OPTIMUM BUILDERS

[1]S.Venkatesan, [2]M.Dhileep Kumar, [3]M.Sathish Kumar, [4]Mr.S.Prabhu
[1,2,3]UG SCHOLAR &[4]Assistant Professor

Department of Computer Science and Engineering, Nandha Engineering College,

Erode – 52, Tamilnadu, India.

E.Mail :venkatesanvg27@gmail.com, dhileepkumarcse@gmail.com, prabhuvelli@gmail.com

ABSTRACT:

"OPTIMUM BULIDERS" is a system which is used to keep construction work details. The main aim of this project is to develop a system so as to reduce the amount time and effort required for keep the details of current construction work manually. The system is beneficial for both Engineers and construction companies with this system client can keep records of the daily work and view the current status of processing work.

These systems mainly consist of four modules. The existing system take alert at a time and need more paper works current system required more manual work as more number of staff will be required if there are more of contracts or Project keeps the current detail will also requires more time. Identification of the drawbacks of the existing system leads to the design of the computerized system that will be compatible to the existing which is more use friendly and GUI oriented.

I. INTRODUCTION

An optimum selection of construction company suppliers is one of the most important processes of the top management. The most of construction processes are realized by many suppliers all over the world and during the process of construction planning it is necessary to find an optimum solution which would cover several criteria. Ensuring control over the outsourced processes does not absolve the organization of the responsibility to meet all the customer, statutory and regulatory requirements.

According to ISO 9001: 2008 developed for Quality Management System the type and range of control to be applied to the outsourced process can be influenced by many factors such as a potential impact of the outsourced process on the organization's capability to provide a product that would conform to the customer requirements and a degree to which the control for the process is shared.

There are several factors and criteria for the efficient selection of company suppliers.

Our paper analyses these: quality management level of suppliers, an offered price of the construction process or product, time of construction process realization and other specific criteria.

Using the multi-criterion optimizing method and scientific synthesis a method of the efficient selection of suppliers for construction processes is proposed: it relies on selected criteria and their importance.

The next part of our research results is a proposal of our original software which allows for an optimum selection of suppliers over a short course of time.

This efficient method and software is implemented and verified on a real example from a real construction practice. Application of this method and software will increase the efficiency of the construction company supplier selection from the viewpoint of the key criteria of optimizing: quality, time, cost and others.

This efficient method and software can be applied in any construction company which cooperates with one or more suppliers in a building process. The concept of constructing smart buildings evolved to conserve energy and build buildings – both commercial and residential – that are energy efficient. For commercial buildings, the transition to smart buildings is vital to the growth of the organization. It will help the building management save a lot of money because of better efficiency as well as improved overall building operation.
The Internet of things (IoT) has created a gateway to help manage and control elaborate buildings. These gateways are projected to exceed 64 million units in 2021, according to ABI Research.

Smart buildings and smart cities are continuously transforming how people carry out their activities on daily

1759

Venkatesan S et al., Inter. J. Int. Adv. & Res. In Engg. Comp., Vol.–06(02) 2018 [1758-1762]

basis. Smart cities will soon emerge with things like street lights and parking meters connected to commercial buildings and connected to the internet.

At present, some cities have started implementing the smart city approach by connecting everything about their community to the internet.

Along with conserving energy, smart buildings will help save money. Here are some of the biggest IoT smart building trends likely to take shape this year, according to Sense Ware.

1. Predictive maintenance

Predictive maintenance makes use of IoT sensors and other hardware devices to get a report on the state of a commercial building and all equipment in it. It gives the exact time when maintenance needs to be performed.

Unexpected issues that usually crop up with preventive maintenance can be overcome using predictive maintenance.

Also, predictive maintenance makes it difficult for commercial activities to be disrupted because it is performed when necessary to keep the environment running at all time.

2. Air quality measurement

Smart building air quality can have an impact on the productivity of workers. Research conducted by Environmental Health Perspectives shows that workers are 101 percent more efficient in their duty when they work from buildings with good indoor environmental quality than the conventional buildings. IoT devices can be used to check and measure the air quality, as well as CO_2 levels in the air using various sensors that are interconnected.

These devices are connected to all part of the buildings, which can help keep the environment and everyone in it healthy and productive.

3. IoT-supported complex applications

Another new trend to expect in 2018 is the use of applications in smart buildings.

For instance, the use of thermal imaging will allow facility managers to check for equipment that are outside of the temperature range. Thus, they can be easily detected and maintenance can be done before the equipment disrupts the system.

Another example will be detection of ultra-sonic noises. Electrical transmission lines, which have cracks or holes, produce ultrasonic sound.

This may go unnoticed in usual cases but with IoT technology, one can easily detect the location for maintenance.

4. Measurement and verification using IoT

Another area where IoT has wholly transformed is the way commercial facility managers can track information, measure and collect data even in inaccessible areas within commercial buildings.

Commercial facility owners can install sensors in various parts of the building to track all information that they never had access to in the past.

IoT allows facility managers to have access to all information using the interconnected systems. IoT offers the ability to collect near real-time data and analyze it with higher spatial resolution.

5. Real-time data accessibility

Another way through which IoT is making a difference in the world of smart building is the speed at which data is reported. IoT devices give builders insights to react quickly to emerging trends.

IoT applications allow facility managers to conduct various experiments to check the result of optimization. It also gives them room to use IoT devices in monitoring buildings systems using one panel.

6. IoT in green building movement

IoT makes it possible for commercial owners to have buildings that are energy sufficient. It also influences the design of the buildings and allows them to be eco-friendly and resource efficient.

These buildings are made to operate at optimum energy levels. They are also made to detect failure or degradation signs of equipment with effective measurement and verification process as well as tools.

These intelligent building management systems can be remotely managed from any part of the world.

Moreover, the indoor as well as outdoor environment is sensed at all times to give optimal results for ventilation, lighting, fire and security purposes.

7. IoT and prefabricated building components

IoT allows the use of prefabricated building components in construction of a smart building.

This ensures a faster and more cost-effective way than traditional building methods.

This building, when used for commercial purposes could lead to less construction waste. Although, using prefab homes for commercial purposes can be complicated, IoT has brought forward various ways through which this can

1760

Venkatesan S et al., Inter. J. Int. Adv. & Res. In Engg. Comp., Vol.–06(02) 2018 [1758-1762]

be addressed.

8. IoT in efficient construction management

IoT has made it possible to replace outdated heavy construction equipment with sensors that can be controlled using indicators like vibrations and temperature fluctuations. Thus, saving a lot of energy, money reduces the maintenance cost, as there are no rotating parts.

IoT is improving construction management by providing the following functions:

- Equipment monitoring and repair with advanced sensors
- Equipment inspection with electronic processes
- Inventory management and ordering with IoT alerts
- GPS tracking by tagging and tracking of materials
- Safety is easily implemented with RFIDs and IoT sensors

9. IoT for energy efficiency

The most important impact that IoT has on buildings is energy efficiency. The use of networked sensors help in providing information that would help managers to control their assets better and also reduce harmful waste in the environment.

There are multiple examples of using IoT for energy efficiency.
- Using sensors for temperature control
- Using actuators for HVAC controls
- Complex applications like providing complete energy automation for a building
- Allows for both offline and real-time communication
- Considers weather forecasts to save real-time energy costs

10. IoT for better asset optimization

IoT also helps in better asset optimization. It enables facility managers to use technology solutions, improving uptime of building equipment and avoidance of loss of product.

IoT helps in managing large data of all the assets along the value chain. It keeps track of the maintenance of the assets and equipment. It helps with scheduling maintenance work orders and makes automated recommendations for equipment replacement.

II. LITERATURE SURVEY

The duration of construction projects right from inception to completion is assuming great importance in the construction industry. The author of this project work believes that, this shift in attention on construction delays is

taking it rightful place of importance in the global construction sector.

Clients or consumers are no longer content merely with minimal cost and adequate functional performance for their projects; increasing interest rates, inflation and other commercial pressures, among other factors, mean that it is in many instances most cost-effective to complete a project within the shortest possible time. the current harsh financial climate does not allow for subcontractors not to be prudent with project planning and delivery, hence the reason forchoosing to write on this subject.The most significant unbudgeted costs on many construction projects are the financial impacts associated with delay and disruption to the works.

1."Building Construction" by B C Punmia and Ashok KumarJain

Owners and Sub constructors have one common objective; to complete the project in time and within budget. It is the failure of this objective of time which leads to failure of budget and ultimately gives rise to disputes. There is no consensus in the literature on the identification of factors which affect stipulated, planned or achieved construction times of buildings. One reason for this is that researchers have largely viewed the subject from diverse prospective.

Such viewpoints include identification of discrete factors which affect productivity on site and taking a systems view of the construction process and end product. The inherent and often unanticipated risks on construction projects present key challenges to subcontracting firms. For example, if a project is delayed or disrupted, significant resources are engaged and management time consumed.

2. "A Textbook of Building Construction" by S K Sharma

The outcome can have serious consequences on corporate value. One loss-making project can wipe out the profit on 50 successful ones and significantly damage a company's reputation. In the current economic climate, claims and disputes are increasingly more likely.

III. PROPOSED SYSTEM

1. Problem Definition:

An optimum selection of construction company suppliers is one of the most important processes of the top management. The most of construction processes are realized by many suppliers all over the world and during the process ofconstruction planning it is necessary to find an optimum solution which would cover several criteria.Ensuring control over the outsourced processes does not absolve the organization of the responsibility to meet all the customer, statutory and regulatory requirements.

According to ISO 9001: 2008 developed for Quality Management System the type and range of control to be applied to the outsourced process can be influenced by

1761

Venkatesan S et al., Inter. J. Int. Adv. & Res. In Engg. Comp., Vol.–06(02) 2018 [1758-1762]

many factors such as a potential impact of the outsourced process on the organization's capability to provide a product that would conform to the customer requirements and a degree to which the control for the process is shared.

There are several factors and criteria for the efficient selection of company suppliers. quality management level of suppliers, an offered price of the construction process or product, time of construction process realization and other specific criteria.Using the multi-criterion optimizing method and scientific synthesis a method of the efficient selection of suppliers for construction processes is proposed. The proposed system overcomes the limitations of the existing system.All the operations in the proposed system are computerized. It is designed and developed according to the user requirement. The proposed system provides many features that does not contain in the existing system.

The purpose of the project, OPTIMUM BUILDERS, is to provide online facility to keep all construction work details correctly. Client can enter and add the work details. Also they can view the status of each project.Client can login and can enter their respective project details and view their status then and there. Moreover they can view account details and current working cost also they can predict the work going on profitable man

2. Drawbacks Of Existing System:

The existing system takes a lot of time and need more paper works. Current system requires more manual work as more number of staff will be required if there are more number of contracts or projects.

Keep the current details will also require more time. Identification of the drawbacks of the existing system leads to the design of a computerized system that will be compatible to the existing system, which is more user friendly and GUI oriented.

- It Need more paper works
- Work progress are not precise as calculations and daily work progress details keeps manually
- Time consuming

3. Techniques:

a) Registration

The entire client must be a registered user of the system. This module helps the client to register by entering various fields like username, password etc. Then only the user can access various functionalities of the system**.**

b) Add project

In this module client can add at most three project, details about the material, workers, land and budget of the respective project. The client can set date and duration of the project as well as

can keep the account details also. Client can provide previous project details and the gallery.

c) View workers status

All the details related to the project will be included in this module such as, project duration, start date, project name, material, workers, land details etc. Client can login to enter the details. Client can have an entire view of the project status.

IV. RESULT
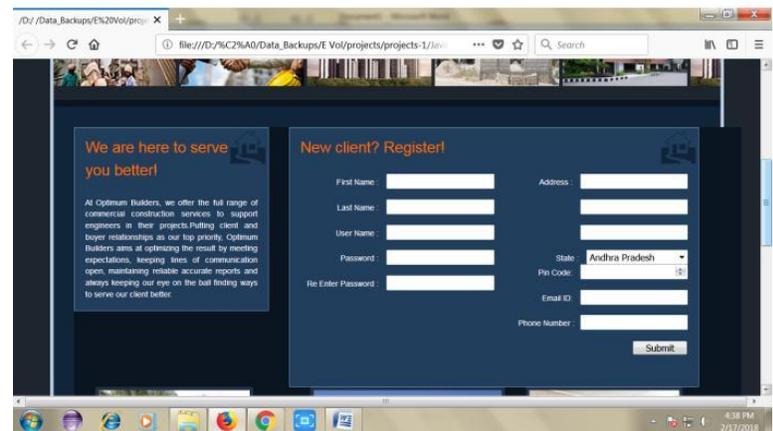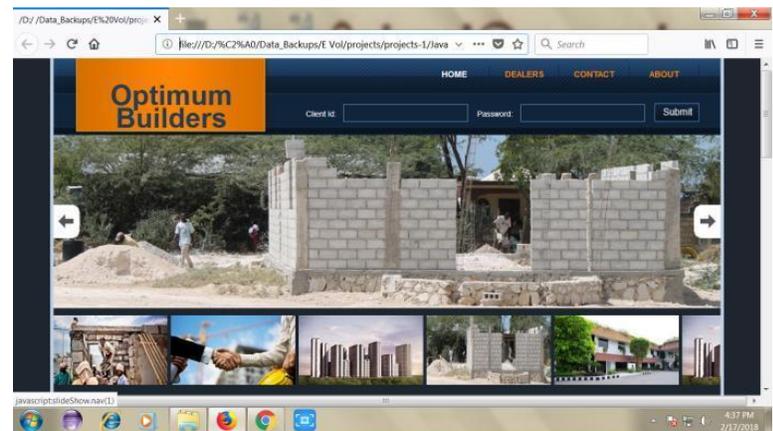
V. CONCLUSION

The existing system takes a lot of time consuming and need more paper works. Also it does not provide much security. The proposed system overcome the limitations of existing system. All the operations in the proposed system is automated. It is designed and developed according to the user requirements.

VII. REFERENCES

1. "Building Construction" by B C Punmia and Ashok Kumar Jain
2. "A Textbook of Building Construction" by S K Sharma
3. https://www.researchgate.net/publication/287479 968_Efficient_method_of_an_optimum_construc tion_company_supplier_selection_supported_by _software [accessed Mar 08 2018].
4. Plant Engineer's Reference Book edited by DENNIS A SNOW
5. http://alicat.austincc.edu/record=b1225486~S1
6. http://alicat.austincc.edu/record=b1225486~S1