MZUMBE UNIVERSITY

FACULTY OF SCIENCE AND TECHNOLOGY

DEPARTMENT COMPUTING SCIENCE STUDIES

FINAL YEAR PROJECT – I REPORT

PROJECT TITLE**:** INTEGRATED TECHNICIAN PERFORMANCE FEEDBACKS SYSTEM

BY:

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A Project Report for the Partial fulfilment of Bachelor Degree of Science in Information Communication Technology with Business (BSc. ICTB) at Mzumbe University, 2023/2024.

DECLARATION

I am ELIYA PETER SHIMBA, with registration number 14323001/T.21 hereby declare that the work contained in the project report for my final year project, entitled: “Integrated Technicians Performance Feedbacks System”, is my own original work and has never been submitted to any university or higher learning institutions for any academic rewards where other people work has been used.

Signature: _____ Date: _____

CERTIFICATION

We, the undersigned, certify that we have read and hereby recommend for acceptance by the Mzumbe University, a project report entitled “Integrated Technicians Performance Feedbacks System” in a partial fulfilment of the requirements for awards of the degree of Bachelor of Science in Information Communication Technology with Business (BSc. ICTB).

Major Supervisor Name: ……

Major Supervisor Signature Date

_____ _____

Internal Examiner Name: ……

Internal Examiner Signature Date

_____ _____

Accepted for the Board of the Faculty of Science and Technology

_____

DEAN, FACULTY OF SCIENCE & TECHNOLOGY

ACKNOLEDGEMENT

First I would like to express my deep gratitude and thanks to almighty God for keeping me Healthy throughout the entire project duration.

I would like to express my sincere gratitude to my supervisor and coordinator, DR. PATRICK KIHOZA, for his invaluable guidance, support, and encouragement throughout the completion of this project. Dr. Kihoza's expertise, mentorship, and constructive feedback have been instrumental in shaping the direction and outcomes of this research endeavor.

I am truly grateful for his dedication and assistance, which have significantly contributed to the success of this project.

ABSTRACT

The lack of coordination and communication among professionals specializing in various technical tasks and clients in Tanzania. This leads to inefficiencies, project delays, increased costs, lack of scam and response reporting, service quality variation and client dissatisfaction. This study outlines a research project aimed at developing an Integrated Technicians Performance Feedbacks System to address inefficiencies and lack of transparency in connecting technical service professionals with clients, particularly in Tanzania. The project utilizes methods such as requirement elicitation, system analysis, and literature review to identify gaps in existing platforms and gather insights from stakeholders. Preliminary results suggest that the proposed system has the potential to significantly improve collaboration and project management in the technical service industry by enhancing transparency, quality assurance, scam reporting in profiles, and communication. The research outcomes are expected to have a significant impact on the technical service sector in Tanzania and beyond, potentially revolutionizing collaboration and leading to increased efficiency and client satisfaction.

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INTRODUCTION AND PROJECT DESCRIPTION

1.0 INTRODUCTION OF THE CHAPTER

This chapter examine out an implementation of the integration of different technical expertise (Masons, Plumbers) and engineer's web based platform to easily link the customers to allow technician sharing knowledge, complains, feedbacks and experiences for the aim of enhancing the customer satisfaction. The chapter therefore, contains background to the study, problem statement, objectives, scope, significance.

1.1 BACKGROUND TO THE STUDY

Tanzania has one of Africa's fastest growing economies with nearly 7 percent annual national GDP growth since 2000. Private sector engagement is an essential component of the economic development of Tanzania and the country's efforts to reach middle-income status by 2025. Businesses in Tanzania are at the forefront of growth through job creation, innovation, generating tax revenue, and fair competition. The biodiversity of different human and economic activities plays a key role of these developments in Tanzania.

Although as the number of experts (Engineers, Technician, Masons, Plumbers etc.) of different activities in Tanzania has been increasing in recent years, this has led to stiff competition and many other challenges as Efforts have been made to increase collaboration with the private sector, implement market-based solutions for greater sustainability, and mobilize private capital. However, Tanzania still faces several obstacles to improving its business-enabling environment. Regulatory challenges for starting businesses, labour and employment, land tenure, human settlement, limited tax relief for local industries, and lack of transparency among regulatory agencies on how they carry out regulatory functions have a negative impact on the private sector, are an impediment to economic growth, and complicate Tanzania's journey to self-reliance.

Additionally, the current manual and error-prone business and contract practices in the construction and technical service sectors contribute to project delays, scam, and financial management challenges.

Despite of all background challenges in Tanzania there exists specific platform for each sectors like TAEES (Tanzania Association of Environmental Engineers) but we are lacking the platform to link those experts of different fields together with their clients and themselves to make smoothly performance of these Human and developments technical activities.

1.2 PROBLEM STATEMENT

In Tanzania, the coordination among professionals specializing in tasks like computer repairs, construction, electrical work, and plumbing is lacking, resulting in inefficiencies, increased costs, lack of scam reporting and client dissatisfaction. The absence of a unified platform hampers communication and collaboration, leading to delays and misinformation. Clients struggle to identify and retain suitable professionals due to limited technical knowledge and inadequate information. Manual and error-prone business practices further exacerbate challenges, causing delays, conflicts, and financial opacity. These issues create a fragmented service ecosystem that hinders innovation, learning, and resource allocation. The " Integrated Technicians Performance Feedbacks System " aims to address these challenges by centralizing information and streamlining business processes, thereby revolutionizing the delivery and experience of technology services for professionals and consumers alike.

1.3 PROJECT OBJECTIVES

1.3.1 General Objectives

The goal of this project is to establish Integrated Technicians Performance Feedbacks System in Tanzania, that facilitates seamless communication, scam reporting and collaboration among technicians specializing in hardware maintenance, software maintenance, construction, engineering, electrical work, plumbing, masonry and their clients.

1.3.2 Specific Objectives

i. To identify key stakeholders, including hardware maintenance technicians, software experts, construction professionals, engineers, electricians, plumbers, masons, and clients.
ii. To gather the requirements from different stakeholder's fields for the system functionalities.
iii. To design a user-friendly interface integrated website to the diverse needs of technicians and clients.
iv. To create a secure database architecture for storing information and user data
v. To developing the back-ends and functionalities implementations by using Python Programming language.

1.4 SIGNIFICANCE AND SCOPE

1.4.1 Significance

The "Integrated Technicians Performance Feedbacks System" provides an unprecedented way to solve long-standing problems in the industry by integrating hardware, software engineers and construction workers, and plays the most important role in the industry through:-

i. It will enhance transparency in contract process between clients and technicians.
ii. Increase services availability through seamless communications.
iii. Facilitates services quality control through technician's collaboration and standards agreements.
iv. Save time and Cost for both technicians and system clients.

1.4.2 Scope

The project entails the design, development, and implementation of a comprehensive integrated technician's performance feedbacks system to streamline services for a diverse array of stakeholders, including hardware maintenance technicians, software experts, construction professionals, engineers, electricians, plumbers, masons, and clients. Key algorithm include identifying and engaging stakeholders to understand their specific needs, gathering detailed requirements to prioritize system functionalities, designing a user-friendly website interface catering to both technicians and clients, establishing a secure database architecture for data storage, and developing backend functionalities using Python programming language. The project will follow industry best practices, focusing solely on software and web development aspects while excluding hardware procurement, installation, and ongoing maintenance and support post-implementation.

1.5 CONCLUSION

Finally, integrated technician's performance feedbacks system is a significant effort to address critical issues that face technical service industries. By concentrating on teamwork, communication and openness between a large number of professionals and clients this project will be able to change the nature of industry discussions. The revealed significances underline the transformative nature of its effect on trade procedures, communication efficiency and overall service effectiveness. The broad scope of the project, including user categories and a range in features to be developed guarantees that all aspects are addressed. Every aspect provides communication tools, trade processes and so forth that have been developed addressing the wide range of demands of stakeholders. This system is an adaptive solution that can be rescaled to meet future industry demands due to its built-in scalability. However, during the "Integrated Technician Performance Feedbacks System" is under development and it promises not just of solving problems but also creating friendly atmosphere that encourages good service delivery to clients. This initiative, which is based on optimism and economy of effort, represents a giant leap into the future toward an integrated uniformity for technical service.

CHAPTER TWO

LITERATURE REVIEW

2.0 INTRODUCTION

This chapter presents a comprehensive review of existing literature relevant to the Integrated Technician Performance Feedbacks System. The literature review is crucial for understanding the context, identifying existing solutions, and establishing a theoretical framework that informs the development and implementation of the proposed system.

2.1 TOPICAL REVIEW OF THE PROJECT

The project's focus is on creating an Integrated Technician Performance Feedbacks System to address the challenges faced by technical service industries in Tanzania. The literature review explores key themes related to collaborative platforms, communication systems, and project management tools in various industries. This section aims to provide a foundation for the project by examining relevant topics within the broader context of integrated systems and collaborative technologies.

According to (Webster's, 1986), integration is 'a combination and coordination of separate and diverse elements into a more complete or harmonious whole' .The term *social integration* is a key concept in sociology, denoting a reciprocity of practices between actors (Giddens, 1987), while *technical integration* is commonly understood as the assembly of different technical artefacts, such as components and systems (Jacobson *et al*., 1999). A socio-technical approach must build on both these definitions, in the sense that it must relate to two very different research traditions.

The integration between the IS and the business organization is seen through a process lens (Newman & Robey, 1992); we analyses integration over time. The organization is often large and complex, coexisting and depending on information infrastructures (Ciborra, 2000). After project initiation at (time1), the IS typically grows gradually in scope and complexity as

the project proceeds. The IS is then set into production (at time 2), and the project organization is usually (but not always) terminated. For a successful development project, somewhere along the paths from times 1 to 2, the new stakeholders and technology are integrated into the (extended) socio-technical network.

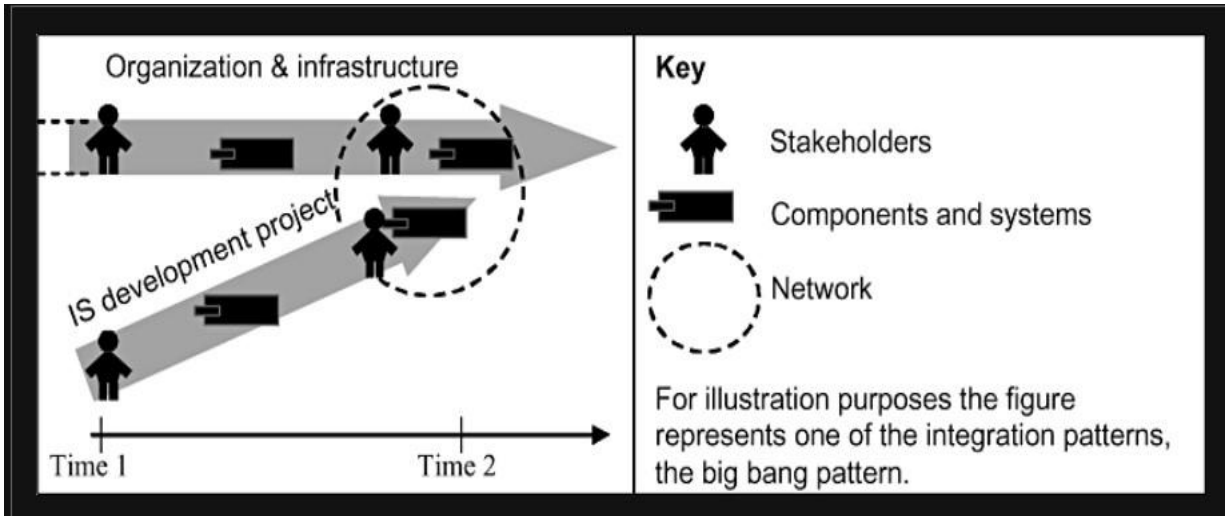

Figure 1:illustration of the relationship between the two processes.

2.1.1 collaborative platforms in technical service industries

The literature reveals a growing interest in collaborative platforms designed to enhance communication and coordination among professionals in technical service industries. Various studies highlight the benefits of such platforms, including improved project efficiency, reduced delays, and enhanced client satisfaction. Examples of successful collaborative platforms in different regions will be examined to extract valuable insights for the Integrated Technician Workshop System.

In remote collaboration systems, users are in different physical locations. Mixed Reality (MR) systems can be applied to industry in order to help maintenance and training functions and guide on assembly tasks. In this scenario, the local user, has access to real physical objects and needs instructions from the remote expert (typically a qualified technician) to complete the task successfully. (Kim et al., 2018; Ens et al., 2019). Literature reports some examples of solutions for this kind of situation. In (Masoni et al., 2017), the authors describe a system where remote experts create annotations (text and sketch) in an image sent by the local user. Then, instructions are sent and shown through AR to the local user. Some authors explored other techniques, like 3D shared virtual objects for interaction with the remote

technician. This approach allows major accuracy in the instructions location, since it has one more dimension in relation to traditional 2D approaches (image-based). In (Ferrise et al., 2013) the remote expert interacts with a 3D virtual model of a washing machine through a multimodal system. This system allows the remote technician to train another operator who sees the instructions about how the operations should be correctly performed, which are superimposed onto the real product (AR). Another solution for guiding a local user was proposed by (Oda et al., 2015), allowing to assist with placing the top of an aircraft combustion engine. The remote expert has access to a virtual replica of the physical object, that they can manipulate to give instructions to the local user. In this paper, we describe a Mixed Reality-based platform for remote collaboration, inspired by the above mentioned examples, which explores a shared-model approach. We also present the results of a preliminary user study to evaluate usability, and obtain insights on the features of the framework.

2.1.2 communication and how integrated technician workshop work.

Effective communication is essential in project management. This section reviews literature on communication technologies and tools used in construction, engineering, and technical service sectors. Insights from successful implementations of communication technologies will be explored to inform the development of the proposed system's communication features.

According to (TechWhirl**)** Integrated Technical Communications (ITC**)** refers to the coordination and integration of all technical communication processes, tools, functions, and sources within an organization. The goal is to convey information and knowledge relevant to optimizing users' product experience .Application: ITC ensures that technical information flows seamlessly across teams, departments, and stakeholders. It involves using consistent terminology, standardized documentation, and efficient communication channels.

When sharing information outside an organization, challenges arise. Participants often lose visibility of project status once information is shared externally. Additionally, manual efforts required for uploading and downloading information between systems can introduce human error and delays.

Standardization and Systems Integration:

Paradigm Shift: Survey participants across general contractors, engineers, and architects emphasized the need for more standardization across systems and better systems integration. Interoperability of competing software and seamless communication between project management systems were identified as key improvements.

ISO 19650: Efforts like the International Organization for Standardization (ISO) 19650 aim to guide effective data sharing between all parties throughout a project's life cycle. While some countries already adopt ISO 19650 for public contracts, the United States is still progressing in this direction.

Generally, the literature identifies challenges and shortcomings in the current manual and error-prone practices within technical service industries. Issues such as project delays, lack of transparency, and difficulties in finding the right professionals for specific tasks are discussed. Understanding these challenges is crucial for designing a system that addresses the industry's pain points.

2.2 DOMAIN REVIEW

Thumbtack

Thumbtack allows customers to find and hire local professionals for various services, including plumbing, electrical work, home improvement, and more. Customers can submit their project details, and technicians can bid on the job.

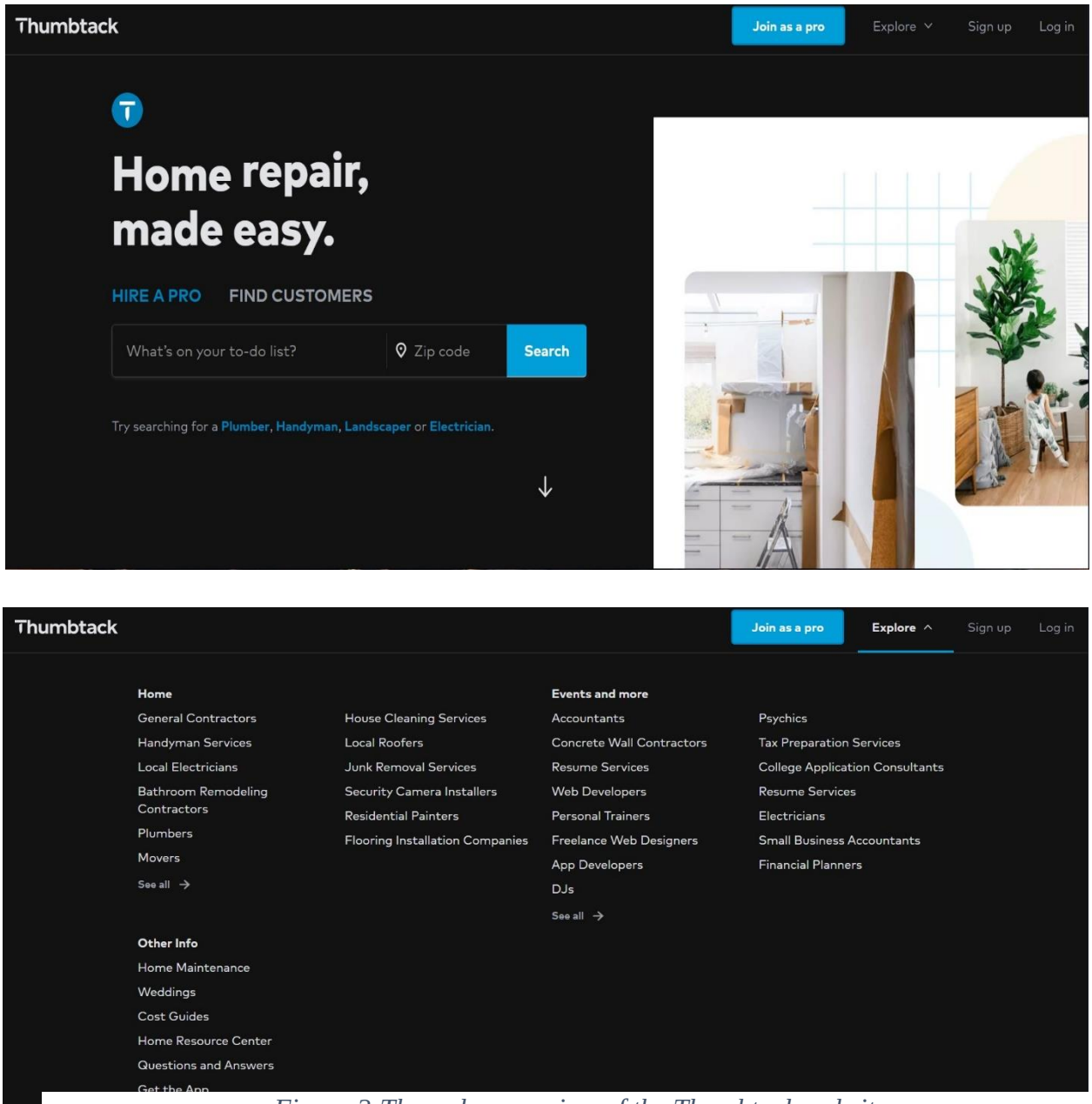

Figure 2:The webpages view of the Thumbtack website.

Weaknesses:

i. Variable quality: Since technicians set their own prices and bid on jobs, the quality of service can vary. It's essential for customers to thoroughly research and vet potential hires.

ii. Service fees: Thumbtack charges service fees to both customers and technicians, which can increase the overall cost of hiring.

Angie's List

Angie's List provides a platform for homeowners to find and review local service professionals, including plumbers, electricians, contractors, and more. Customers can access verified reviews and ratings to make informed hiring decisions.

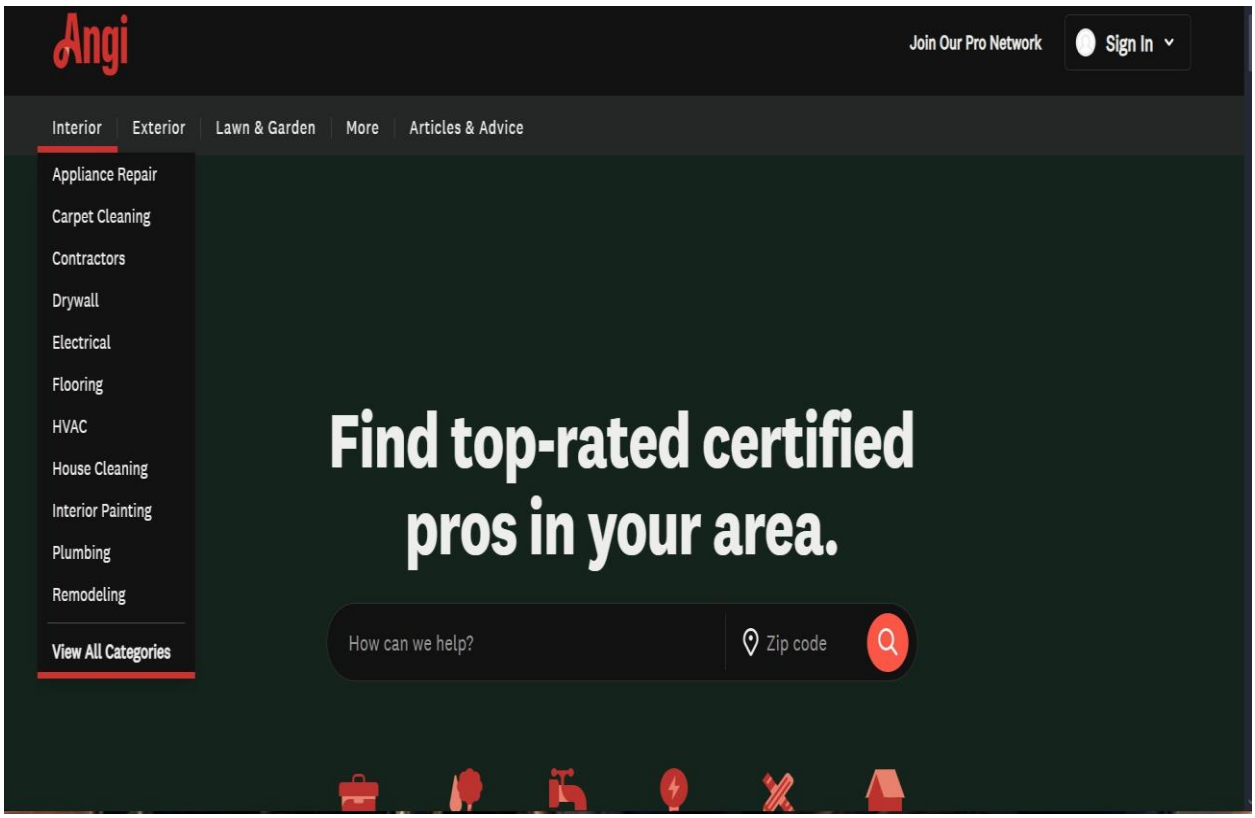

Figure 3:The webpages view of the Angie's list website a

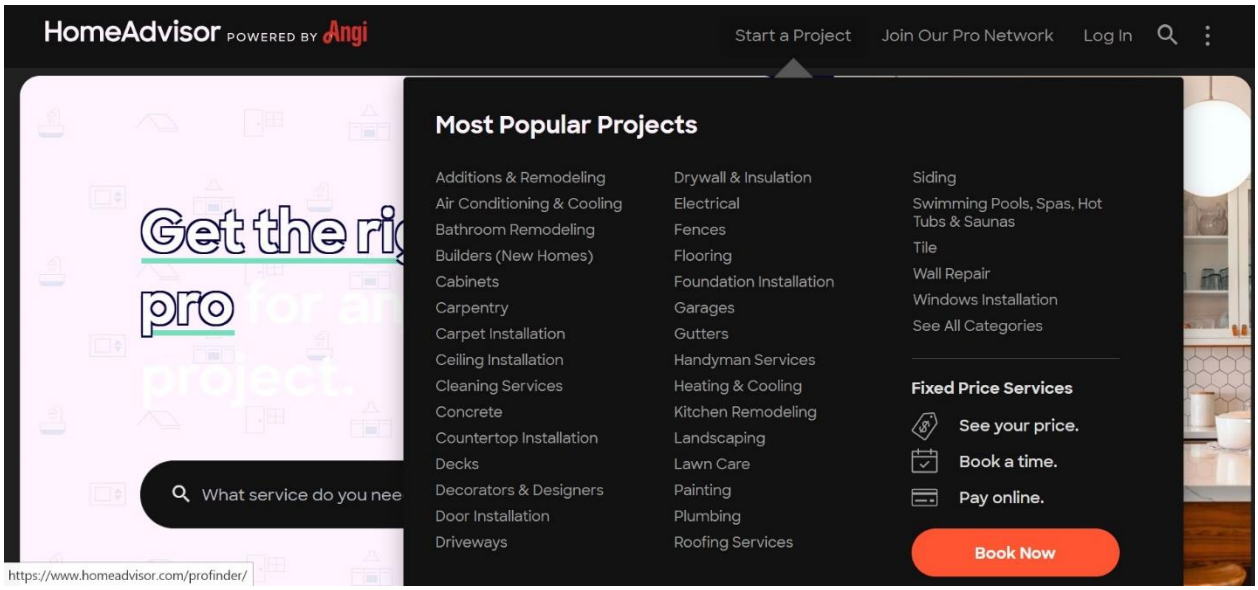

Figure 4:The webpages view of the Angie's list website b

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Weaknesses:

i. Membership fees: Access to Angie's List requires a paid membership, which may deter some users from utilizing the platform.

ii. Limited availability: Angie's List may not be available in all areas, limiting its usefulness for some customers.

Fiverr

For Technicians (Sellers): Technicians on Fiverr start by setting up their profiles, detailing their skills and expertise. They create gigs, which are service listings specifying what they offer, including pricing, delivery time, and additional options. To attract clients, technicians promote their gigs through various channels such as social media and Fiverr's internal promotion tools. When a client places an order or sends an inquiry, technicians communicate with them to understand their requirements. Once the project is underway, technicians work on the deliverables and provide revisions if necessary. Upon completion and client approval, Fiverr releases payment to the technician, and clients can rate and review the technician based on their experience.

For Customers (Buyers): Customers browse Fiverr's marketplace to find technicians offering services that match their needs. They review technicians' profiles, gig descriptions, reviews, and ratings to select a suitable technician for their project. Once a technician is selected, customers place orders by specifying project requirements and providing necessary files or instructions. Throughout the project, customers communicate with technicians to discuss details and provide feedback. After receiving the completed work, customers review the deliverables and provide feedback. Payment is facilitated securely through Fiverr, and clients can rate technicians based on their satisfaction with the service provided.

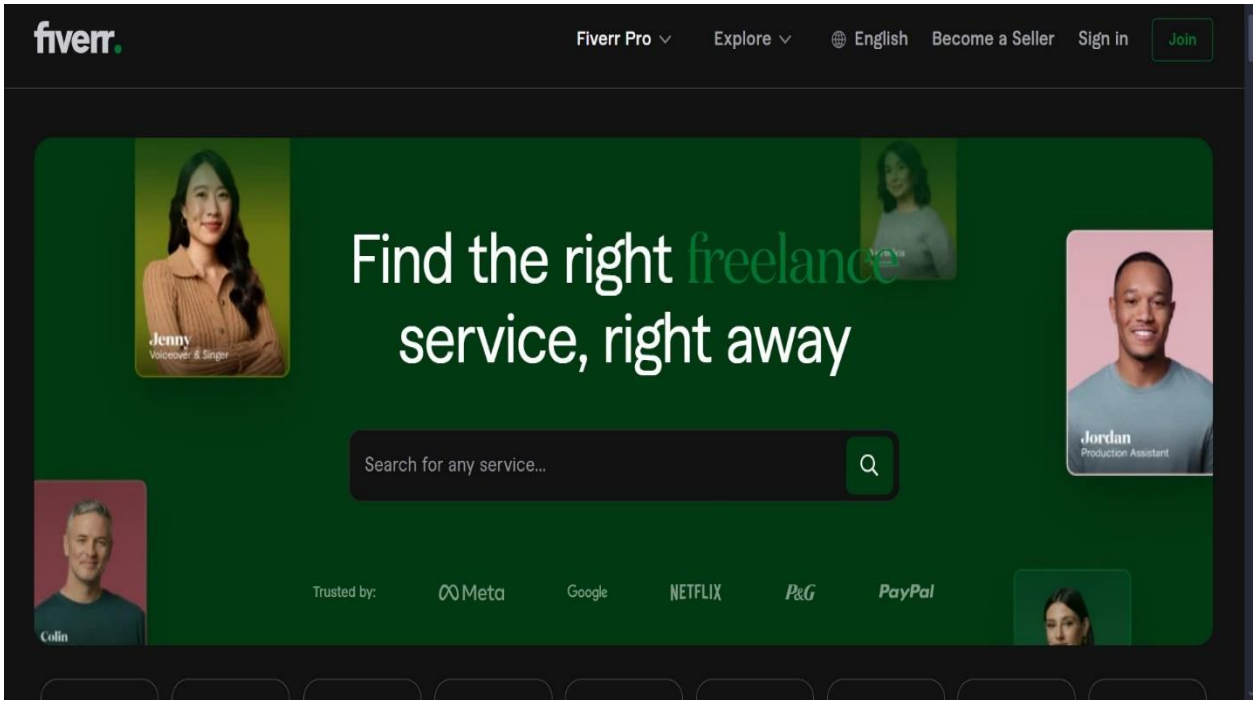

Figure 5: The webpages view of the Fiverr website.

Weaknesses:

i. Quality Control: With an open marketplace model, Fiverr may lack stringent quality control measures, leading to inconsistencies in service quality among freelancers.

ii. Competition: The platform is highly competitive, with thousands of technicians offering similar services, making it challenging for new freelancers to stand out and secure projects.

iii. Pricing Structure: Fiverr charges a service fee to both technicians and customers, which can increase the overall cost of hiring for clients and reduce earnings for freelancers.

iv. Limited Communication: Communication between technicians and clients is primarily facilitated through Fiverr's messaging system, which may not be as robust or efficient as other communication tools.

Up work

For Freelancers (Technicians): Freelancers on Up work create detailed profiles showcasing their skills, work history, and rates. They search for available projects and submit proposals outlining their qualifications and pricing. Freelancers may have interviews with clients to discuss project details and secure contracts. Once hired, freelancers work on project deliverables and collaborate with clients throughout the process. Payment is facilitated securely through Up work, and freelancers track their time or submit invoices for completed work. Clients rate freelancers based on their performance and professionalism.

For Clients: Clients post job listings on Up work, specifying project requirements and budget. They review proposals submitted by freelancers and select candidates for interviews. Clients conduct interviews to assess freelancers' suitability and negotiate terms. Throughout the project, clients collaborate with freelancers, providing guidance and feedback. Payment is made securely through Up work, and clients rate freelancers based on their performance and deliverables.

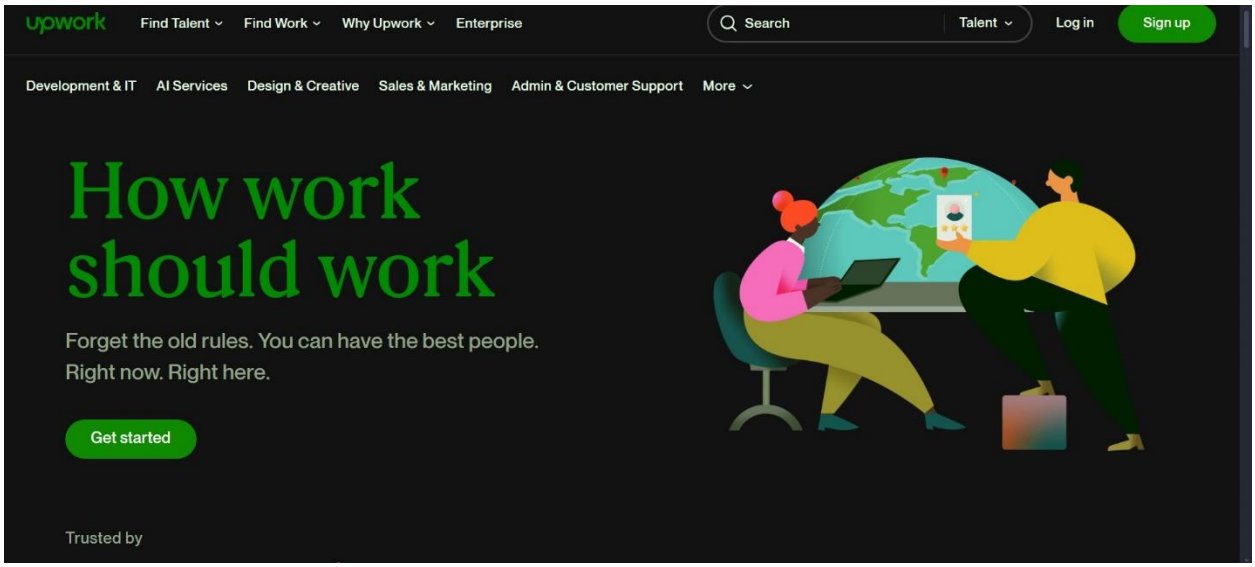

Figure 6:The webpages view of the Up work website.

Weaknesses:

i. High Fees: Up work charges freelancers a service fee based on their earnings, which can significantly reduce their take-home pay and may discourage some freelancers from using the platform.
ii. Competitive Bidding: The platform's bidding system can lead to intense competition among freelancers, driving down prices and making it difficult for them to earn a fair wage.
iii. Quality Assurance: While Up work offers various verification processes for freelancers, including identity verification and skills tests, there may still be inconsistencies in service quality among freelancers.
iv. Communication Challenges: Despite offering communication tools, up work may still face challenges in facilitating smooth communication between clients and freelancers, particularly for large or complex projects.

2.3 PROBLEM CONCLUSION.

The solution to the identified problem, titled " Integrated Technician Performance Feedbacks System," aims to address the shortcomings present in current platforms like Thumbtack, Angie's List, Fiverr and Up work. By creating an Integrated Technician Performance Feedbacks System, we propose a comprehensive platform that offers a seamless and efficient experience for both clients and technicians seeking to collaborate on various projects. This platform will prioritize transparency, quality assurance, fair pricing, and effective communication to overcome the challenges of quality control, pricing structure, competition, and communication hurdles faced by existing platforms. Through rigorous vetting processes, standardized pricing guidelines, and robust project management tools, the Integrated Technician Performance Feedbacks System will empower clients to find the right Technicians for their projects while providing technicians with opportunities to showcase their skills and expertise/profiles in the website. By fostering trust, reliability, and professionalism, this solution aims to facilitate successful collaborations and deliver high-quality results, ultimately enhancing the overall experience for all stakeholders involved.

CHAPTER THREE

REQUIREMENT ELICITATION AND SYSTEM ANALYSIS

3.1 REQUIREMENT ELICITATION.

Requirement elicitation is the process of gathering, documenting and refining requirements of a software system. It is an essential step in software development that helps in identify the needs, goals and objectives of stakeholders. Requirement elicitation also helps in clarifying the requirements, identify all potential stakeholders, validate the requirements and produce a complete and accurate set of requirements.

According to (Zowghi et al, 2005) Requirements elicitation is the process of seeking, uncovering, acquiring, and elaborating requirements for computer based systems. It is generally understood that requirements are elicited rather than just captured or collected. This implies there are discovery, emergence, and development elements in the elicitation process. Requirements elicitation is a complex process involving many activities with a variety of available techniques, approaches, and tools for performing them.

In addition to the definition, in software development, the elicitation of high quality requirements is a critical success factor. Shortcomings in requirements elicitation can have a negative impact on the overall development process , and lead to high costs for the involved organizations . While the correction of shortcomings during requirements elicitation has been reported to account for up to 75% of all error removal costs throughout the software development life cycle , the lack of clear and complete requirements can even lead to the complete failure of a software development project .

According to (Mich et al.) natural language is the most common and important medium for requirements documents: 79% of all requirements documents are written in common natural language. Natural language is inherently powerful and expressive and can therefore be used to communicate between a broad range of stakeholders and users. It can be used in diverse ways to document requirements, for example within narrative scenarios, support messages, emails, workshop memos or even interview transcripts. Natural language requirements can be formulated in documents as well as other resources (e.g., entries in issue tracking or test case management systems, support databases or discussion forums). Furthermore, they can be combined with more formal requirements representations (e.g., UML models) or figures (e.g., mockups).

3.1.1 Requirement Elicitation Techniques.
Observations:

Observations involve directly observing users in their natural environment as they perform tasks relevant to the system being developed. In your case, you could observe technicians, clients, and other stakeholders involved in technical service activities. By observing their interactions, workflows, pain points, and preferences, you can gather valuable insights into the requirements for your system. For example, you might observe how technicians communicate with clients, how they manage projects, and where they encounter challenges in their work processes.

According to **(** Bhasin,2023) observation method is a process that involves human or mechanical observation to observe and describe the behaviour of a subject. As the name suggests observational research is a way of collecting relevant information and data by involves observing people's behaviour.

The observation method it can be: -

i. Structured observation method – Structured Observation is a systematic observation method where data is collected as per a pre-defined schedule. The specific variable is used in this observation data collection method.

ii. Unstructured observation method – The unstructured observation method is different from structured observation because it is conducted in a free and open manner without using any pre-determined objectives, schedules, or variables.

Questionnaires:

Questionnaires are structured surveys that allow you to collect data from a large number of stakeholders in a systematic manner. You can design questionnaires tailored to different user groups, such as technicians, clients, engineers and administrators. Questions can cover various aspects of the system, including desired features, usability preferences, communication needs, and challenges faced in current practices.

According to (Bhandari, 2023.) a questionnaire is a list of questions or items used to gather data from respondents about their attitudes, experiences, or opinions. Questionnaires can be used to collect quantitative and/or qualitative information. Questionnaires are commonly used in market research as well as in the social and health sciences. For example, a company may ask for feedback about a recent customer service experience, or psychology researchers may investigate health risk perceptions using questionnaires.

Through the questions sequences structure the questions will follow the funnel approach:

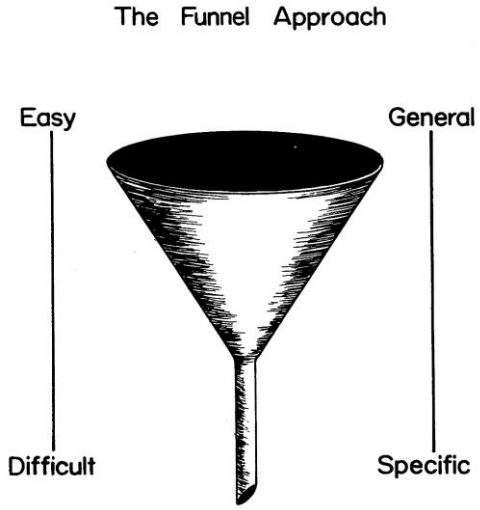

Figure 7: The funnel approach

Questionnaire Questions for the Integrated Technician Workshop System**:**

Closed-ended:

1. How satisfied are you with the current methods of finding and collaborating with technical service professionals for your projects? (Options: Very Dissatisfied, Dissatisfied, Neutral, Satisfied, Very Satisfied)
2. Would you be willing to pay a membership or service fee for access to a platform that offers enhanced collaboration and project management features for technical service projects? (Options: Yes, No, Maybe)
3. How often do you encounter challenges related to project delays, miscommunications, or difficulties in finding the right professionals for your technical service needs? (Options: Rarely, Occasionally, Frequently)
4. Which communication channels do you currently use most frequently for interacting with technicians and clients during project execution? (Options: Phone calls, Emails, Text messages, Instant messaging apps, Others - Specify)
5. On a scale of 1 to 10, how satisfied are you with the effectiveness of existing platforms or systems in supporting collaboration among technical service professionals and their clients?

Open-ended:

1. What features or functionalities do you believe are missing in existing platforms or systems for facilitating collaboration among technical service professionals?
2. Can you describe a recent experience where communication challenges impacted the outcome of a technical service project?
3. How do you envision a platform like the Integrated Technician Workshop System improving your experience as a technical service professional?
4. Are there any specific improvements you would like to see in the way projects are coordinated and managed within the technical service industry?
5. In your opinion, what are the key factors that contribute to successful collaboration between technicians and their clients in the technical service industry?

3.2 THE CLASSIFICATION OF SYSTEM REQUIREMENTS.

The system functionalities are the ability for the system to work for which is intended. It is how the system features actual work to provide the desired outcomes. The requirements for the Integrated Technician Performance Feedbacks System in website based approach can be classified into several categories, including functional requirements and non-functional requirements,

1. Functional requirement: "The system must do [requirement]."
2. Non-functional requirement: "The system shall be [requirement].

3.2.1 Functional requirements.

In software engineering and systems engineering, a functional requirement defines a function of a system or its component, where a function is described as a summary (or specification or statement) of behavior between inputs and outputs.

Functional requirements may involve calculations, technical details, data manipulation and processing, and other specific functionality that define what a system is supposed to accomplish

These requirements define the specific tasks that the system must perform in order to meet the needs of the stakeholders.

In the context of the Integrated Technician Performance Feedbacks System, these requirements may include:

i. The system must allow the customer to view the technician's profiles and selects the professional they want.
ii. The system must allow customer and technician to fill and print contract form.
iii. The system must allow users to post and view feedbacks after services.
iv. The system must provide room for technician's collaboration and sharing knowledge's.
v. System must allow admin to approves the technician's profiles.

3.2.2 Non-functional Requirements

Non-functional requirements describe the qualities or characteristics of a system rather than specific behaviors.

Here are some potential non-functional requirements for the Integrated Technician Performance Feedbacks System:

1. Performance
    - The system should respond to user interactions within a maximum of 2 seconds under normal load conditions.
    - It should be able to handle a concurrent user load of at least 100 users without significant degradation in performance.
2. Security:
    - User data should be encrypted both in transit and at rest using industry-standard encryption algorithms.
    - Access to sensitive features (such as administrative functions) should be protected by multi-factor authentication.
3. Scalability:
    - The system should be able to accommodate a growth in users and data volume without significant redesign or performance degradation.
4. Usability:
    - The user interface should be intuitive and easy to navigate, requiring minimal training for new users.
5. Maintainability:
    - The system should be well-documented with clear guidelines for maintenance and updates.

3.3 SYSTEM ANALYSIS.

System analysis is the process of studying, understanding, and defining the requirements and functionalities of a system to design and implement effective solutions. It involves breaking down a complex system into smaller components, analysing their interactions and behaviours, and identifying areas for improvement or optimization. System analysis is a crucial step in the software development lifecycle, as it lays the foundation for designing and developing systems that meet the needs and expectations of users.

In context of Integrated technician workshop system, system analysis involves studying the current processes and technologies and websites/ system used to link the customers to different technicians, identifying potential weaknesses and areas for improvement, and determining the best solution to meet the requirements of the stakeholders.

During system analysis, the following tasks are typically performed:

i. Problem definition: Clearly defining the problem of integrated technician workshop system and the goals and objectives of the project.
ii. Requirements gathering: Collecting and documenting the functional and non-functional requirements of the system.
iii. Current system analysis: Examining the current processes and technologies used in other systems domain review and identifying any gaps or inefficiencies.
iv. Feasibility analysis: Determining whether the proposed solution is viable and achievable within the constraints of time, budget, and resources.
v. Solution design: Designing a system architecture and components that meet the requirements and solve the problem.
vi. Prototyping: To develop the startup of the integrated technician workshop system to validate the design and test its functionality.
vii. Implementation: Developing the system according to the design, testing it thoroughly, and deploying it in the target environment.

The goal of system analysis is to ensure that the proposed solution is well-designed, efficient, and meets the needs of the stakeholders. The outcome of system analysis is a detailed description of the system, including its requirements, design, and implementation plan.

3.4 USE CASE OF THE INTERGRATED TECHNICIANS PERFOMANCE FEEDBACKS SYSTEM

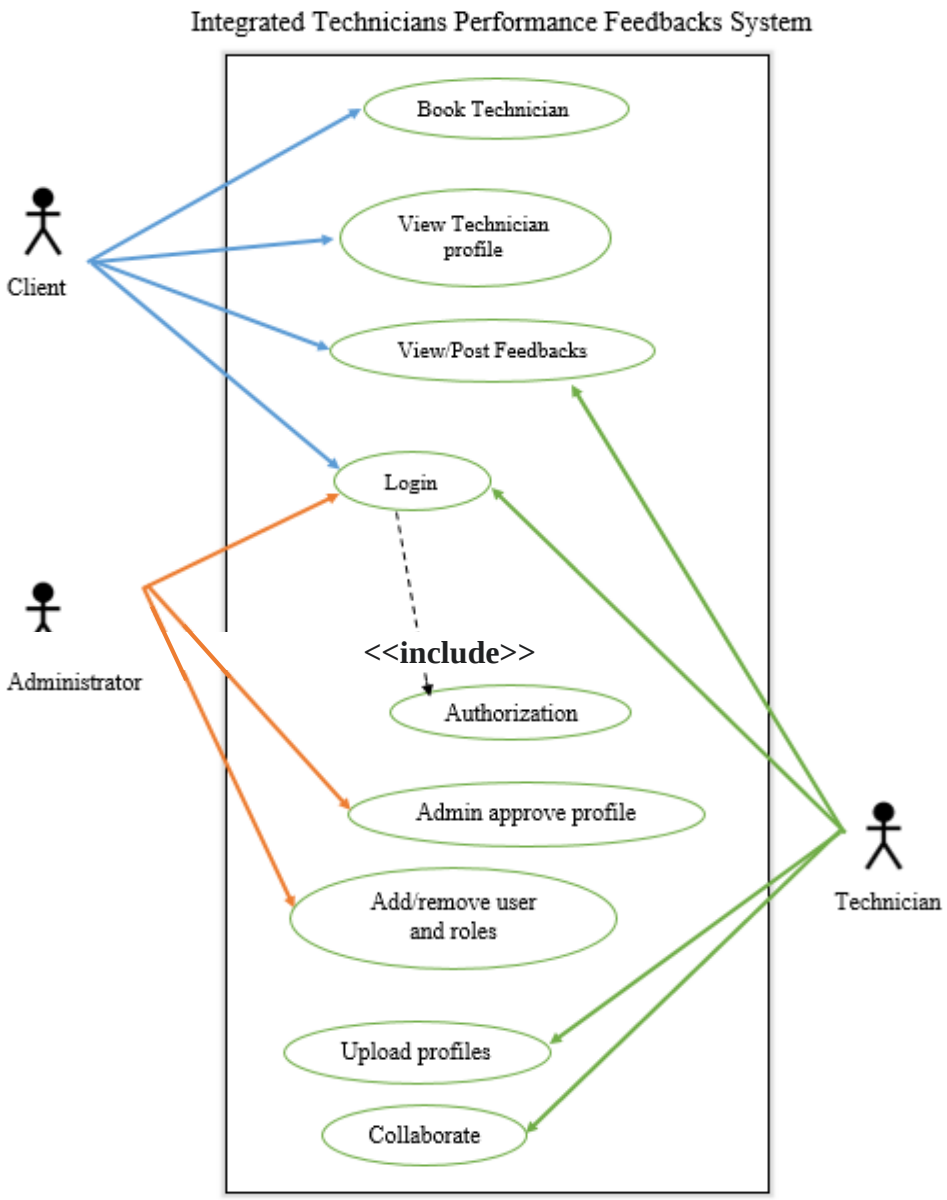

Figure 8: Use case diagram for Integrated Technicians Performance Feedbacks System

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