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A Study on Automation of E-Procurement System

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Abstract: ***In this paper we proposed an e-automation system, which is known as e-procurement system to improve the performance of the current manual system. The basic function of this system is to available the tender documents online to the customers and download the application forms. Daily many tenders will be released and the new tenders are updated so that customers can view them and if they are interested they can download the tender form. Customers will have to register themselves and will get a permanent user ID and password. By this ID and password he can download the tender forms in future also. The tender documents will be supplied to the user. This system can also handle multiple tender documents at one time i.e. the user can access various tenders from the company at onetime and can download the required forms. The user can submit the details along with quotation to the department through online. Then the department people evaluate all the tenders submitted by users on evaluation date and they allocate that work to the user who is eligible and quoted for less amount.***

Keywords: e-automation system, e-procurement system, tender handling

1. Introduction

Tender is an offer in writing to execute specified work or to supply some specified articles at certain rates within a fixed time under certain conditions of contract and agreement between the contractor and the department. The construction of work is usually done by contractor. The term contractor means a person or firm to do any work undertakes any type of contract. Contract is an undertaking by a person or firm to do any work under terms and conditions.

In the existing system all the tenders are processed manually through documents. This tendering system is called open documentation system. In this the department people publish the tender notice in newspapers, then the contractors buy the tender forms from the specified department by paying tender fee. If the contractors are interested to do the particular work, they have to submit quotation along with their eligibility details by post or by hand in sealed covers. Finally the department people open the sealed covers on tender evaluation date and evaluate the submitted quotations in presence of all contractors[1,2,3]. Due to this, there is wastage of manpower, money, and time. It tends to form tender ring. To avoid all the above pitfalls the system proposed an e-automation system. Now all the tenders processed through online. This system saves money, manpower, time and it reduces the chances for tendering and also improves the performance. It provides security compared to existing system.

2. Theoretical Approach

The electronic tendering system was selected because of its ease of use, the fact that it was free to use for suppliers (i.e. there are no annual subscription or document download costs incurred). Users do not have to keep updating software and any applications needed to read documents are provided on the site in a read-only format. Another major consideration was that the system had been proven over a number of years in a similar environment. The Electronics Tendering System also provides a high level of transparency and accountability and makes available information relating to the Council's tendering activities via the website.

The major activities here are
i) Tender Publication
ii) Tender Submission
iii) Tender Evaluation

2.1 Problem Analysis

2.1.1 Current System

In the current tender handling system all the tenders are processed through documents. It is a manual system. This system is called open document system. In this first of all tender notices are given in newspapers with the details about work. Then the contractors read the tender notification and buy the tender schedule by paying the tender fee if they are interested to do that particular work. In that schedule all the details of the work are available to the contractors. Then the contractors send submission details which include quotation of the tender before tender submission closing date through post or by hand. On evaluation date the department people evaluate all the tender details submitted by the contractors. The department people give that work to the contractor who is eligible and quoted for fewer amounts.

Problems with the Current System:
a) It is more time consuming
b) It includes wastage of man power
c) It leads to tender ring
d) It includes wastage of money

So in order to overcome all these limitations and to meet all their requirements the current process is replaced with an e-automation system.

2.1.2 Proposed System

The proposed system, which is used to provide the traditional tendering process in an electronic form, using the Internet. Using e-tendering, the departments can publish the tenders and users submit the tenders then finally the departments evaluate the tenders. This document is one that

describes the requirements of the system. It is meant for use by the department people and contractors will be the basis for this system. The department people responsible for publish &evaluation of tenders. The contractors are responsible for downloading &submission of tenders. The system will be getting input from the departments from various locations. The output also given by the departments depending on input given by the contractors. The system provides an easy way of selecting a particular Tender Details and also it is very easy to know the tender granted details. There should be no difficulty for the suppliers to bid the amount for the invited tenders. The system is also able to access the information from the database. Using this system, services can be provided by the organization in the absence of personal throughout the year, round the clock. The system is tailored in such a way to integrate and centralize all the various indent information and tenders information, so that minimum effort is needed to get all the jobs done. The centralize system makes sure that data consistency is maintained.

The modules in this application are:
1) Administrator
2) Employee
3) Purchase department and
4) Supplier

Administrator: This administrator will maintain all the master information like Items Information, suppliers' information, Employee information.

Employee: He is going to prepare the indent for the required product to the purchase department, and also he checks indent status.
Purchase department: Displaying indent information from different departments. Preparation of tenders for the indents, Invitation to the supplier for the tender

Supplier: Supplier is going to bid the amount for tender with in the stipulated time, and will know the final status of the tender once it is closed.

3. Design Methodology

It is a process of planning the new or modified system. Analysis specifies what a new or modified system does. Design specifies how to accomplish the same. Design is essentially a bridge between requirements specification and the final solution satisfying the requirements. The design of a system is essentially a blue print or a plan for a solution for the system. The Design process for software systems has two levels. At the first level the focus is on depending which modules are needed for the system, the specifications of these modules and how the modules should be interconnected. This is what is called system design or top-level design. In the second level, the internal design of the modules, or how the specifications of the module can be satisfied is described upon. This design level is often called detailed design or logic design. The First level produces the system design, which defines the components needed for the system, how the components interact with each other. It focus is on depending which modules are needed for the system, the specifications of these modules and how the modules should be interconnected.

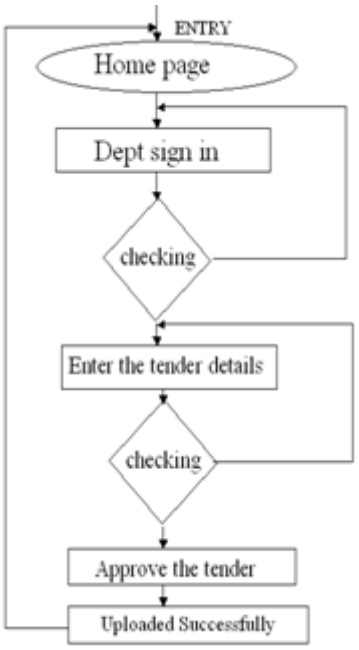

Figure 1: Tendering

4. Software Implementation

4.1 Sample JSP Code For Employee Registration [4]

```
<jsp:include page="AdminHeader.jsp" />
<html>
<head>
</head>
<body bgcolor=lightblueonload="setfocus()">
<strong><font size="5" face="Courier New, Courier,
mono">EMPLOYEE REGISTRATION
</font></strong></p>
<form name="f1" method="post"
action="EmpRegister" onsubmit="return
CheckInput()">
<table border="0" cellpadding="5" cellspacing="1">
<tr>
<td><b>Employee ID </b></td>
<td><input type="text" name="empid"
onblur=its_whitespace3(this) maxlength=10>
<input type="hidden" name="sysdate"
value="<%=dt%>" >
</td>
</tr>
<tr>
<td><b>Password</b></td>
<td><input type="password" name="pwd"
maxlength=10></td>
</tr>
<tr>
<td><b>Gender</b></td>
<td><select name=gen>
<option>--Select Gender--></option>
<option>Male</option>
<option>Female</option>
</select>
</td>
</tr>
```

```
<tr>
<td><b>Employee Name</b></td>
<td><input type="text" name="ename" maxLength=30
onkeyup="CharCheck(this)"
onblur="its_whitespace(this)"></td></tr><tr>
</tr>
<tr>
<td><b>Address</b></td>
<td><textarea name="address" rows=5
onblur="its_whitespace2(this)"></textarea></td>
</tr>
<tr>
<td><b>Phone Number</b></td>
<td><input type="text" name="phno"
onkeyup="NoCheck(this)" onblur="Check(this)"
maxlength=13></td></tr><tr>
</tr>
<tr>

<td><b>Qualification</b></td>
<td><input type="text" name="qlfy"
onkeyup="CharCheck(this)"
onblur="its_whitespace(this)" maxlength=10></td>
</tr>
<tr>
<td><b>Date Of Joining</b></td>
<td><input type="text" name="dob" readonly value=""
maxlength=30 >
<font size="7"><a href="javascript:void(0)"
onclick="if(self.gfPop)gfPop.fPopCalendar(document.f1.
dob);
 return false;" HIDEFOCUS tabIndex=5>
 <img name="popcal" align="absmiddle"
src="Calendar\calbtn.gif" width="34" height="22"
border="0" alt=""></font>
 </td>
</tr>
<td>
<tr>
<td><b>Designation</b></td>
<td><input type="text" name="desg"
onkeyup="CharCheck(this)"
onblur="its_whitespace(this)" maxlength=10></td>
</tr>
<tr>
<td><b>Department</b></td>
 <td><select name=dept>
<option>--Select Department--></option>
<option>Accounts</option>
<option>HR</option>
<option>STORES</option>
</select></td>
</tr>
<td colspan=4><input name="Add" type="submit"
id="Add" value="Add" >
    
<input name="clear" type="reset" id="clear"
value="Clear">
</td></tr>
<tr>
</td>
</tr>
</table>
</form>
<iframe width=174 height=189
name="gToday:normal:agenda.js"
id="gToday:normal:agenda.js"
src="Calendar\ipopeng.htm" scrolling="no"
frameborder="0" style="visibility:visible; z-index:999;
position:absolute; left:-500px; top:0px;">
</iframe>
</body>
</html>
```

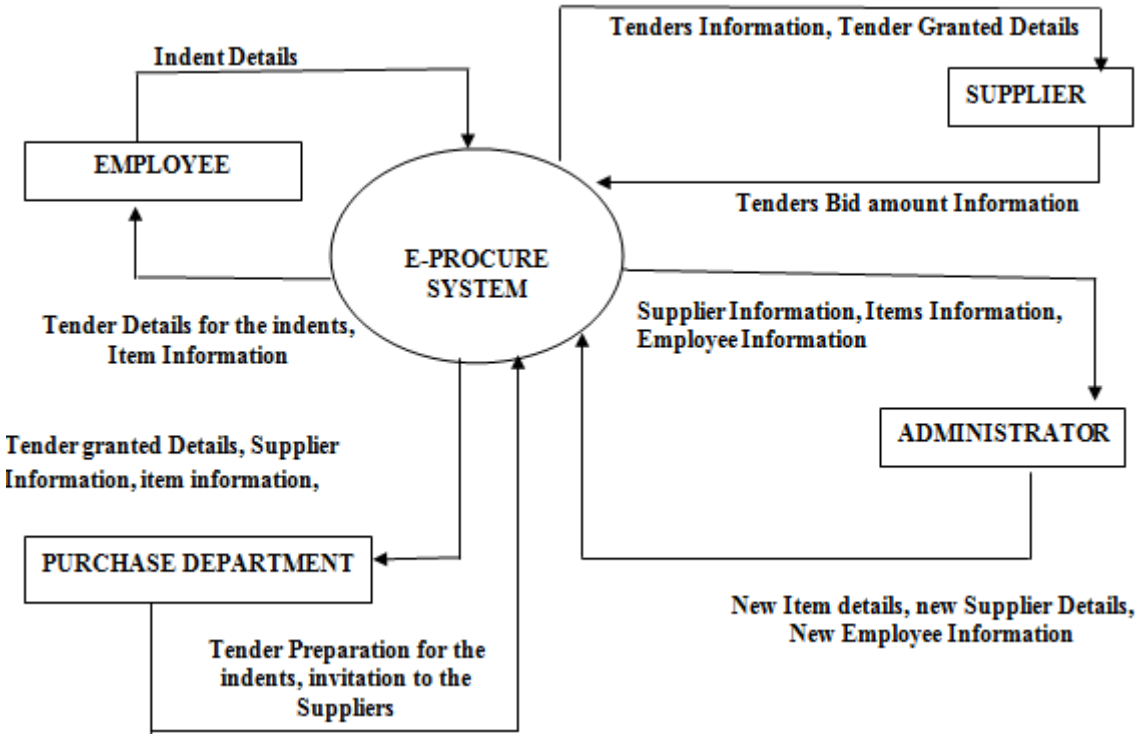

Figure 2: Context level diagram

5. Results

Figure: 3 a

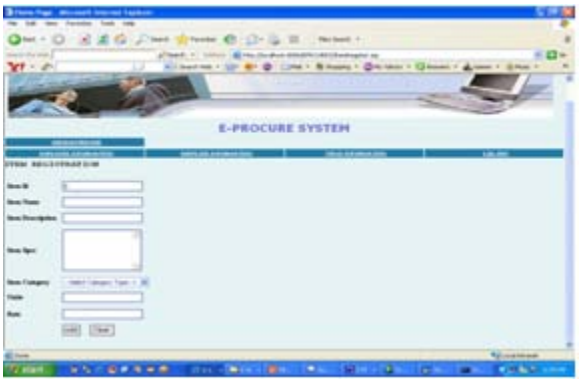

Figure: 3b

Figure: 3 c

Figure: 3 d

Figures: 3a, 3b, 3c, 3d shows the screen shots that representing the outcome of the e-procurement system

6. Conclusion and Future Scope

The visibility of the online tender handling solution is now increasing dramatically worldwide in recent years. Since last year, more than 70 major demonstrations have been performed and approximately 200 additional country organizations, regional authorities or individual authorities have heard about online tendering. Online tendering and e-procurement is a tool to specify decision criteria, issue on line tenders and evaluating responses using this methodology. In all these cases the feedback was extremely positive and the users claimed they had. This software presents the part of an organization work as per the requirements, specifications and conditions mentioned in the user manual. This application software has been developed and completed successfully and also tests successfully. The e-procurement system is user friendly and has all the needed menu options, which can be utilized by the user to perform the desired operations very effectively [6,7,8,9]. In the future there is a possibility to apply data mining approaches to the current system for much better performance.

7. Acknowledgements

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