Gurukul International Multidisciplinary Research Journal (GIMRJ)*with* International Impact Factor 8.249
Peer Reviewed Journal
https://doi.org/10.69758/GIMRJ2406I8V12P023

e-ISSN No. 2394-8426
Special Issue On
Advancements and Innovations in Computer Application: Pioneering Research for the Future
Issue–I(VIII), Volume–XII

BUILDING SHOWCASE PLATFORM

Miss Samiksha Chakole
PG Scholar
Department of Computer and Technology,
G. H. Raisoni University, Amravati, Nagpur India

Received on: *11 May ,2024* ***Revised on:*** *18 June ,2024* ***Published on:*** *29 June ,2024*

Abstract : Formal project management is not widespread in SMEs. Most of the office work and normal business activities are looked by the staff in an informal manner and in most cases without any project management training. This is not to say that their projects are not successful. Many SMEs handle projects well and are successful. This could be due to their tactical knowledge and the individuals involved rather than a conscious effort. But these companies could be falling short of their potential and may perform better if they follow a proper formal system of project management practices. Management, produces a degree of predictability, focuses on systems, relays on control, organizes and staffs, accepts the status quo and motivates people to comply with standards.

This project aims to study the approach of small and informal construction firms towards construction management and the various techniques adopted by them and thereby suggest systems and methods in project management to improve their performance. A startup construction firm that did not have formal project management systems and techniques in place was identified and upon discussion with their owners and employees regarding their practices, they were willing to let us assist them in their projects by setting up a project management function there by analyzing their work. During the course of the study, significant improvements were observed in the system adopted by the firm in various aspects like quality control, project monitoring & tracking and safety. It can thus be concluded that introduction of project management techniques even though on a small but systematic way can help bring improvement in the performance of the firm and contribute to the organization's growth in the long run.

.

IndexTerms **-** Web-Based Application, Modern structure.

I. INTRODUCTION

In India, the construction industry plays a vital role in the economy of the country. It employs a significant share of the workforce, contributes largely to the GDP (Gross Domestic Product) of the country, and is seen as a key promoter for the growth and development of the Indian economy. This construction industry configuration is reasonably uniform across all developed countries, with the fraction of small firm activity being even more pronounced in developing countries. An increasingly important part is played by small construction firms in improving the overall performance of construction industries across the globe. The growing role of small construction firms is proved in India. It is not only significant in its own right, but also plays an instrumental role in the performance of large construction firms and supply chains.

The successful management of small firms, however, is often troubled by their inherent characteristics; in particular, limited workforce and capability, inadequate time and resources for innovation; excessive influence of owner & managers, and difficulty in raising finances and maintaining adequate cash flows. The potential impact of SMEs (Small & Medium scale Enterprises) to the economy leads to the conclusion that they need to increase their competitiveness and quality to match or exceed the competition. The management of small firms tends to come about in very unpredictable, informal ways.

For example, one of the principal ways of communicating information is via informal face-to-face discussions between individuals which mean that there generally are no printed records. They usually do not have systems in place to control and monitor projects and they have ill-defined project management roles and structures. This non-standardized project management practice among small and medium firms affects progress and contributes wastage.

II. LITERATURE REVIEW

Successful management of construction projects is based on three major factors i.e. time, cost and quality. Time and cost are the lifelines of any project apart from its quality. Delay is one of the biggest problems, the construction firms face. Delays can lead to many negative effects such as lawsuits between owners and contractors, higher project costs, loss of productivity and revenue, and contract termination. Among all the causes for delay the top rank goes to 'late in revising and approving design documents', subsequently delay due to subcontractor, delay due to non-availability of manpower, frequent breakdown of equipment, labour disputes and change in material specifications in last minute are occupying from second rank to fifth rank respectively. These issues in the construction projects can be resolved by paying some more attention. It is observed that the extremely critical delays are occurring from the client side as well as contractor side. Other causes are also contributing significantly for delays in execution of projects are due to lack of expertise in labor skills and equipment breakdown etc. Hence the present delay analysis emphasizes on certain things to be focused to reduce the delays in execution of construction projects will leads increase the site productivity.

1.Technology Advancement:

Through generative design building information modelling is the 3D based process. That give architectural, engineering and construction professionals' insights to efficiently plans, design construct and manage building and infrastructure. In order to plan design the construction of the building. The 3D model need to take into consideration the architecture, engineering, mechanical, electrical and plumbing (MEP) plans and the sequence of activities of the respective terms. The challenge is to ensure that the different models from the sub teams do not clash with each other.

2. Features of the construction site :

Project Portfolio: Showcase past and current projects with descriptions, images, and client testimonials. Services Offered: Detail the range of construction services provided, including residential, commercial, renovation, etc. About Us: Provide information about the company's history, values, team, and certifications. Contact Information: Include phone numbers, email addresses, and a contact form for inquiries. Gallery: Display high-quality images of completed projects to demonstrate expertise and craftsmanship. Blog/News Section: Share industry insights, project updates, and company news to engage visitors and demonstrate expertise. Testimonials

3. Challenges and Considerations:

When asked about the factors that the companies consider as important influencers for the execution ofthe project and the project's performance then the most recurring responses were – 'Clear Goals and Objectives' & 'Client Consultation' followed by varying responses from different firms. It is clear that importance is given by the companies to the client's requirement and the targeted goals. But to achieve these goals the companies faced a few hindrances. From the responses it could be inferred that one of the common problems faced by the construction firms was Scheduling and Management(especially managing the financial aspect).

Other aspects are management of machinery, labour and liasoning. The reason could be attributed to lack of proper project management methods in the projects. No software were used by the small scale firms surveyed; scheduling and project planning was done either manually or using MS Excel. Also there is no formal mechanism to track productivity and the progress of work. Visual Appeal Balancing aesthetics with functionality is crucial. The website should showcase past projects while also being easy to navigate. Mobile Responsiveness Given that many users browse on mobile devices, ensuring the website looks and works well on various screen sizes is essential. Project Showcase Highlighting past projects with high-quality images and detailed descriptions helps demonstrate expertise and attract potential clients. SEO Optimizing the website for search engines is key to increasing visibility online. This includes using relevant keywords, creating quality content, and obtaining backlinks. Safety Regulations Depending on

the region, there may be specific safety regulations that need to be adhered to, both in the physical construction and the online representation of projects. Client Communication Providing clear contact information and potentially integrating features like chatbots or contact forms can streamline communication with potential clients. Performance and Speed: Construction websites often include large images or videos. Ensuring fast loading times is crucial to keep visitors engaged. Content Management: Regularly updating content, such as project portfolios and blog posts, helps keep the website relevant and encourages repeat visits. Security Protecting sensitive client information and ensuring the website is secure from cyber threats is paramount. Regulatory Compliance Adhering to legal requirements such as GDPR (General Data Protection Regulation) for user data collection and storage is important.

4. Best Practices: Best practices in construction include thorough planning, regular communication among team members, adherence to safety protocols, and use of quality materials, skilled labor, and adherence to building codes, and ongoing quality assurance and quality control measures. Additionally, environmentally sustainable practices and proper waste management are increasingly important aspects of modern construction practices. Safety First: Implement rigorous safety protocols, provide proper safety training to all workers, and regularly inspect the site for hazards. Communication Maintain clear and open communication among all team members to ensure tasks are understood and executed properly. Quality Control regularly inspect materials and workmanship to ensure they meet quality standards and specifications. Project Management Efficiently manage resources, schedules, and budgets to ensure timely completion of the project. Environmental Considerations Minimize environmental impact by implementing eco-friendly practices such as waste recycling, energy efficiency, and sustainable materials. Risk Management Identify and mitigate potential risks throughout the project to avoid delays, accidents, and cost overruns. Documentation Keep detailed records of all activities, including contracts, permits, inspections, and change orders.

III.PROJECT PLANNING AND SCHEDULING

- **Project Initiation**: Define the project scope, objectives, constraints, and stakeholders. This phase often involves feasibility studies, site analysis, and preliminary designs.
- **Work Breakdown Structure (WBS)**: Break down the project into smaller, manageable tasks. Each task should be clearly defined and have specific deliverables.
- **Task Sequencing**: Determine the sequence in which tasks need to be completed. Identify dependencies between tasks to ensure that they are performed in the correct order.
- **Estimation**: Estimate the time, resources, and costs required for each task. This involves gathering information from experts, historical data, and industry standards.
- **Scheduling**: Develop a project schedule using tools like Gantt charts or critical path method (CPM) analysis. Allocate resources and set deadlines for each task.
- **Resource Management**: Ensure that the necessary resources (e.g., materials, equipment, labor) are available when needed. Resource leveling may be necessary to smooth out resource utilization over time.
- **Risk Management**: Identify potential risks and develop strategies to mitigate them. This may involve contingency planning, insurance, or contractual agreements.
- **Monitoring and Control**: Regularly monitor progress against the project schedule and budget. Adjust the plan as needed to address any issues or changes in scope.
- **Communication**: Maintain open communication with stakeholders throughout the project. Provide regular updates on progress, milestones, and any changes to the plan.
- **Documentation**: Keep thorough records of all project activities, including schedules, budgets, contracts, and correspondence. This documentation can be valuable for future reference and lessons learned.
- **Quality Assurance**: Implement quality control measures to ensure that work meets the required standards and specifications.
- **Completion and Handover**: Once all tasks are completed, conduct final inspections, obtain approvals, and hand over the project to the client. Ensure that all necessary documentation and warranties are provided.

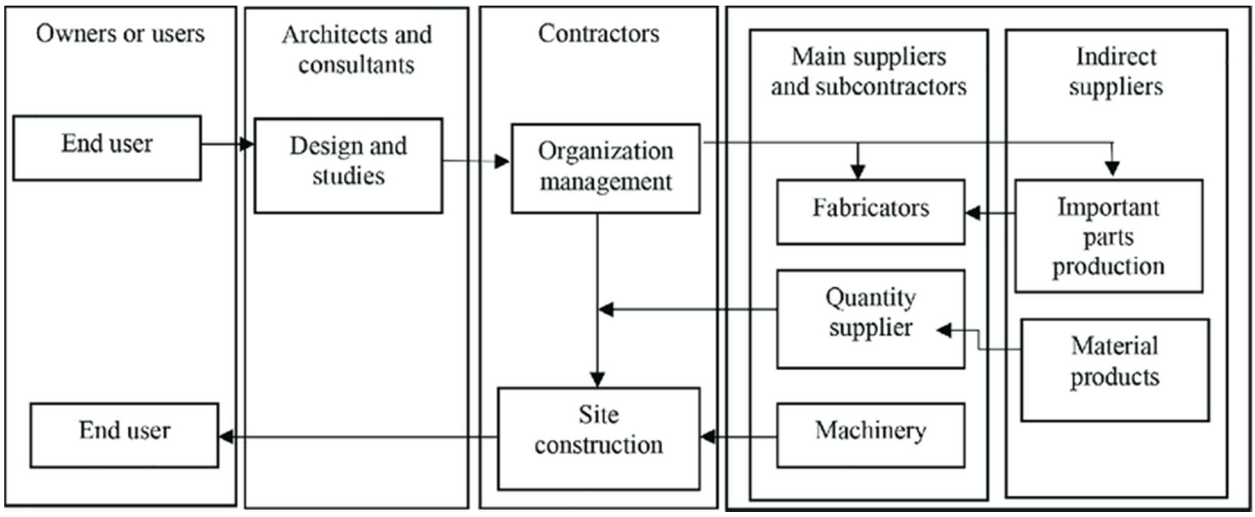

Figure 1.1

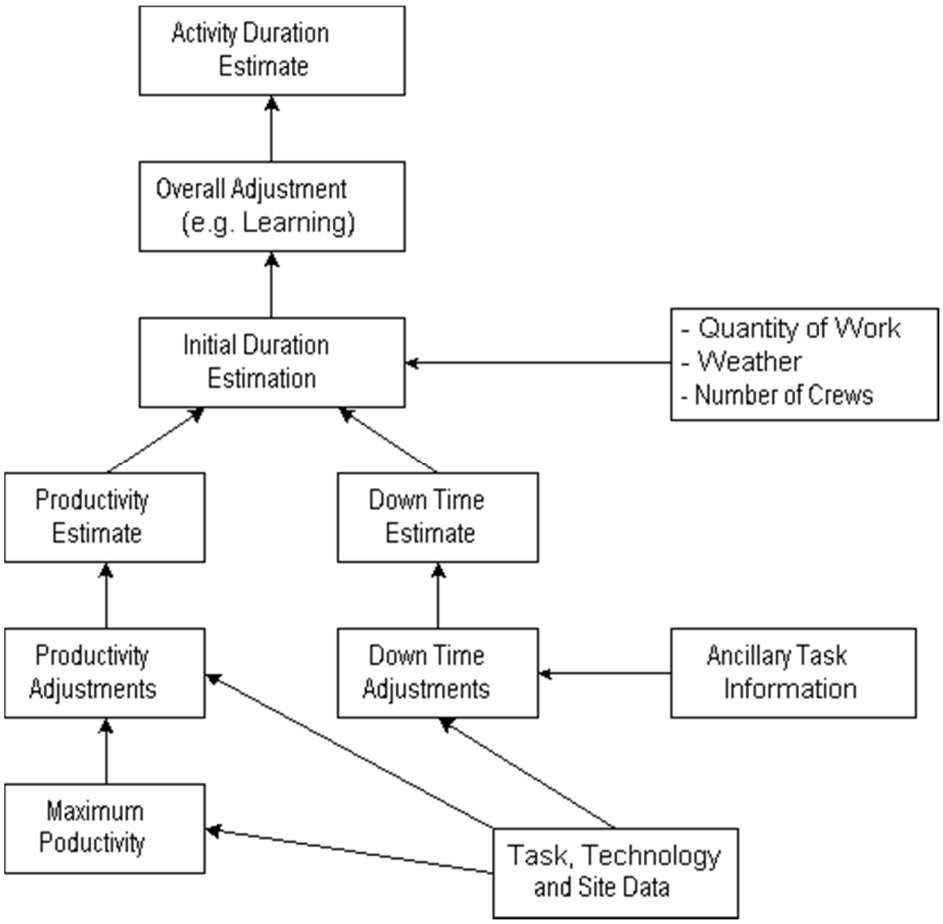

Figure 1.2

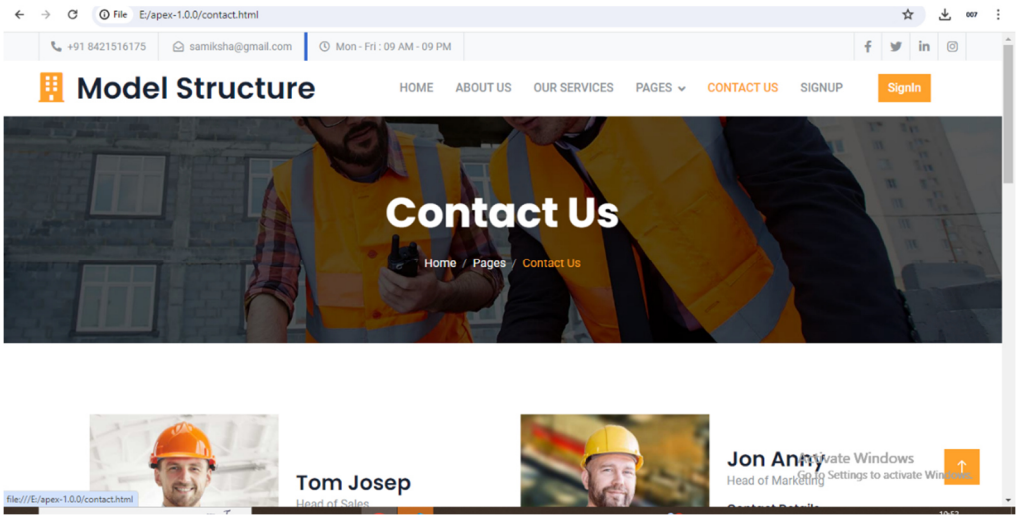

Figure Contact Us

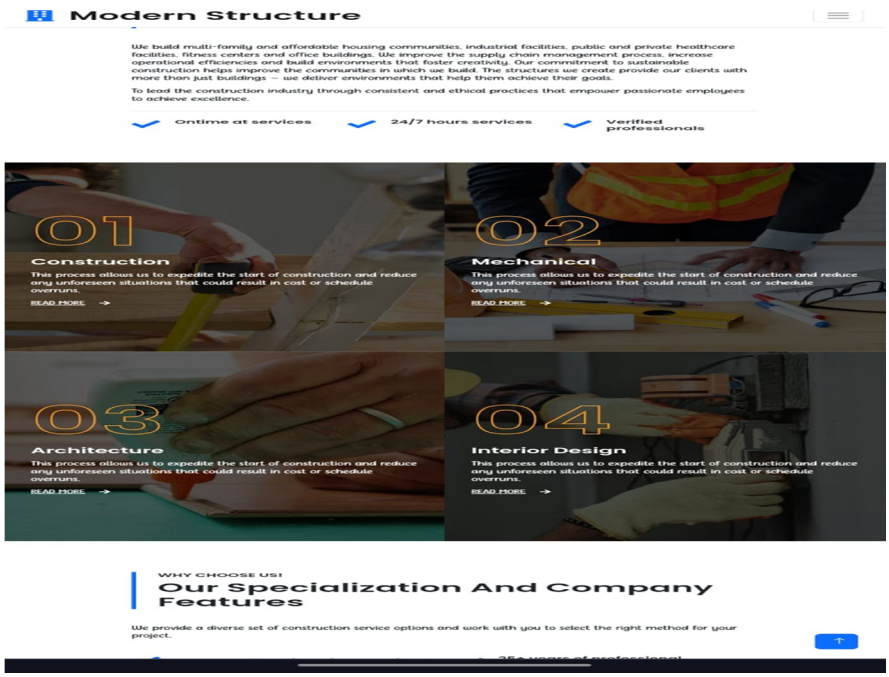

Figure : Homepage

IV.FUTURE SCOPE & ENHANCEMENT

The future scope and potential enhancements for a construction website can greatly influence its effectiveness in serving its target audience and staying competitive in the market. Here are some ideas for future improvements and expansions:

Virtual Reality (VR) and Augmented Reality (AR) Integration**: Implement VR and AR technologies to provide immersive experiences for clients and stakeholders. This could include virtual tours of construction sites, interactive 3D models of projects, and AR overlays for visualizing completed structures on-site. Building Information Modeling (BIM) Integration**: Integrate BIM software into the website to enable collaborative design and construction planning. This can improve coordination among project

teams, reduce errors, and optimize building performance. Mobile App DevelopmentDevelop a mobile app companion for the website, allowing users to access project updates, view documents, and communicate with project teams on the go. Features could include push notifications for important milestones, photo sharing, and real-time messaging.Project Management Tools Enhance the website with project management tools tailored specifically for construction projects. This could include features such as task tracking, resource allocation, budget management, and scheduling.

Sustainability and Green Building Initiatives Highlight sustainability and green building initiatives on the website, showcasing environmentally friendly construction practices, LEED certifications, and energy-efficient designs. This can attract environmentally conscious clients and differentiate the company in the market. Data Analytics and Predictive ModelingUtilize data analytics and predictive modeling to optimize construction processes, improve project forecasting, and identify areas for efficiency gains. This could involve analyzing historical project data to identify trends, predict project outcomes, and optimize resource allocation. Continuous Improvement and Feedback Mechanisms**: Implement mechanisms for gathering feedback from clients, subcontractors, and project teams to identify areas for improvement. This could include surveys, feedback forms, and regular project retrospectives to identify lessons learned and implement best practices**.**

.V.METHODOLOGY

1.Research Design: Systematic method to developing web applications. embraces agile concepts to be adaptable and change-responsive.puts a priority on client input, flexibility, and cooperation.
2.Data Collection: Compiling needs from different parties involved interviewing and surveyingusers. Test your website thoroughly to identify and fix any bugs, errors, or usability issues. Check compatibility across different browsers and devices to ensure a seamless experience for all users..
3.Data analysis: drawing useful inferences from the information gathered recognizing recurringthemes, trends, and behaviors. organizing development tasks according to the requirements and expectations of users.

VI.TECHNOLOGY SELECTION:

The latest version of HTML provides enhanced multimedia support and semantic elements. Used for styling and layout design, CSS3 offers advanced features like animations and responsive design. JavaScript Provides interactivity and dynamic functionality on the frontend. Frameworks like React, Vue.js, or Angular can streamline development. PHP: Often used in conjunction with CMS platforms like WordPress or Drupal for backend scripting..CSS Frameworks Use frameworks like Bootstrap or Foundation to ensure your website looks and functions well across various devices and screen sizes. Web Application Firewall (WAF) Helps protect against common web threats such as SQL injection and cross-site scripting (XSS) attacks. Regular Security Audits: Conduct periodic security audits to identify vulnerabilities and ensure compliance with security best practices. MySQL:A popular open-source relational database management system (RDBMS) commonly used with PHP-based websites.

VII.TESTING:

Unit Testing: Test individual components and functions to ensure they perform as expected in isolation, verifying their correctness and functionality.Integration Testing: Validate the interaction and integration of different modules or components within the system, ensuring they work together seamlessly.User Acceptance Testing (UAT): Evaluate the system's functionality and usability from an end-user perspective, ensuring it meets the specified requirements and expectations before deployment

VIII.RESULT AND DISCUSSION:

. This paper primarily tries to target the main aspects of Project Management, viz. scope, time, cost and quality along with the importance of Project Integration. Also level of complexness of projects will increase, the extent of the project management also becomes a lot more advanced and rigorous and can need the people who manage such projects to possess certain knowledge, skills, experience, tools and resources. As projects get larger and complicated, the method gets even more scientific and systematic, because it becomes necessary to coordinate and integrate numerous human inputs and physical elements within the four basic constraints: scope, cost, time and quality. Project integration management is that the knowledge area that involves putting all the pieces together. It encompasses high level strategic planning and synthesis of data and inputs from multiple disciplines to modifyIn terms of user interface design, the focus on simplicity, clarity, and ease of use enhances user- friendliness. Navigation menus, search functionality, and order placement forms are carefully crafted to streamline the user experience. Iterative refinement based on feedback from a focus group of potentialusers ensures that the interface meets their expectations

DISCUSSION:

Decisions to be taken regarding numerous aspects and problems affecting a project. The most relevant conditions for integration management are leadership and knowledge that is wide enough for there to be awareness of what inputs from what disciplines are needed and how these inputs ought to be brought along in a very constructive way to add value to the project. Equally necessary for a project is defining and managing the scope of the project. Ideally, project scope ought to be outlined and frozen as early as possible, however this doesn't invariably happen. Usually, it is the owner who controls the scope, however a lot of more than not, it's also the owner who varies the scope. It is necessary that the scope is managed in a very conscious and systematic approach, with due relation to the aspects of cost, time and quality. In reality the four aspects of scope, cost, time and quality are intimately inter-related and need to be managed with equal importance. Each affects the others, and also the failure of managing one facet can jeopardize the full project. The breaking down of the project into practical work packages, referred to as the work breakdown structure, must be done first. Then the activities need to be outlined, along with their sequencing and durations. It is solely then that the schedules may be developed and used for managing the time aspects of the project. Another aspect of time management that is usually overlooked is the interface program

IX.OBSERVATION :

A project that features a well-developed interface program can progress smoother than one that has no interface program. Project time management additionally involves monitoring and correcting the plan as we tend to go on, using field situations as feedback in what ought to be a closed-loop system. Compared to time management, the way cost management is practiced within the construction industry is less objective. A lot of depends on human skills in negotiating contracts, variations and claims. The procurement knowledge area is also closely interrelated. Modern tools like earned value Management (EVM) aren't used a lot of in its true form in the construction industry. In the construction industry, quality is usually taken to mean the quality of the finished product and this is for the most part based on the specifications for the project. There ought to be a correct system for evaluating the overall project performance on a daily basis to provide confidence that the project can meet the required quality standards; and quality control, that involves monitoring specific project results and check data to see if they comply with specifications and standards and distinguishing ways in which to rectify defects or causes of unacceptable performance. Value engineering is additionally and a very important

element of project management. It is an activity that encompasses project planning, project execution and project control and involves practically all the knowledge areas.

.

X.CONCLUSION

The construction process is a complex system. The purpose of this work was to identify the relation between the project's problem and the use of project management processes in Small and unorganized firms in construction. There was significant improvement in the performance of both the projects covered under this study. It can be concluded that in order to reduce project management problems for the construction field SMEs, these companies should devote additional efforts on the systematic use of project management processes. Companies will benefit from some advantages such as: systemic vision of the projects, process optimization, deviation minimization, communication improvement and more. The major challenge lies in convincing these small and unorganized firms to adapt these practices in their firm by informing them of its advantages and the time and cost saving it can bring about in their projects. With better performance, the credibility of the organization also increases and thus growing in the industry.

XI.REFERENCES

1] Usha Kosarkar, Gopal Sakarkar, Shilpa Gedam (2022), "An Analytical Perspective on Various Deep Learning Techniques for Deepfake Detection", 1st International Conference on Artificial Intelligence and Big Data Analytics (ICAIBDA), 10th & 11th June 2022, 2456-3463, Volume 7, PP. 25-30, https://doi.org/10.46335/IJIES.2022.7.8.5

[2] Usha Kosarkar, Gopal Sakarkar, Shilpa Gedam (2022), "Revealing and Classification of Deepfakes Videos Images using a Customize Convolution Neural Network Model", International Conference on Machine Learning and Data Engineering (ICMLDE), 7th & 8th September 2022, 2636-2652, Volume 218, PP. 2636-2652, https://doi.org/10.1016/j.procs.2023.01.237

[3] Usha Kosarkar, Gopal Sakarkar (2023), "Unmasking Deep Fakes: Advancements, Challenges, and Ethical Considerations", 4th International Conference on Electrical and Electronics Engineering (ICEEE),19th & 20th August 2023, 978-981-99-8661-3, Volume 1115, PP. 249-262, https://doi.org/10.1007/978-981-99-8661-3_19

[4] Usha Kosarkar, Gopal Sakarkar, Shilpa Gedam (2021), "Deepfakes, a threat to society", International Journal of Scientific Research in Science and Technology (IJSRST), 13th October 2021, 2395-602X, Volume 9, Issue 6, PP. 1132-1140, https://ijsrst.com/IJSRST219682

[5] Usha Kosarkar, Gopal Sakarkar (2024), "Design an efficient VARMA LSTM GRU model for identification of deep-fake images via dynamic window-based spatio-temporal analysis", International Journal of Multimedia Tools and Applications, 8 th May 2024, https://doi.org/10.1007/s11042-024-19220-w

[6].Turner, R., Ledwith, A. and Kelly J. (2009): "Project Management in Small to MediumSized Enterprises." International Journal of Managing Projects in Business, 2(2), 282-296

[7].Auti, Atul and Skitmore, Martin. (2008). "Construction Project Management in India." International Journal of Construction Management, 8(2), 65-77.

[8].Murphy, A., & Ledwith, A. (2007). "Project management tools and techniques in high technology SMEs." Management Research News, 30(2), 153-166.

[9].Ramli Mohamad, PE, PhD Chairman and CEO, Macroworks Sdn Bhd : "The Need for Systematic Project Management in the Construction Industry"

[10].Buehring, Simon. Project Smart, <https://www.projectsmart.co.uk/managing- smallprojects.php> (accessed 5 January 2020)

[11] Usha Kosarkar, Gopal Sakarkar, Shilpa Gedam (2022), "An Analytical Perspective on Various Deep Learning Techniques for Deepfake Detection", *1st International Conference on Artificial Intelligence and Big Data Analytics (ICAIBDA),* 10th & 11th June 2022, 2456-3463, Volume 7, PP. 25-30, https://doi.org/10.46335/IJIES.2022.7.8.5

[12] Usha Kosarkar, Gopal Sakarkar, Shilpa Gedam (2022), "Revealing and Classification of Deepfakes Videos Images using a Customize Convolution Neural Network Model", *International Conference on Machine Learning and Data Engineering (ICMLDE)*, 7th & 8th September 2022, 2636-2652, Volume 218, PP. 2636-2652, https://doi.org/10.1016/j.procs.2023.01.237

[13] Usha Kosarkar, Gopal Sakarkar (2023), "Unmasking Deep Fakes: Advancements, Challenges, and Ethical Considerations", *4th International Conference on Electrical and Electronics Engineering (ICEEE)*,19th & 20th August 2023, 978-981-99-8661-3, Volume 1115, PP. 249-262, https://doi.org/10.1007/978-981-99-8661-3_19

[14] Usha Kosarkar, Gopal Sakarkar, Shilpa Gedam (2021), "Deepfakes, a threat to society", *International Journal of Scientific Research in Science and Technology (IJSRST)*, 13th October 2021, 2395-602X, Volume 9, Issue 6, PP. 1132-1140, https://ijsrst.com/IJSRST219682

[15] Usha Kosarkar, Prachi Sasankar(2021), " A study for Face Recognition using techniques PCA and KNN", Journal of Computer Engineering (IOSR-JCE), 2278-0661,PP 2-5,

[16] Usha Kosarkar, Gopal Sakarkar (2024), "Design an efficient VARMA LSTM GRU model for identification of deep-fake images via dynamic window-based spatio-temporal analysis", Journal of Multimedia Tools and Applications, 1380-7501, https://doi.org/10.1007/s11042-024-19220-w

[17] Usha Kosarkar, Dipali Bhende, " Employing Artificial Intelligence Techniques in Mental Health Diagnostic Expert System", International Journal of Computer Engineering (IOSR-JCE),2278-0661, PP-40-45, https://www.iosrjournals.org/iosr-jce/papers/conf.15013/Volume%202/9.%2040-45.pdf?id=7557