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ERP System for Construction Site

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A R T I C L E I N F O

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A B S T R A C T

Currently, enterprise resource planning (ERP) has been recognized as a foundation for the merging of organization-wide data systems. ERP systems connect all aspects of an organization's business, including accounting, finance, human resources, production, and distribution. They also connect the company to its consumers and suppliers across the many phases of the product's or process' life cycle. Just a few studies have been done on the use of ERP systems on construction sites, particularly for designers, technicians, and workers. the main focus has thus far been on retail businesses, engineering companies, and design firms. The purpose of this study is to conduct research on the effectiveness of ERP systems at contractor sites and, as a result, their implementation status. A wide range of market research, literature reviews, and modified surveys may be used as the methodology. The majority of contractor sites are reported to be aware of ERP systems, although only a small number of organizations have so far implemented such systems. The main reason is that every ERP system adoption requires a significant time, financial, and resource investment. However, if used to solve the right issues, these ERP systems could be a successful tool for business development

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INTRODUCTION

Many big building firms have started implementing integrated information technology solutions, such as enterprise resource planning (ERP) systems, to better integrate various business functions. However, these integrated systems in the construction industry present a unique set of difficulties that are not present in the manufacturing or other service industries. It's important to recognize and understand the elements that mainly confirm the success or failure of ERP installation in construction sites because there have been many cases of ERP system installation failure in the past. The building industry may be extremely dispersed. It has to be in a lot of interaction with several associated firms, including suppliers of materials and tools, vendors, subcontractors, and customers. Construction companies are utilizing ERP systems to increase customer responsiveness, increase supply chain collaborations, increase structural flexibility, improve decision-making skills, shorten project completion times, and reduce costs. These information systems are made to connect and partially modify a number of the business processes used by the company, including those related to human resources, finances, production, procurement, construction, operations, and maintenance. ERP supports a single entry of knowledge at the point of creation, wherever that may be, and makes it available to any or all of the organization's participants. Because they provide a business with an integrated platform for taking orders, collecting materials, managing production, and controlling inventory, financials, and distribution, ERP systems are widely used in sectors like manufacturing. ERP solutions are typically good at supporting supply chain procedures in which a producing firm accepts a product order and utilizes the bill of materials (BOM) structure of that product within ERP to initiate the necessary supplies needed to build the product. For many manufacturing companies, this continuous supply chain approach using ERP is effective. It has even been enhanced with capabilities for product configuration for manufacturers who build products to order. The issue is that ordering products and using pre-established BOM structures are not enabled for the engineering, building, and infrastructure sectors. When it's time to begin construction of a replacement track, one doesn't select items from a stock selection. The difficulty is in creating and putting up for bid several scopes of work. To do this, an ERP system success model is developed to study the links between various aspects and, ultimately, the success of such systems.

METHODOLOGY

Engineers have new opportunities to introduce standard construction methods mainly to the rapid development of mobile computers. In our surveys of the industry's current use of wireless data technology, we usually find that interest in the technology is much greater than use. This solution is centered on helping website managers manage labor by using time sheets. Creating and planning activities are essential techniques used to accomplish goals. For the construction website, we developed an ERP system. Here, we tend to analyze what constitutes good project participant communication on construction sites;

- Register
- Login/Logout
- Add/edit project
- Allocation of labor
- Report preparation
- Site communication
- Work progress
- Effective management.
- We produce the mobile application to enhance the potency of participants in construction comes and have a speedy delivery of those comes.

Table 1. Functional Requirment and Character Involved

No.	**Functional Requirement**	**Characters Involved**
1	Admin (Owner)Login	Web App
2	Add Plan	Web App (Owner)
3	Add Edit, Upload Project	Web App (Owner)
4	Add Department	Web App (Owner)
5	Add Task to Department	Web App (Owner)
6	View Task	Web App (Owner)
7	Report Tab	Web App (Owner)
8	Add Workers	Web App (Owner)
9	Architect Login	Web App
10	Civil Engineer Login	Web App
11	Worker Login	Mobile User
12	View Task	Mobile User
13	Reporting to Department	Mobile User
14	Send alert to a colleague	Mobile User

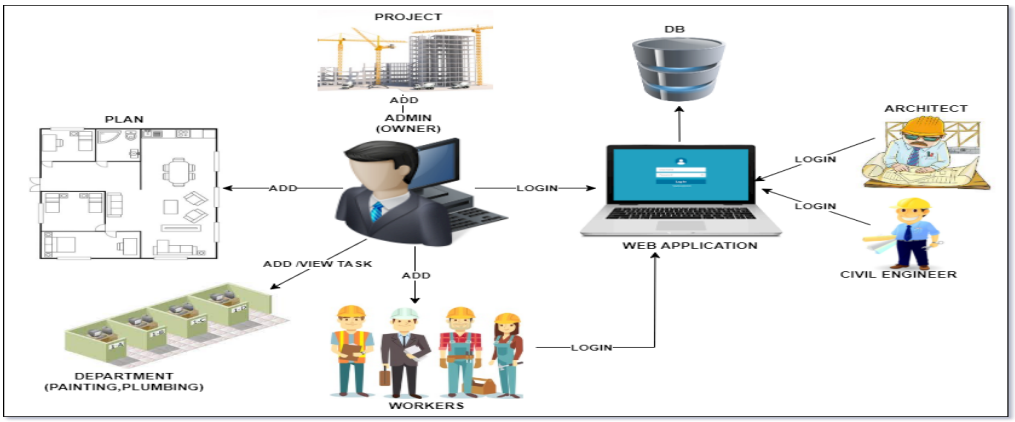

Figure 1. System Architecture

The user must sign in with their own account ID and password to the mobile platform to access the interactive construction site system. The user can access the site module and the construction sharing report module after successfully logging on. The management of work tasks is registered as the first stage in using the construction ERP System. Management of this system can log in to the web app and add departments and employees. Admins can modify, delete, and add plans or images. Assign tasks to departments like painting, plumbing, electrical, etc. Management can examine tasks by priority and due date. The work task is assigned on the mobile device's calendar based on the task's registered start and end dates. As a result, the engineers and personnel onsite simply decide which activities on the calendar should be completed immediately. Engineers and architects can access the system. The same ability as management, but only he can handle tasks assigned to his department and examine task data. The system allows architects and engineers to enter various work task data, including the task title, project description, start and end dates, the team in charge, the supervisor, and the location of the work tasks on the building site. Workers have access to the job and can comment on it. The design may display the location of the job site on the mobile device's map. This system component might provide a useful technique to locate the job activities on the building site. The engineers on the construction site can determine the direction and distance of the work tasks on the site from the identifying current location information of the construction engineers. Here, the location-finding tool can be used to determine the site's location. Workers can receive alerts about the start of new projects by sending messages or displaying alerts to all employees.

RESULTS AND DISCUSSION

Figure 3. Android Login

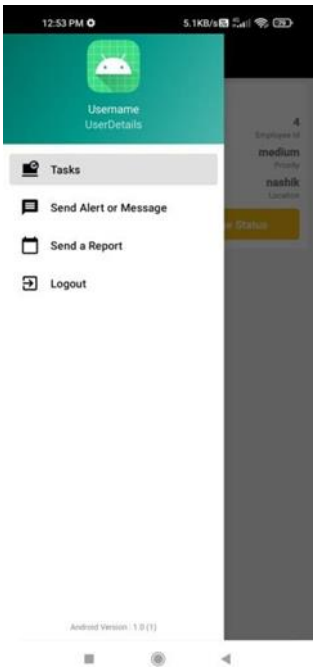

Figure 4. Android Menu

Screenshots of the Android application are so displayed in the two images above. The login page presented in Figure 2 is where the employee or worker signs in. Figure 3 shows that the employee can send an alert message to a colleague and a daily report to the owner or admin. The task button displays the tasks that the admin has assigned.

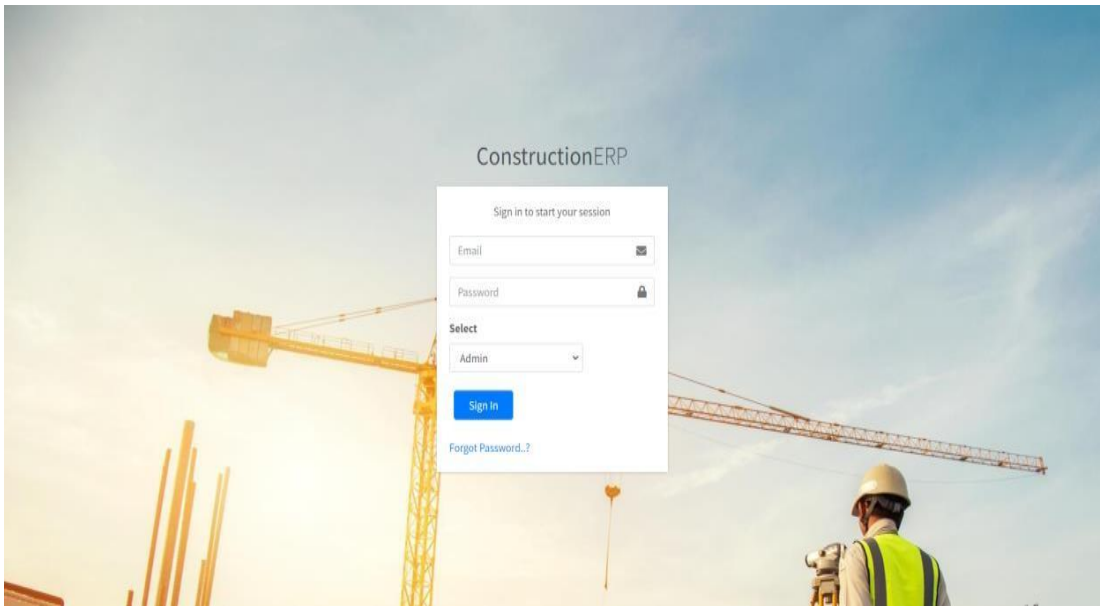

Figure 5. Web Application Login

Figure 6. Admin Dashboard

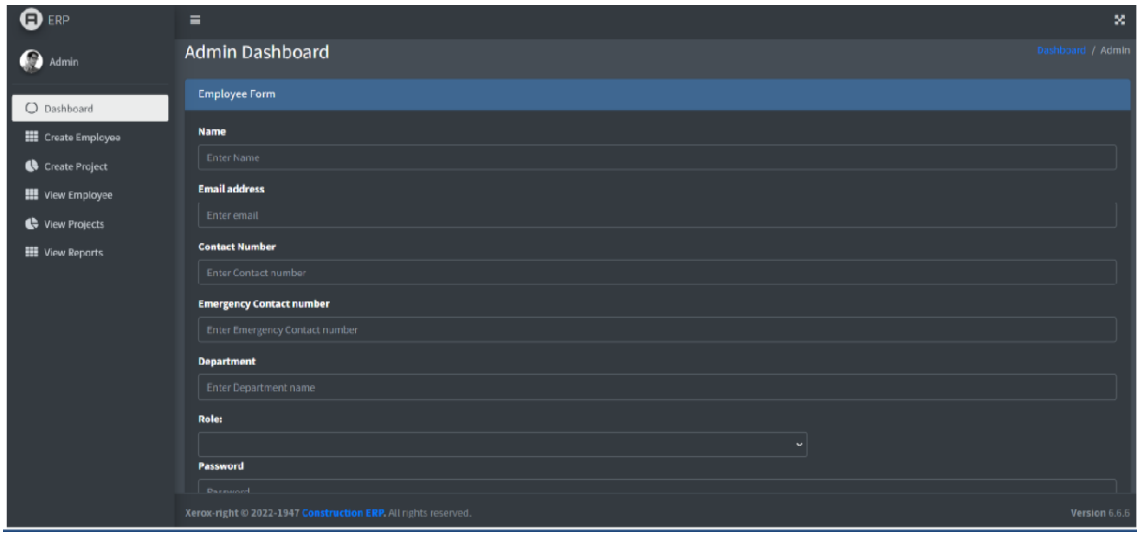

Figure 7. Employee Registration Form

The three photos above are of the project's web application, and Figure 4 shows the login screen from which the manager, a civil engineer, an architect, and an employee can access the system. The admin dashboard is shown in Figure 5, from which he can create projects, give tasks to employees, and see the reports that site visitors or employees have sent. The Employee Registration form is shown in Figure 6, and the admin can create the employees from this page.

CONCLUSION

With the help of computer code solutions like ERP, every industry in our technologically evolved economy must update its processes. The development industry is not significantly different. To make its operations efficient, accurate, and profitable, it also needs enterprise resource designing solutions. ERP computer code solutions provide accurate monitoring and growth of all business processes. Additionally, the ERP aids in maximizing profits for the industry. But once it comes to paying for ERP computer code vendors, one must make a logical decision. Kindly get in touch with us if you need any more guidance in narrowing down a computer code solution outside of the data that has already been provided. We will be glad to help your business succeed.

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