliver a given product or service, you had to own or employ them. And the more you owned the more control you had over your business.

Today, it's a different story. Volatile markets, increasingly specialised skills and ever-changing technologies increasingly call the ownership model into question. So, businesses started contracting-out recurring internal activities to external suppliers: and outsourcing was born. All the manpower, equipment and facilities to properly perform the outsourced activity were provided by someone else, so companies were free to invest more in the 'vital organs' of their business. And because external companies were doing work previously done by employees, responsibilities were in black and white - rather than clouded by office politics (Telindus, 2009). It is common place that in this 'jet age', every second spent by an employee on a job that does not add value to the satisfaction of the organisation's customer needs is a waste. Many a time, organizations usually leave their core areas of operation to

concentrate on some other important yet distracting activities. This could have a fatal effect on business productivity. To minimize loses accrued from these distractions, Some organisations go as far as outsourcing whole departments to third party organisations with core competences in such areas of operation. This enhances their concentration on their core areas of business, hereby fostering maximum productivity

The crave for timely and efficient business delivery through expertise has therefore led to the current trends in outsourcing, where specialized projects or business processes are contracted out to service providers in that specific domain of interest.

This crave for (human) resource virtualization is similar to the crave for (Computational) resource virtualization that led to the development of the Computing grid. This similarity therefore was the rationale behind the development of a job outsourcing portal, using the Grid Computing Architecture.

2. OUTSOURCING

Outsourcing is contracting with another company or person to do a particular function. Almost every organization outsources in some way. Typically, the function being outsourced is considered non-core to the business. The outside firms that are providing the outsourcing services are third-party providers, or as they are more commonly called, service providers (Sourcingmag, 2008). Outsourcing involve(s) the transfer of the management and/or day-to-day execution of an entire business function to an external service provider. The client organization and the supplier enter into a contractual agreement that defines the transferred services.

3. GRID

Plaszczak/Wellner defined Grid computing as "the technology that enables resources virtualization, on demand provisioning and service (resource) sharing between organisations".

CERN, one of the biggest users of Grid technology talks of Grid Computing as "a service for sharing computer power and data storage capacity over the internet".

Grid Computing can mean different things to different individuals. The grand vision is often presented as an analogy to power grids, where users (or electrical appliances) get access to electricity through wall sockets with no care or consideration for where or how the electricity is actually generated (Redbooks, 2005).

4. ENTERPRISE GRID

Enterprise Grid computing is specifically the use of grid computing within the context of a business or enterprise,

rather than perhaps for academic or research purpose. Enterprise grids are typically managed by a single enterprise i.e. an entity; the business is responsible for managing a networked pull of resources and set of services and also for the assignment of resources to services in order to meet its

5. PROPOSED SYSTEM

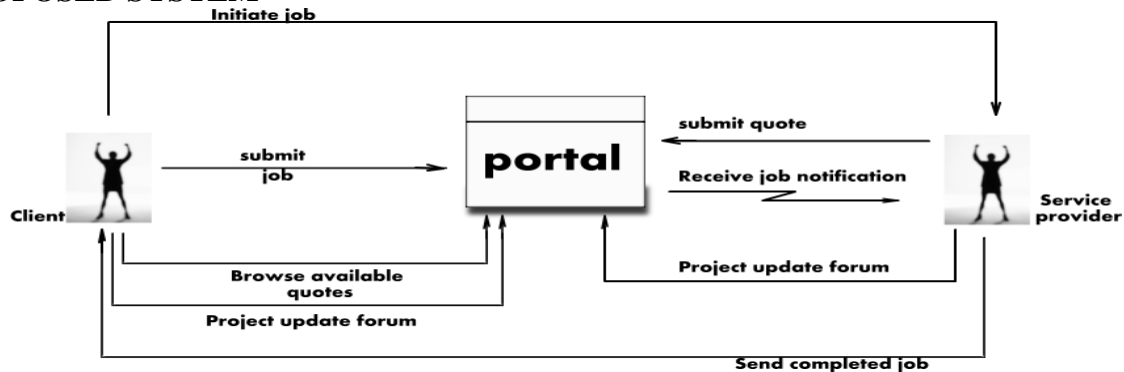


Fig1: Job Lifecycle on the proposed System

6. POSSIBLE IMPLEMENTATION OPTIONS

The implementation of this project could be approached in two ways. The possible options are:

i. Open Access: This project can either be adopted as an open application where there is an administrative enterprise monitoring the submission and execution of jobs on the portal. Freelance service providers have the opportunity of logging on to the portal for registration and **jobs can be posted by anybody**.

ii. Closed Access: It could also be adopted in house by an organization to ease its outsourcing process. Organizations could embed this outsourcing module as part of their corporate portal such that vendors willing to work with them are asked to register on the portal. Also, in case there is a need to outsource an entire business process, specialists are asked to log on to the portal, register and expect to be contacted appropriately. **Jobs can only be posted by the administrator**.

7. ENTITIES INVOLVED

Service Providers / Agents: These are the registered users on the portal. They have submitted their detailed information (including their area of specialization) at the point of registration and are contacted whenever a job is waiting to be outsourced. If the job posted/submitted by the client is in their area of specialization they receive an automatically generated email, culled from the submitted job description, asking them to submit their quotes.

Client/Administrator: This is used to describe any person that has the right to post a job on the portal for execution by service providers available on the portal.

Job: This could pass for the **project** that is meant to be outsourced. A proper job description is done at the job submission stage. These job description parameters are then used to alert service providers that have the capability for the job execution. Quotes are submitted and after verification, the preferred service provider gets the job.

8 ACTIVITIES ON THE OUTSOURCING PORTAL

Registration of Service Providers

goals. The resources and services may and may not be owned by the business. Enterprise grid is a collection of interconnected (networked) grid components under the control of a grid management entity (EGA, 2006).

Service providers are required to register on the portal before they can be allowed to execute jobs submitted on the portal, since the information submitted at registration will be useful for contacting them when jobs are available for execution. The administrator will also require some information for proper identification of registered agents. The following details will be required at registration:

1. Name of Company
2. Contact Address
3. Contact Name
4. Email Address
5. Phone number
6. Zip code
7. Specialization
8. Username
9. Password
10. Security Question
11. Favorite Answer
12. Access code – Issued on payment of subscription and verification (through scratch card).

These pieces of information are stored in the database for further utilization.

Job submission on The Grid

Job submission/posting is done by the administrative user through the job submission form. This form contains details such as:

1. Job title
2. Job Category
3. Job Description
4. Job Deadline
5. Bid Deadline
6. Job Budget
7. Posting date(Automatically generated when job is posted)

However, only an administrative user can post a job using this facility. There is a facility for adding new administrative users at the administrator end of the portal.

Submission of Quotes

On submission of job by client, the job description is mailed to registered service providers with required skill (those that fall into the selected job category)

needed for the execution of the submitted job. The name and email of service providers that were contacted is also written to database for the records.

Qualified service providers that receive job notification can bid for the job by posting their quotes on the portal for verification by the administrator, after downloading the tender document and paying the prescribed fee.

Job Execution

The outsourcing company, through the administrator, verifies the quotes that were submitted and invites the preferred bidders for a chat, before consummating the contract.

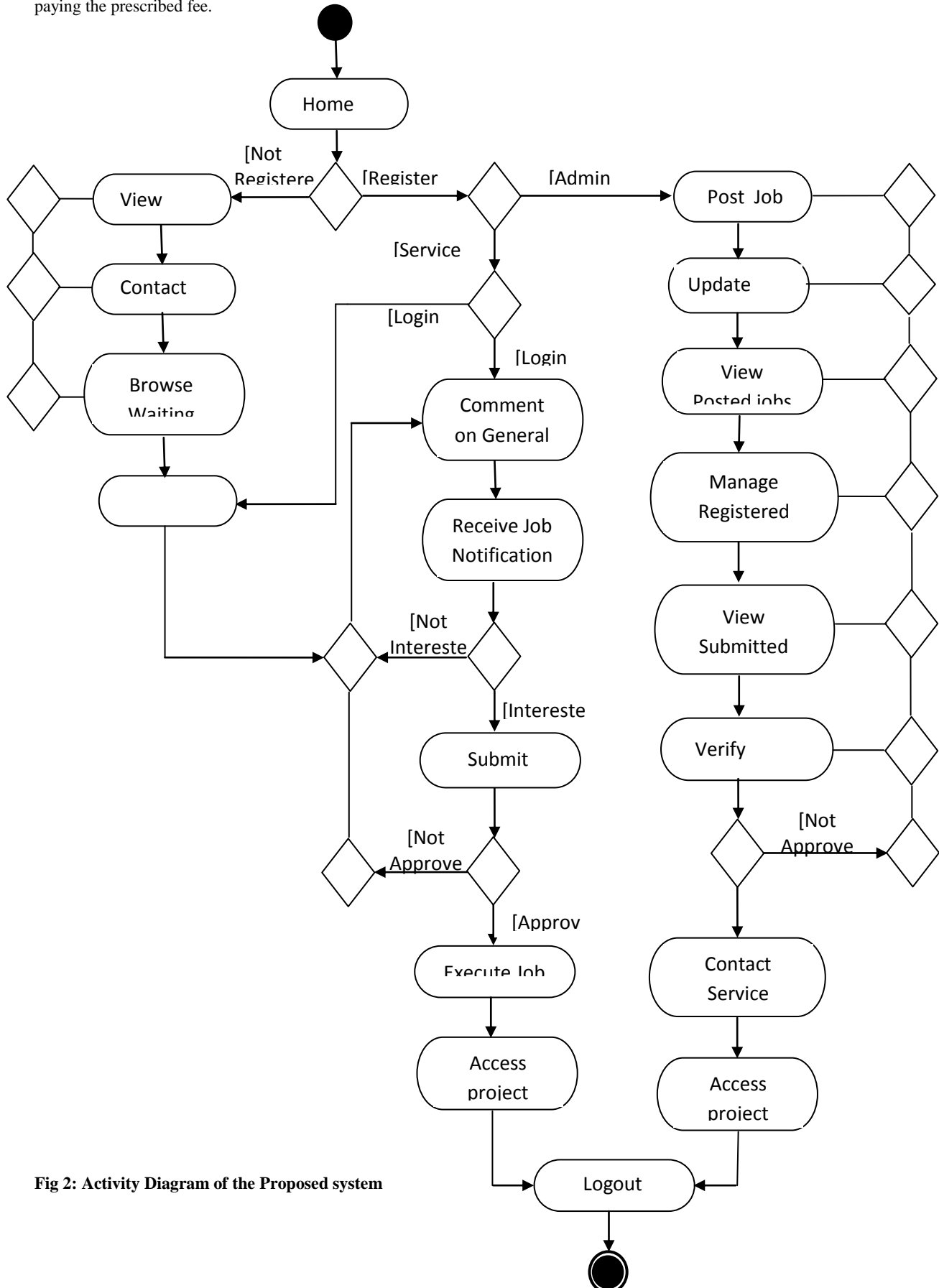


Fig 2: Activity Diagram of the Proposed system

Implementation AND RESULT

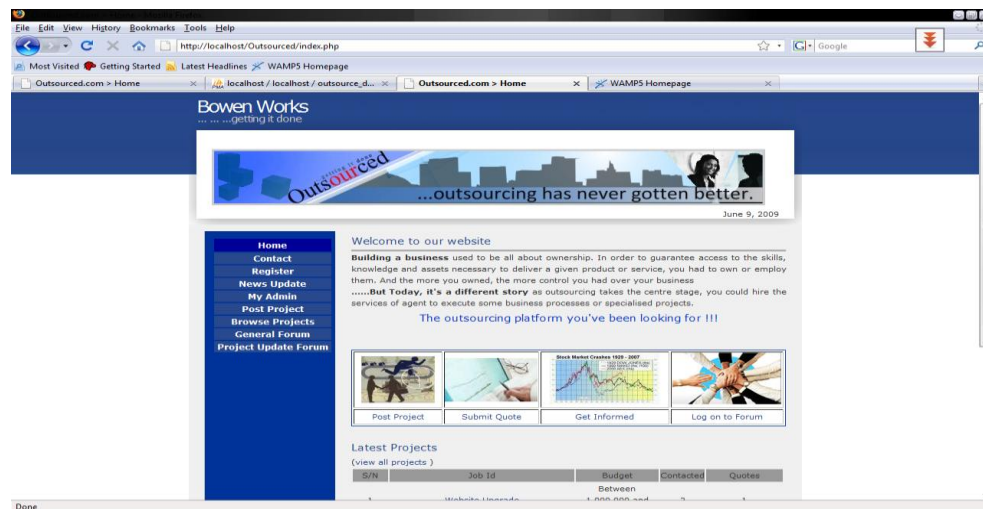


Fig 2: The home page of the job outsourcing portal

Registering New Users

Accessing the major sections of the portal requires different level of authentication. The service providers have to be registered to be able to submit quote and contribute on the general forum. Also administrators must have been added by an existing administrator, before they can perform the various administrative tasks. The “Register” link on the home page

allows for registration of service providers while the “Register new user” link at post project page allows for the addition of administrative users.

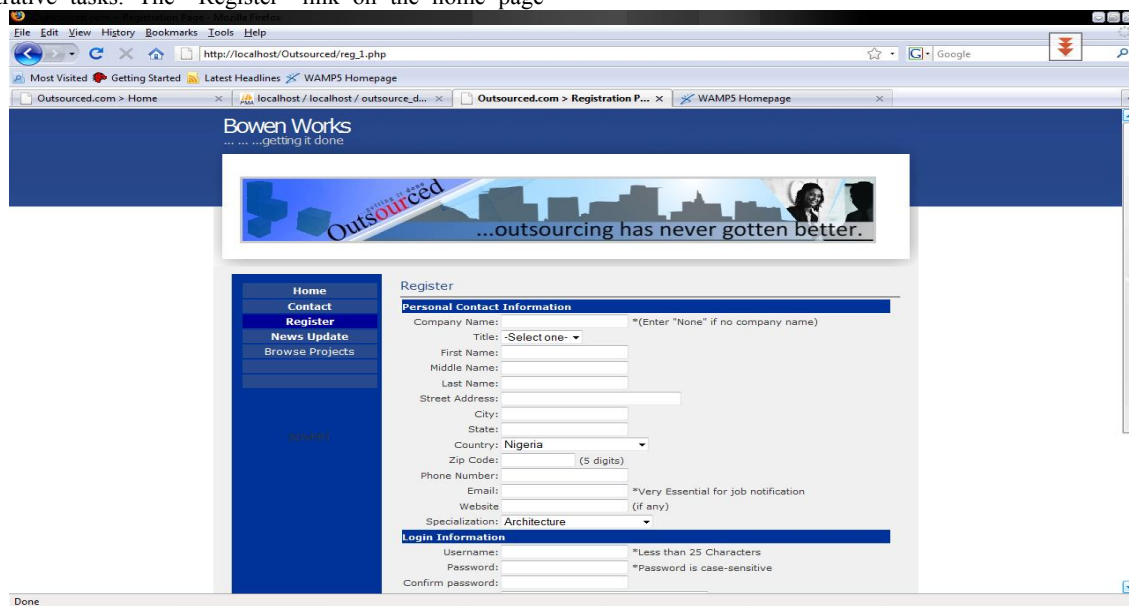


Fig 3: Registration page for Service Providers

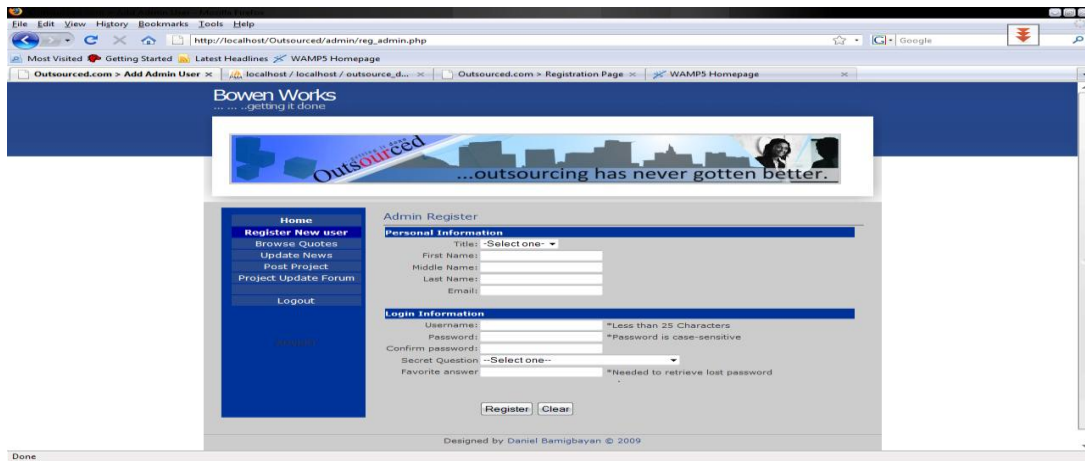


Fig 4: Registration page for Client/Administrator

Job Posting/Submission

At the homepage, there is a link for posting new jobs/projects, but only administrators can login to post projects. The admin

login page and the job description page are as shown in figure 5 and figure 6 respectively

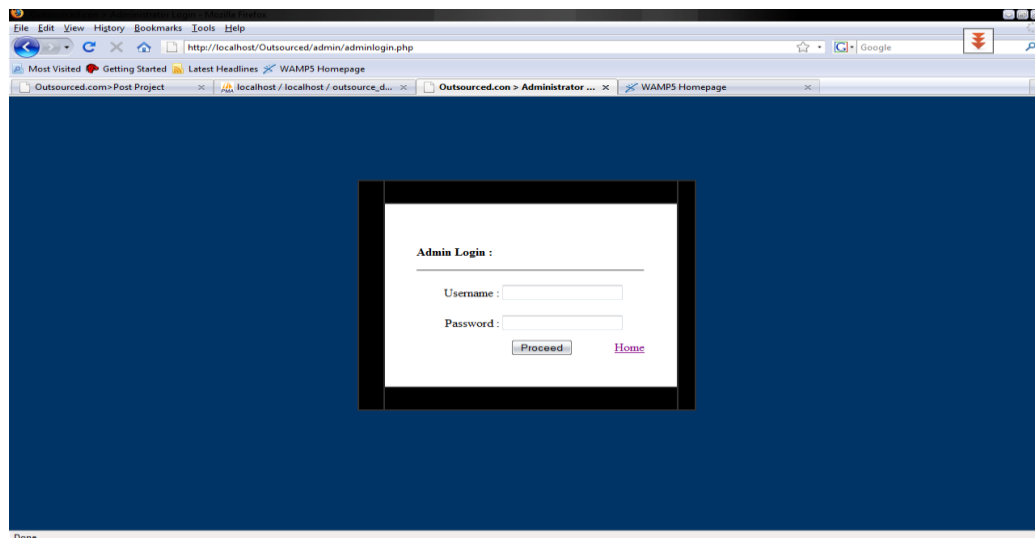


Fig 5: Administrator login page

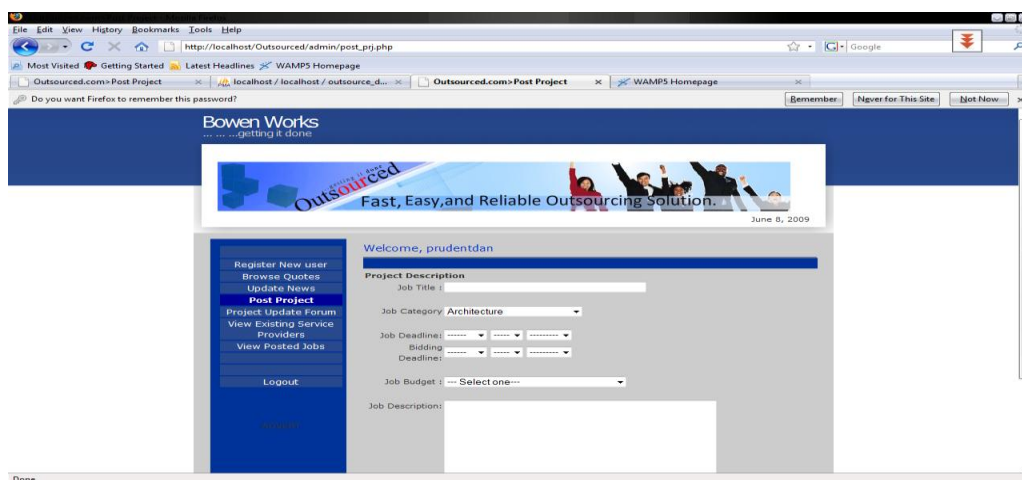


Fig 6: The Job Description page

Browsing Waiting Projects

Once the project is posted, the home page refreshes to display the five latest projects, while the full listing is displayed on the

'Browse Waiting projects' page accessible through the 'Browse project' link.

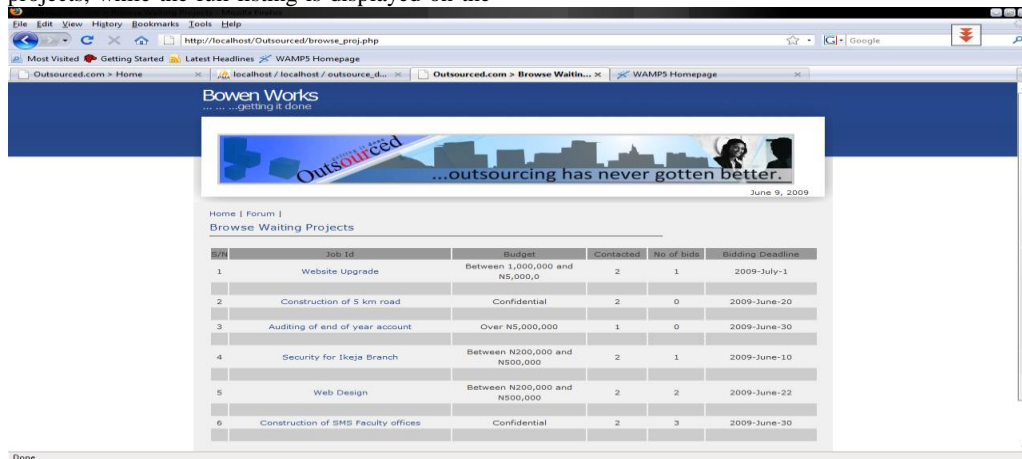


Fig 7: Browse waiting projects page

Submission of Quote/Bidding for the Project

Service providers can place their bid for the job immediately by clicking on the Job Id of preferred job or by clicking the link in the email message sent to them. However, Only registered users

can place a bid. However, before bidding, the service provider downloads the tender document and fills it.

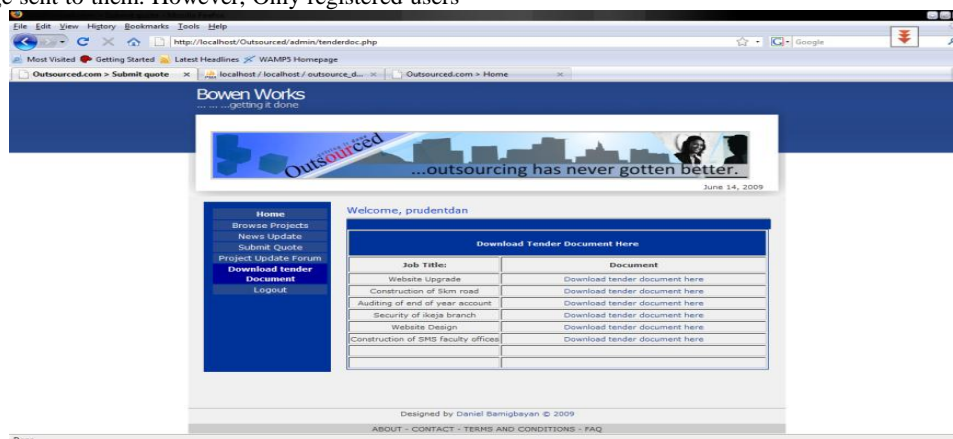


Fig 8: Submission of Quote

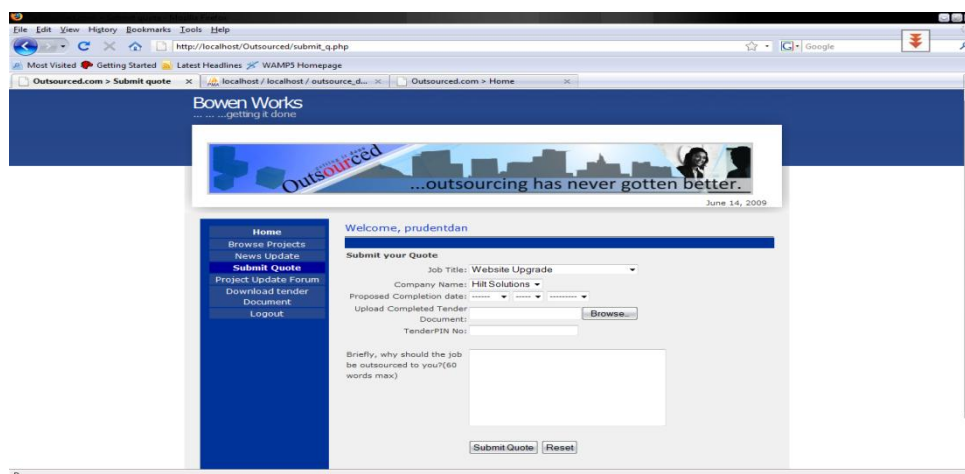


Fig 9: Bidding for the Job

The General Forum

This is an avenue for service providers to share their opinion and experience over time. The client or administrator could also post

a comment when the subject of deliberation require their attention



Fig 10: The General forum

The Project Update Forum

This is an avenue for service providers with a running contract to drop comments on areas where assistance is needed for quality job rendering or the job progress update. The client logs

in and posts their answer to the questions posed. Service providers with a running contract/job are given special login details for this forum.



Fig11: The Project Update Forum

News Update and Posting

Anybody, whether registered or unregistered can view the news update page. The news update is populated from database. There

is an interface on the administrator end of the portal for posting the news. Below is a view of the news update page and the News Posting page

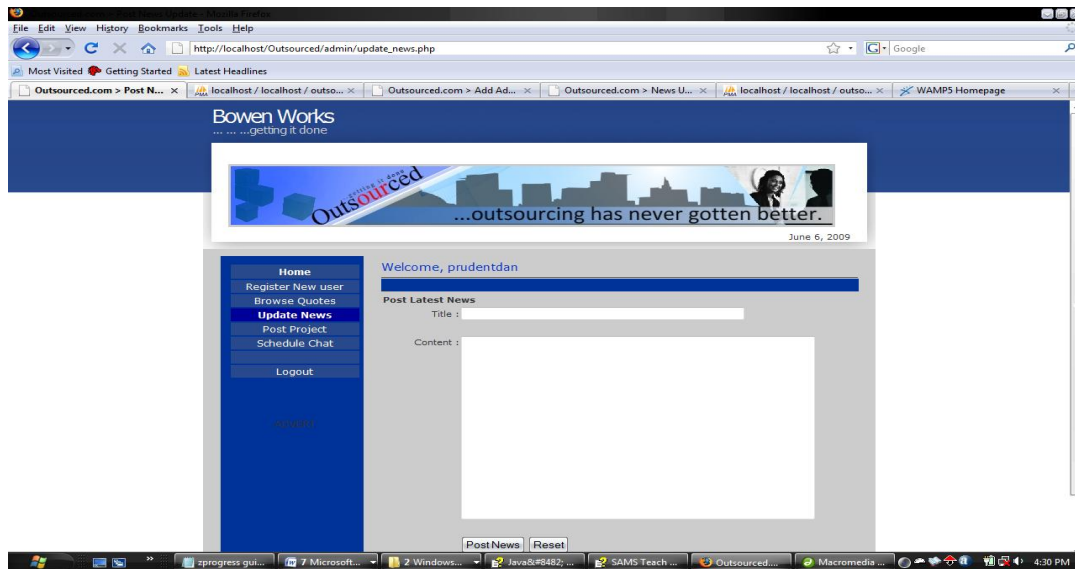


Fig12: The News Posting page

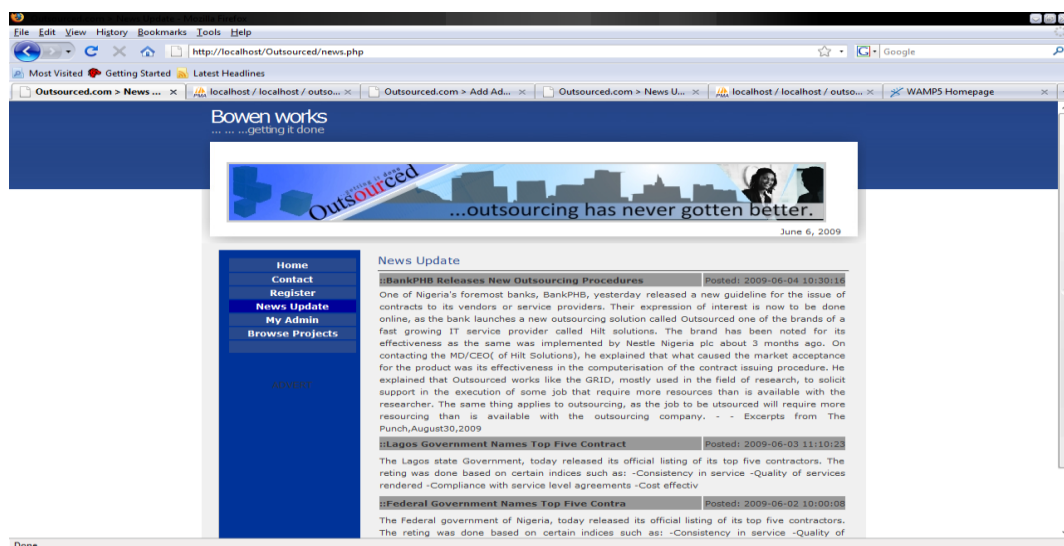


Fig 13: The News Update page

ETHICS ON THE PORTAL

Busy Service providers are not expected to bid for new jobs until they have the ability to accommodate the job, any contradiction will cause the provider to be barred from the

portal. Also, service providers who execute any job shoddily may be barred from the portal. The figure depicts the interface for barring service provider.

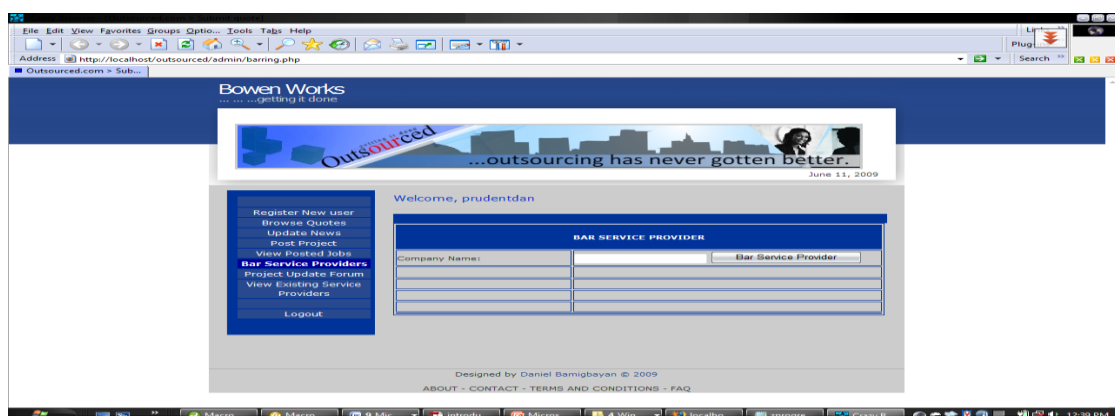


Fig 14: Barring Service Providers

9. CONCLUSION

Considering the benefits accrued from the implementation of this web based outsourcing solution, it is only smart for interested parties to consider this option as a replacement for the legacy manual outsourcing procedures, by adapting it to their specialized outsourcing needs. This project has been developed to accommodate the outsourcing requirements of the largest organizations. For those who have not embraced outsourcing as a tool for business simplification, possibly because of the bottlenecks involved, this system is a total simplification of the procedures. I call it “outsourcing at your fingertips”.

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