



Digitizing Office Management & Procedure in The Construction Industry

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Abstract: The advent of smartphones, coupled with mobile computing technology, provides construction engineers with unprecedented opportunities to improve the existing processes of on-site construction management. Capitalizing on smartphone technology, this study aimed to develop an effective on-site management system. The system was focused on three important functions of on-site management: site monitoring, task management, and real-time information sharing. For system development, various component technologies, such as wireless communication, augmented reality, and client-server database was utilized to efficiently manage, transfer, and visualize project information on a mobile computing platform. The applicability of the mobile system was verified on a real building construction site. This study contributed to the body of knowledge by illustrating how mobile computing technology embodied in smartphones can be used to streamline on-site construction management. The proposed system is expected to assist construction engineers in achieving a high level of productivity and efficiency.

Key words- *Mobile Application, Information Management, construction site, mobile computing.*

I. INTRODUCTION

The field of artificial intelligence (AI) tries to understand and build intelligent entities. These intelligent built entities are interesting and useful in themselves. So far, artificial intelligence has produced many important products. While no one can predict the future in detail, it is clear that computers with human intelligence will have a huge impact on our daily lives and the future development of civilization. Today A.I. Technology is a rapidly emerging sector and a key factor for effective management. Each of the best areas for growth is the use of expert systems to support the social control appeal processes. Expert systems technology, an important branch of artificial intelligence, has only recently been applied to business problems. Although A.I barely affects today's managers, it will have a huge and widespread impact on its operations in the years to come. If there are no experts, the expert system can advise you in time. Unlike manual systems, expert systems can operate 24 hours a day, 7 days a week, and any day of the year. The expert system does not get sick, go on vacation or quit. It's not related to the meeting, but it will waste time. The expert system can be copied quickly and can be used simultaneously in many locations across the country or around the world. Once the expert system is built, distribution is relatively inexpensive. Computers behave like humans thanks to artificial intelligence. If we mean, we have to have a way of determining how people think. is possible to express this theory in the form of a computer program. If the program's input / output and synchronization behavior is consistent with human behavior, this indicates that some of the program's mechanisms can also work in humans. Acting rationally means acting with certain beliefs to achieve your goals. Agents are things that perceive and act. In this method, artificial intelligence is considered to be the research and construction of rational subjects. With this AI method, the emphasis is on correct reasoning. rational means, because a reasonable course of action is to logically infer that a particular action will achieve the goal, take action based on that conclusion.

II. NEED FOR STUDY

Knowledge representation and reasoning technology derived from artificial intelligence (AI) research allows computers to generate plans, not just analyze people's plans. They clearly express knowledge about the generation of plans in the initial state and the target state, a description of the actions and their conditions and effects, and a control structure for selecting new actions to be included in the project plan. Once the development of many artificial intelligence planners was completed, we chose the interactive planning and execution system (SIPE) to study the effectiveness of AI. Planners plan construction projects. In this way, the solution is completed in a few minutes rather than hours or days or even weeks.

III. OBJECTIVE

The title will not specify that A.I. can be used in the construction industry to improve planning and coordination. AI can be used to predetermine failures and potential collisions during the construction phase. Given human behavior, it can be used in any project.

IV. SCOPE OF WORK

This Title can be enclosed with any project, wherever human constraints are necessary. A.I. is the methodology for the platform using the Interface.

V. RESEARCH METHODOLOGY

- Literature Review
- Data Collection
- Data Analysis

VI. Literature Review

- The literature search aims to study the extensive use of mobile applications (prototypes) to improve office management and its processes, as well as the information necessary to manage construction projects.
- This study identified and prioritized the key site information that customers and subcontractors (technical and non-technical) (human resources teams, customer services) considered to be extremely important artifacts.
- The application is carefully designed, user-friendly and can meet user / client requirements for precise and efficient information management, using different types of tools, such as information and communication technologies (ICT). Three steps are required to apply. The first step is an in-depth research, a research on the information which is very necessary, and finally the development of the model.
- Applying this model can help users choose mobile IT strategies to manage on-site construction information that supports project functionality. To improve the development company, a recommended Android-based mobile application has been developed to view the work of external sites.
- From all the information, he can easily record the progress of their daily work in different places and find out if the application will be successful in the near future.

VII. DATA COLLECTION

7.1 Introduction

The advent of smartphones, combined with the most advanced mobile computing technology, offers construction engineers unprecedented opportunities to improve the current on-site construction management process.

Today's smartphones are generally equipped with touch screens, GPS receivers, gyroscopes, accelerometers and wireless communication functions. Enhanced smartphone functions can perform.

On-site construction management is an important element in the successful implementation of knowledge of regarding work tasks and construction resources helps managers decide to increase construction productivity.

However, due to poor construction conditions, it is difficult for field engineers to collect and share information in real time on the site. On site, the location of materials, labor and equipment, as well as the current state of progress, are difficult to understand. These challenges require tools equipped with appropriate detection and communication functions to efficiently collect and exchange information on buildings.

7.2 Questionnaire Design

The response has been prepared with reference to the relevant literature on the management procedures of the construction company's digital office. The questionnaire for the interviews with the engineers is like the day to day problem facing on site

execution work. The questionnaire has been verified by experts to ensure the clarity, ease of use and value of the information collected. The questionnaire is as qualitative approach.

7.3 Online Questionnaire Responses

The response has been collected from different construction sites like, residential sites, commercial sites, industrial sites and so on. The qualitative response collected by door to door approach for accurate response.

VIII. DATA ANALYSIS

8.1 General

There are thousands of applications that can only be used for project monitoring, storage of construction documents, ERP, billing records, etc. However, this article requires collaboration on a single platform for easy access and use. Due to the data collected from construction experts, the analysis is what they encounter in their daily work. So what kind of situation do they face in performing routine construction?

For the analysis of quantitative data, the collected data is analyzed and compared with data samples. Based on the data collected, some commonly recommended recommendations.

8.2 Analysis of responses.

The analysis was based on the response from Google Forms, which was distributed on site and spoke personally with staff experienced in specific areas. In the execution of construction projects, certain experts face various problems on a daily basis, such as drawings, materials management, materials management, storage management, billing statements, accounts and manual management. These are difficult and can be reflected in the answer.

After analyzing the respondent's responses, the prototype minimum variable mainly needs the points defined above, as shown below:

- System design requirements
- system structure
- Task management module
- Real-time module for sharing information

IX. CONCLUSION

Mobile phones combined provide the aim of this research is to develop a complete field management system using mobile computer technology. The three main components of the system are site monitoring, task management and real-time information exchange.

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