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FreelanceAI: System Design and Technology Acceptance Analysis of a Freelance Platform

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***Abstract*: The proliferation of the digital economy has led to an increased need for online freelance platforms connecting the client and professional workforce. Such platforms have the capability to help people offer their services remotely and also help companies hire from across the globe. But at the same time, such online systems depend on user adoption and technology acceptance. In this paper, we present a model for designing and implementing a system which would act as a platform to interact between freelancers and clients. The platform offers features like user-friendly interface, security, job listing functionalities, and other project-related capabilities. Further, technology acceptance is considered as a means for evaluating the user's acceptance towards the platform. The findings show that a well-designed platform helps to enhance the users' participation and make the process of freelance work more efficient. Thus, it could be stated that such a system holds high potential in helping collaborate and support the online freelance market.**

***Keywords*: Freelance Platform, Digital Marketplace, Technology Acceptance, System Design, Online Work Platforms.**

1. Introduction

Digital technology developments have changed how people cooperate and work. There is an increasing tendency towards using online freelance websites which have become integral part of the gig economy. These websites allow people from all over the globe to perform services for each other by connecting through the internet [1]. Companies get the opportunity to hire competent professionals, and freelancers – to engage in interesting jobs.

However, there exist some issues in relation to the usability, reliability, and adoption of the above websites. People tend to judge freelance platforms taking into consideration various factors like ease of use, trustworthiness, and effective communication capabilities [2]. Some problems can be associated with the lack of openness, insufficient communication, and inability to choose reliable freelancers/clients.

The current study concentrates on the development of a website for freelancing. In addition, technology acceptance factors will be analyzed to understand the reasons for users' adoption and satisfaction [3].

2. Literature Review

Previous works have discussed the development of the online freelance platforms in relation to the gig economy. Scholars have emphasized the significance of usability, security, and trust on these platforms for successful adoption of the digital marketplaces [4].

Technology Acceptance Model (TAM) is often applied when evaluating digital technologies regarding the adoption by the users. TAM states that there are two critical factors that determine the adoption of technologies: perceived usefulness and perceived ease of use [5]. The combination of these factors defines users' approach to interacting with a new digital platform.

A number of digital platforms such as Upwork and Fiverr have proved the efficiency of the freelance marketplaces in connecting talents from all around the world and helping the employer to hire someone remotely [1]. At the same time, it remains rather challenging to develop efficient project management techniques and communication practices in order to evaluate the freelance properly [2].

A. Problem Statement

With an extensive proliferation of the digital economy, there has been a sharp growth in the number of platforms providing opportunities for remote work and offering freelancing services. In general, freelance marketplaces play a pivotal role in bringing together professionals and clients willing to collaborate with each other. Despite this fact, numerous challenges associated with usability, transparency, trust, and convenience still remain an issue for most freelance websites.

Firstly, one of the problems that freelancers commonly face on such websites is the problem of finding reliable clients and interesting job offers. Similarly, clients may find it difficult to discover trustworthy freelancers and find someone possessing relevant skills. The lack of effective mechanisms of interaction and communication hinders the process of using existing freelance websites.

In addition, a lot of freelance platforms suffer from complexity in their structure and numerous procedures necessary to post or apply to various projects. Such aspects reduce the adoption of freelance websites, especially in the case of beginners who are unaware of the peculiarities of working through digital freelancing platforms.

Finally, the lack of a systematized project management procedure and feedback mechanisms leads to

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Table 1
Previous research work on freelance platforms

Reference	Contribution	Advantage
[1]	Studied the growth of freelance Marketplaces in the gig economy.	Highlights the importance of digital platforms for remote employment.
[2]	Proposed reputation systems for evaluating freelancer performance.	Improves trust between freelancers and clients.
[3]	Analyzed online collaboration tools used in freelance platforms.	Enhances communication and project coordination.
[4]	Examined factors affecting user adoption of online platforms using Technology Acceptance Model (TAM).	Provides insights into perceived usefulness and ease of use.
[5]	Investigated challenges	Identifies barriers such as competition and lack of visibility.

misunderstandings between clients and freelancers and makes the work harder. All these difficulties prove the necessity of designing an easier-to-use and more convenient freelance website.

Aiming to resolve the mentioned problems, the freelance platform suggested was created as an easy-to-use digital tool that allows for effective interaction between clients and freelancers.

B. Major Contributions

Gig economy has become very popular lately, and hence the need for efficient freelance platforms that can link up talented individuals with their prospective employers is becoming inevitable. However, despite the number of freelance platforms that currently exist, various shortcomings including usability problems, issues of transparency, and inefficiency in communication still exist.

In order to address these problems, the current freelance platform was designed and implemented as a technological solution to facilitate the communication process between freelancers and their prospective employers. In this case, attention was paid to ensuring a friendly user interface, as well as improving efficiency and communication in the entire process.

Key contributions made by the current research are highlighted below:

a. To develop a friendly user interface where the user experience will be improved in terms of posting a job, looking for jobs, and collaborating with others during the work.
b. To ensure transparency and trust among users in terms of management of their profiles, monitoring of projects, as well as provision of feedback on performance.
c. To improve efficiency in freelance project management through the provision of structured work flows to facilitate job proposals, communications, and task management. To examine the technology acceptance factors that facilitate adoption of freelance platforms.

C. Related Work

Some researchers have analyzed the emergence and significance of online freelance platforms operating in the burgeoning gig economy. They have suggested ways to enhance the usability of these platforms, increase the reliability of the interaction among their participants, and provide better collaboration opportunities for both freelancers and customers. The development of digital platforms facilitates people in providing professional services from remote locations and helps companies hire highly qualified specialists globally.

Previous literature has stressed the value of trust mechanisms and secure interaction opportunities in digital platforms. Many platforms incorporate reputation system and rating mechanisms to help clients assess the performance and skills of freelancers prior to giving them projects. These measures facilitate transparency, but still cannot ensure reliable cooperation.

Also, studies have discussed issues such as workflows, efficient communication, and task management as key factors contributing to the success of freelance platforms.

Finally, TAM is an important concept applied in analyzing technology adoption. This theory states that users' perception of the usefulness and ease of use of a particular technology is essential in predicting its acceptance and implementation. In the context of freelance platforms, the application of these concepts may positively contribute to the development of such platforms.

Research gaps identified in previous studies related to online freelance platforms are illustrated in Table 1.

3. Proposed Methodology

The suggested methodology revolves around the designing and development of an effective freelance platform that would enhance the process of communication between clients and freelancers as well as ensure user acceptance. The technology being used will incorporate the aspects of full stack development along with TAM for assessing the ease of use and behavioral adoption of the users.

It includes the following steps:

- Requirement Analysis
- Design of the System
- Prototype Development
- User Acceptance Evaluation

A. Requirement Planning

The first step includes identifying weaknesses associated with the available freelance platforms and analysing user needs. Problems such as difficult-to-understand interfaces, ineffective methods of communication, and poor accessibility for non-technical people are some of the factors taken into consideration in this case. Accordingly, it is the aim of the new platform to keep things simple but still include features like project submission and communication.

B. System Design

The platform is structured in such a way as to accommodate two main users: Clients and Freelancers. The system design divides the system into several tiers, namely Presentation tier, Application Logic tier, Data Management tier, and Evaluation tier.

Additionally, the platform includes streamlined dashboards

through which clients can post their projects and freelancers can search for available job opportunities.

Mathematical Formulation of User Acceptance Freelancer Platform Adoption Problem.

The freelancing platform adoption problem is cast as a user acceptance optimization problem. The aim is to optimize the user acceptance level according to the constructs proposed by the Technology Acceptance Model.

Let

$U = \{u_1, u_2, \dots, u_n\}$ be the set of all users who use the system, with each individual having the capacity to be either a client or freelancer.

The parameters associated with each user include: T_i - Level of technical skill.

E_i - Previous experience in using freelancing websites
R_i - Role played by the individual (client or freelancer)
I_i - Frequency of interaction with the system

The optimization function is stated as:

Maximize $\Sigma\ BI_i\ (PU_i\ ,\ PEOU_i)$

Where
BIi = Behavioral intention of user
PUi = Perceived usefulness
PEOUi = Perceived ease of use

The optimization process is subject to the following constraints:

Usability constraint: $PEOUi \geq \theta 1$
Functional relevance constraint: $Pu \geq \theta 2$
Performance constraint of system: Response time $\leq r$
Accessibility constraint: Usability of interface for less technologically literate users.

C. Decision Variables

To make the constructs of TAM relevant to the study, some design variables include:

S – Simplicity of interface based on task completion steps
F – Relevance of features based on user needs
N – Efficiency of navigation
C – Effectiveness of communication among users

D. Objective Functions

The methodology seeks to achieve several goals concerning the end-user as well as system performance.

User acceptance: $A = \Sigma\ BI_i$

Reduction of cognitive load: $L = \Sigma$ Task $Steps_i$ Efficiency of task completion: $E = \Sigma$ Time $Saved_i$

Platform sustainability: $S = \alpha PU + \beta PEOU + \gamma BI$ where α, β, and γ denote the weights assigned to each construct of TAM.

E. System Architecture

The suggested freelance platform uses a tiered system architecture that involves four layers.

1) Presentation Layer

The presentation layer offers the user interfaces to the clients and freelancers, where clients can post jobs, freelancers can send their proposals while they can both manage their profiles.

2) Application Logic Layer

The application logic layer controls all the functions of the system, such as authentication and authorization, project management, communication service, and notifications.

3) Data Management Layer

This is responsible for managing all the data of the system; it includes the users' data, projects, proposals, and transactions.

4) Evaluation Layer

Evaluation layer involves TAM-based validation module that collects users' response to measure the three TAM criteria.

F. TAM-Based Evaluation Model

Technology Acceptance Model measures user acceptance towards the proposed system.

Perceived Usefulness is measured by:

PU = f(Task efficiency, Feature usefulness, Outcome quality)

Perceived Ease of Use is measured by:

PEOU = f(Effort to learn, Ease of interface, Ease of navigation)

The behavioral intention is given by $BI = \delta_1\ PU + \delta_2\ PEOU$,

where δ_1 and δ_2 are regression weights.

G. User Flow and Functional Implementation

The logical interaction flow for the platform is demonstrated in the User Flow Diagram depicted in Fig. 1. below.

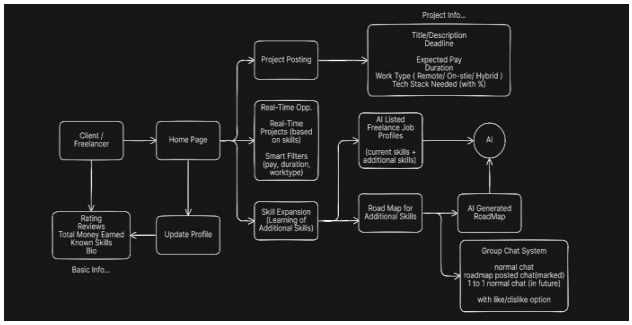

Fig. 1. User flow diagram of the proposed freelance

The following user types are supported in the system:

- Client
- Freelancer

Both users start at the home page and move along role-specific dashboards.

Clients are able to post their projects with project title, description, necessary skills, budget, and time frames. Clients are also able to look through freelancer profiles and choose suitable freelancers.

Freelancers have an opportunity to view available projects, edit their skill profiles, apply for the projects, and correspond with clients via chat.

Freelancers can browse project listings, update skill profiles, submit proposals, and communicate with clients through the messaging system.

The implementation of workflow management processes and artificial intelligence-based suggestions will make searching for new projects much easier.

4. Results and Discussion

The proposed Freelance Platform was developed as a web-based system designed to simplify collaboration between freelancers and clients. The platform focuses on providing a user-friendly interface, efficient project management features, and smooth communication between users. The system was tested using different user scenarios to evaluate usability, performance, and functional correctness.

The homepage of the platform serves as the main entry point for users and provides navigation to key sections such as login, registration, project listings, and user profiles. The interface is designed to ensure that both freelancers and clients can easily access system features without technical complexity.

The platform mainly consists of two modules: Client Module and Freelancer Module. The client module allows users to post projects, review freelancer proposals, and manage ongoing work. The freelancer module allows professionals to browse available projects, submit proposals, and communicate with clients.

The implemented system successfully demonstrates how digital freelance platforms can simplify project collaboration while improving accessibility for users across different locations.

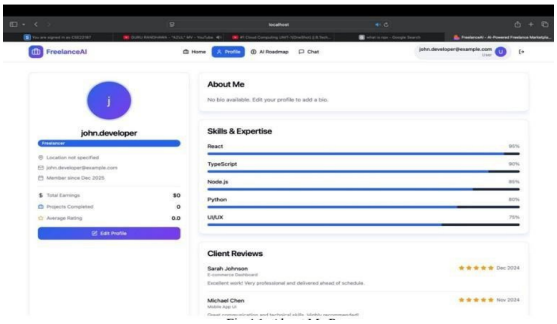

Fig. 2. About Me page

The About Me page shown in Fig. 2. allows users to maintain their personal profile within the platform. This section enables users to add professional details such as skills, educational background, experience, and personal interests.

The profile helps in creating a digital identity for the user and allows other users within the platform to understand their expertise and background. The design ensures that profile information can be easily updated, making it a flexible and user-friendly component of the system.

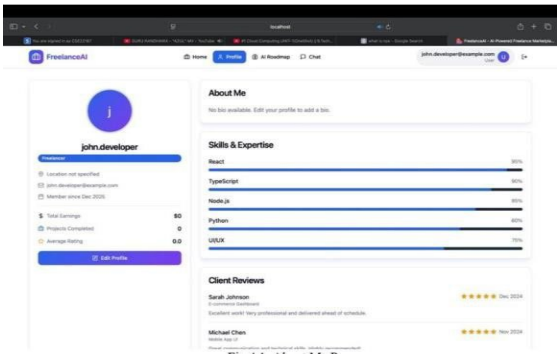

Fig. 3. Dashboard

The Dashboard, illustrated in Fig. 3. acts as the central control panel of the platform. It provides users with quick access to various features including profile management, communication tools, and AI-based services. The dashboard presents information in an organized layout, allowing users to monitor their activities and navigate the system efficiently. This centralized interface improves usability by reducing the complexity of accessing different modules within the application.

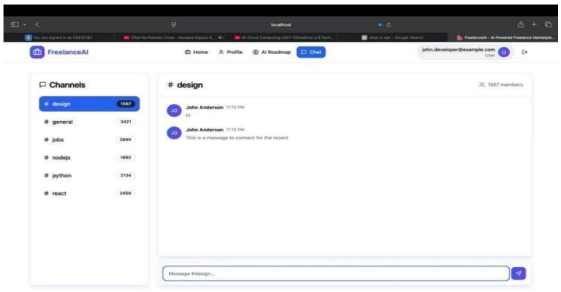

Fig. 4. Group chat system

Fig. 4. demonstrates the Group Chat System, which allows users to communicate and collaborate in real time. The chat feature enables users to exchange messages, share ideas, and discuss projects within a group environment. This functionality supports teamworkand collaborative learning by enabling multiple users to interact simultaneously. The system ensures smooth message delivery and provides a structured interface for conversation threads.

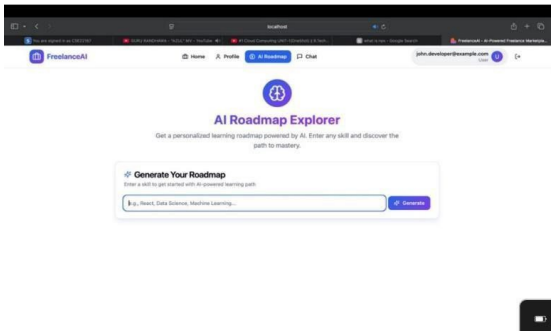

Fig. 5. AI roadmap generator

The AI Roadmap Generator, shown in Fig. 5. is one of the key intelligent components of the platform. This feature

analyses user inputs such as skills, career goals, and areas of interest to generate a personalized learning or career roadmap. The generated roadmap provides structured guidance by recommending relevant technologies, learning resources, and development steps. This AI-assisted functionality helps users plan their career progression in a systematic manner.

The implementation results demonstrate that the proposed platform successfully integrates multiple modules to support user interaction, collaboration, and career guidance. The About Me page allows users to establish a professional identity, while the Dashboard simplifies navigation and system accessibility.

The Group Chat System enhances collaboration among users by enabling real-time communication, which is essential for teamwork and knowledge sharing. Additionally, the AI Roadmap Generator introduces an intelligent recommendation mechanism that assists users in planning their career development effectively.

Overall, the developed platform provides a unified environment that combines social interaction, personal development tools, and intelligent assistance. These features collectively improve user engagement and demonstrate the practical usefulness of the proposed system.

The Technology Acceptance Model (TAM) was used to evaluate user acceptance of the proposed freelance platform. The survey results show that the Perceived Ease of Use (3.99) and Perceived Usefulness (4.02) received high ratings from participants. The Behavioral Intention to Use (4.22) score indicates that most users expressed a strong willingness to adopt the platform. These results demonstrate that the system is both usable and beneficial for freelancers and clients.

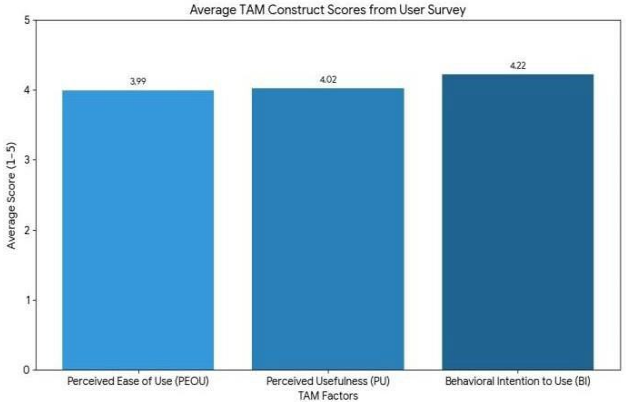

Fig. 6. Average TAM construct scores

The distribution of behavioral intention responses indicates that a large proportion of users strongly agree with using the platform. Approximately 46.7% strongly agreed and 33.3% agreed, demonstrating high acceptance among users. Only a small percentage expressed disagreement, indicating that the platform design successfully supports user adoption.

User satisfaction was evaluated separately for clients and freelancers to understand the platform's effectiveness for both roles. The results show that freelancers reported an average satisfaction score of 4.24, while clients reported 3.96. These results indicate that the platform effectively supports freelance collaboration and provides a positive user experience.

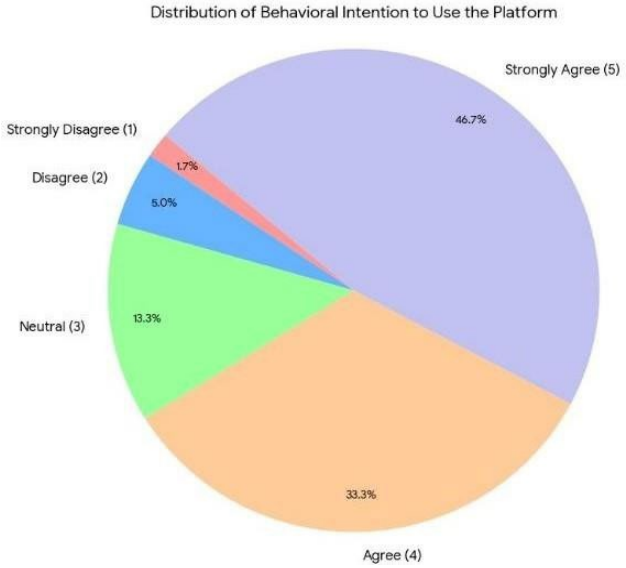

Fig. 7. Distribution of behavioral intention to use the platform

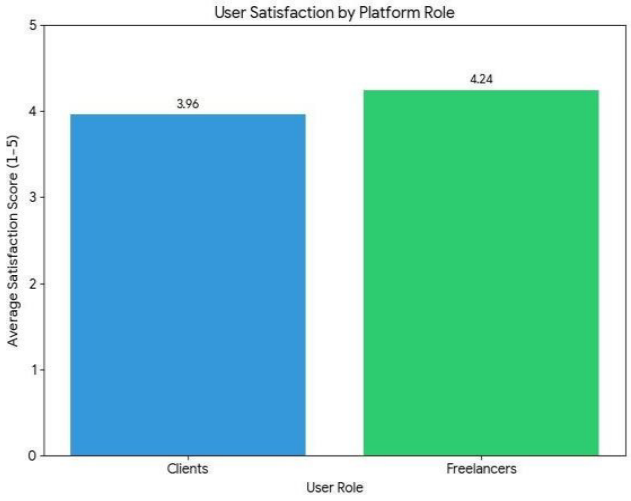

Fig. 8. User satisfaction by platform role

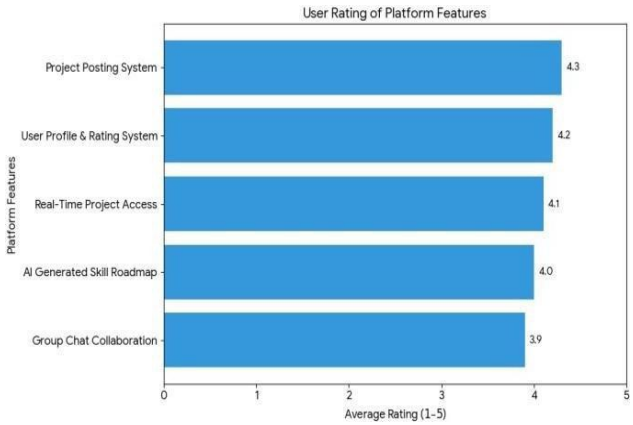

Fig. 9. User rating of platform features

Users also evaluated individual platform features. The project posting system (4.3) and user profile and rating system (4.2) received the highest ratings. Other features such as real-time project access (4.1) and AI-generated skill roadmap (4.0) were also positively received. These results suggest that the platform provides a balanced combination of collaboration

tools and intelligent assistance.

5. Conclusion

The proposed freelance platform provides a digital solution for connecting freelancers with clients in an efficient and user-friendly environment. The system simplifies project posting, freelancer discovery, and communication through a structured web-based interface.

By incorporating principles from the Technology Acceptance Model, the platform emphasizes usability and functionality as key factors influencing user adoption. The results demonstrate that the developed system can support remote collaboration while reducing the complexity often associated with traditional freelance platforms.

In the future, the platform can be enhanced by integrating advanced technologies such as intelligent project matching, secure online payment gateways, and mobile application support. These improvements can further expand the platform's usability and scalability in the growing digital gig economy.

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