# Construction Control: The Cloud Based Construction Site Management System

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***Abstract*: Recently the building constructions have been increased tremendously. The building construction project should be finished within the planned timeline and budget. However, lots of the construction projects are delayed due to the many factors such as bad weather and delayed supply but main factor that affects the delay is the human error and the mismanagement. Workers can misplace the equipment or skip the required job. Detecting the work error lately may cause delay and redoing the job. These errors should be detected as soon as possible to avoid the delays. Some companies these days use computer programs for the progress monitoring and the project manager can recode the change to the program and the program computes the progress. Recording the change in to the paper or computer program can check the work schedule but it is hard to detect the human error such as misplacement of equipment or skipping. In this paper we have proposed a system for construction site management where everything will be managed by this system which will help to manage construction site details systematically and it will save time and efforts.**

***Keywords*: CMS, Camera, Robot.**

## 1. Introduction

"Construction Control: The cloud based construction site management system" is a web based application. This application is useful for the stakeholders of the project. As we know the monitoring and management of construction work is difficult because the construction work is done in the very extensive area concurrently by lots of workers. To monitor the work progress, the construction company sends the project manager to the construction site and the managers records the change on to the paper sheet or tablet pc and append the photos. Later the company can view the progress by checking the paper or photo. But there lots of files and documents which needs to be analysed for determining the progress of the construction and if they are not managed properly then it causes delay for the analysis which leads to delay. Thus management is an important aspect for construction business organizations.

Therefore, a system can be developed for the business organizations to manage their customer's data effectively and to improve their profit which will help to increase the organization's business. It will not just maintain material details and their data but it also provides some features that helps to business organizations to increase communication with their stakeholders using some facilities of this system.

## 2. Problem Statement

A builder doesn't have time to visit and monitor each and every site which leads to occurrence of frauds and mismanagement, also there is lot of paperwork for collecting information so to generate report becomes a difficult task due to which there can be delay in project which results in over budget.

## 3. Proposed System approach

Description: In many Construction organizations all the department's data is managed manually so it is very tedious and crucial task to manage huge data manually. Some organizations uses CMS but they don't provide the customization facility like User Management and the Project Management. Many CMS systems has the lack of communication facilities such as mails SMS communication but this system will provide fully customized e-CMS functionalities to business organization with the advantage of mail, SMS facilities and some more flexible facilities that are not found generally in many CMS systems that are available in market such as planning, material management, employee & labor management, employee daily reporting management and report management.

This application will maintain all the data regarding the constructions site. It will also provide the customization facility to admin so that admin can customize this system as per his/her organizational needs like user management, project management, billing and report management and notifications. Business organizations can manage their contractor and labour management through this system. Business organizations can automatically generate reports in various formats using templates and these reports help business organizations for various types of analysis like date wise report and all. They can use these reports in decision making processes and also for customer satisfaction by analysing their needs and problems. Also there will be media sharing like photos and videos and they will be saved systematically in their respective project folders. Here the admin can maintain the data regarding All User Profile and The Project Management. Admin can also see all the details regarding respective Project Engineer. Also there is a separate panel for the admin, builder and project Manager. By using this application, the efficiency of the business is

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increased. This application is developed as per the requirement of the client.

Product will be deployed to web site and all project engineers of the system will access the system through the web interface which includes multiple pages according to the system functionality for example for login functionality there will be login page. To access the system, every Project Engineer has unique user name and password. In addition, there will be a database which stores and manipulate all the data about the users. Website will be the only interface for all the Project Engineer's data which is stored by database and the execution of provided functionalities. After the sign up, user information will be transferred to database. In the sign up process, there will be e-mail verification to verify Project Engineer's information. After that point, Project Engineer can register through the web interface. Project Engineer will be able to log out whenever he or she wants or after completion of project. Moreover, in communication between stakeholders they will send and receive an e-mail through the e-mail interface.

This application will be useful for the Company Owner and Project Manager. This System is developed for the Construction Business organizations to manage their data effectively and to improve their profit which will helps to increase the organizations business. It will maintain details planning, material management, employee and labour management, employee daily reporting management etc. This application will maintain all the data regarding constructions. It will also provide the customization facility to Admin so that Admin can customize this system as per his/her organizational needs like User Management, Project Management, Billing and Reports management and Notifications.

## 4. Proposed system architecture

Fig 1 shows the system architecture. In this system there will be an owner who can perform crude operations after logging in that is, he can add project engineers, update data and delete it. Also he can request and view the media, give comment or message the engineers. Thus he can track the activity conveniently. Also he can generate the reports.
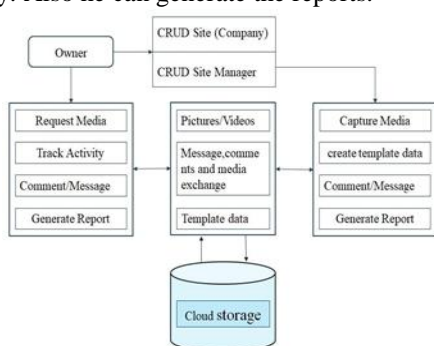


Fig. 1.  System architecture

The site manager can create the data and with the help of templates he can generate the reports. He can also comment and message. And all this data will be stored to the cloud server.

## 5. Advantages

1. Media sharing and its systematic storage.
2. Seamless Integration with MIS
3. Work-wise/ Project wise surveyor allocation
4. Dashboard with snapshot of overall progress
5. Web interface for data management
6. User Management
7. Automatic Report generation.
8. User friendly, Secure Access to the application and MIS data

## 6. Conclusion

This application is useful for the Company Owner and Project Manager. This System is developed for the Construction Business organizations to manage their data effectively and to improve their profit which will helps to increase the organizations business. It will maintain details planning, material management, employee & labour management, etc. This application will maintain all the data regarding construction. It will also provide the customization facility to Admin so that Admin can customize this system as per his/her organizational needs like User Management, Project Management, Billing and Reports management and Notifications. Business organizations can manage their Contractor and labour management through this system. Business organizations can also generate reports in various formats and these reports help business organizations for various types of analysis like date wise report and all. They can use these reports in decision making processes and also for customer satisfaction by analysing their needs and problems. Here the Admin can maintain the data regarding All User Profile and The Project Management. Admin can also manage the data regarding the Bills and Notifications and Bill approvals. Here admin can see all the details regarding respective Project Engineer. Here is the Separate panel for the Admin, and project Manager. By using this application, the efficiency of the Business is increased. This application is developed as per the requirement of the client.

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