




# leticia mbabazi

## Final approved (1).docx

-  Proposal Submission Link 2
-  BBCIII Proposal Submission Link 2
-  Makerere University Business School

---

### Document Details

**Submission ID**

trn:oid::1:3421645519

**Submission Date**

Nov 23, 2025, 4:54 PM GMT+3

**Download Date**

Nov 25, 2025, 2:59 PM GMT+3

**File Name**

Final\_approved\_1\_.docx

**File Size**

265.0 KB

**23 Pages****5,115 Words****31,682 Characters**

## 33% detected as AI

The percentage indicates the combined amount of likely AI-generated text as well as likely AI-generated text that was also likely AI-paraphrased.

**Caution: Review required.**

It is essential to understand the limitations of AI detection before making decisions about a student's work. We encourage you to learn more about Turnitin's AI detection capabilities before using the tool.

### Detection Groups



**25 AI-generated only 33%**

Likely AI-generated text from a large-language model.



**0 AI-generated text that was AI-paraphrased 0%**

Likely AI-generated text that was likely revised using an AI-paraphrase tool or word spinner.

#### Disclaimer

Our AI writing assessment is designed to help educators identify text that might be prepared by a generative AI tool. Our AI writing assessment may not always be accurate (i.e., our AI models may produce either false positive results or false negative results), so it should not be used as the sole basis for adverse actions against a student. It takes further scrutiny and human judgment in conjunction with an organization's application of its specific academic policies to determine whether any academic misconduct has occurred.

### Frequently Asked Questions

#### How should I interpret Turnitin's AI writing percentage and false positives?

The percentage shown in the AI writing report is the amount of qualifying text within the submission that Turnitin's AI writing detection model determines was either likely AI-generated text from a large-language model or likely AI-generated text that was likely revised using an AI paraphrase tool or word spinner.

False positives (incorrectly flagging human-written text as AI-generated) are a possibility in AI models.

AI detection scores under 20%, which we do not surface in new reports, have a higher likelihood of false positives. To reduce the likelihood of misinterpretation, no score or highlights are attributed and are indicated with an asterisk in the report (\*%).

The AI writing percentage should not be the sole basis to determine whether misconduct has occurred. The reviewer/instructor should use the percentage as a means to start a formative conversation with their student and/or use it to examine the submitted assignment in accordance with their school's policies.

#### What does 'qualifying text' mean?

Our model only processes qualifying text in the form of long-form writing. Long-form writing means individual sentences contained in paragraphs that make up a longer piece of written work, such as an essay, a dissertation, or an article, etc. Qualifying text that has been determined to be likely AI-generated will be highlighted in cyan in the submission, and likely AI-generated and then likely AI-paraphrased will be highlighted purple.

Non-qualifying text, such as bullet points, annotated bibliographies, etc., will not be processed and can create disparity between the submission highlights and the percentage shown.



**MAKERERE UNIVERSITY BUSINESS SCHOOL****FACULTY OF COMPUTING AND INFORMATICS****DEVELOPING A DIGITAL JOB-MATCHING PLATFORM FOR SMALL  
BUSINESSES TO HIRE CASUAL WORKERS IN UGANDA****By**

<b>STUDENT NAME</b>	<b>REGISTRATION NUMBER</b>	<b>PHONE NUMBER</b>
IAN SMITH TATAMBUKA	23/U/17886/PS	+256-750820785
LETICIA MBABAZI	23/U/11230/PS	+256-705585453
EMMANUEL KAMUNTU	23/U/08908/PS	+256-709895761
SHANICE ABISAGI	23/U/04858/PS	+256-758255918
DAPHINE KISAKYE	23/U/10022/EVE	+256-705579763

Supervised by:

Ms. Atuhaire Caroline

Department of: Applied Computing and IT

A Project Proposal Submitted to the Faculty of Computing & Informatics of Makerere  
University Business School in Partial Fulfilment for the Award of the Degree of Bachelor of  
Business Computing of Makerere University

November, 2025

### DECLARATION

We, the undersigned, declare that to the best of our knowledge, this proposal is our original piece of work, and has never been published and/ or submitted for any award in any other University or Higher Institution of learning.

STUDENT NAME	REGISTRATION NUMBER	SIGNATURE
IAN SMITH TATAMBUKA	23/U/17886/PS	
LETICIA MBABAZI	23/U/11230/PS	
EMMANUEL KAMUNTU	23/U/08908/PS	
SHANICE ABISAGI	23/U/04858/PS	
DAPHINE KISAKYE	23/U/10022/EVE	

Date: .....

### APPROVAL

This project proposal has been submitted with my approval as supervisor, and my signature is here appended:

Signed: 

Date: 23/11/2025

Ms. Atuhaire Caroline

Makerere University Business School

## Table of Contents

DECLARATION .....	ii
APPROVAL .....	iii
SECTION ONE .....	1
<b>1. INTRODUCTION.....</b>	<b>1</b>
<b>1.1 Project Background .....</b>	<b>1</b>
<b>1.2 Statement of the Problem .....</b>	<b>2</b>
1.3.1 Project Goal .....	2
1.3.2 Project Objectives.....	3
1.3.3 Project Scope Summary .....	3
1.4 Anticipated Significance of the Project .....	3
<b>1.5 Project Assumptions .....</b>	<b>4</b>
SECTION TWO.....	5
<b>2. REVIEW OF LITERATURE .....</b>	<b>5</b>
2.1 Automated Employment Technologies and Digital Job Inclusion .....	5
2.2 Management of Job Recruitment Processes for Small Businesses.....	5
2.3 Employment Landscape in Uganda.....	6
2.3 Mobile Job-Matching platforms and systems.....	6
2.4 Application of Digital Job-Matching Platforms in Employment Landscape .....	6
<b>2.5 Designing a Digital Job-Matching Platform.....</b>	<b>7</b>
2.6.1 Implementation of Digital Mobile Job-Matching Platforms .....	7
<b>2.7 Challenges in Designing and Implementing Digital Job-Matching Systems .....</b>	<b>8</b>
2.7.1 Overcoming the challenges .....	8
<b>2.8 Conclusion.....</b>	<b>9</b>
SECTION THREE .....	10
RESEARCH METHODS .....	10
<b>1. PROJECT METHODS .....</b>	<b>10</b>
<b>3.1 Research Design/ Research Approach.....</b>	<b>10</b>
<b>3.2 Project Organization.....</b>	<b>12</b>
3.2.1 Sampling Technique .....	12
<b>3.3 Sources of Project Data .....</b>	<b>12</b>
3.3.1 Requirement Elicitation Techniques/ Data collection methods .....	13
<b>3.4 System Analysis and Design Approaches .....</b>	<b>13</b>
<b>3.5 Anticipated Project Constraints .....</b>	<b>14</b>
<b>3.6 Ethical Considerations.....</b>	<b>15</b>
Disclosure and Declaration Statement .....	15
References.....	16
Appendices.....	17

i.	Proposed Project Budget .....	17
ii.	Schedule of Activities/Ghant Chart.....	17

## SECTION ONE

### 1. INTRODUCTION

#### 1.1 Project Background

Uganda's labour market faces continuous challenges in matching small businesses with reliable casual workers. Small enterprises which make up a percentage of over 80% of the country's private sector, often face challenges in finding temporary workers for short-term roles. This happens due to limited recruitment channels, high costs, and inefficiencies in traditional hiring processes (International Labour Organization [ILO], 2023). Similarly, various Ugandans, especially the youth and low-skilled workers remain unemployed or excluded from formal job opportunities. However, the 2021 National Labour Force Survey found out that 30% of the qualified youth cannot find jobs, with worse outcomes for semi-skilled and unskilled youth (UBOS, 2022). Barriers include poor access to quality education, skills gaps, limited formal jobs, inadequate job information, and dominance of the formal sector (MoGLSD, 2022; Guloba et al., 2021). With many willing to take casual work to support their livelihoods (Uganda Bureau of Statistics [UBOS], 2023). This mismatch in the Ugandan job sector leads to a significant gap in the country's labour sector where opportunities exist, but inaccessible to workers on the labour market.

Digital matching platforms have emerged as essential tools to tackle these labour market issues. With mobile penetration in Uganda above 70% and internet access increasing quickly, mobile and web-based solutions offer a chance to simplify how job seekers connect with employers in real-time (Uganda Communications Commission [UCC], 2023). Recent studies have shown that digital job-matching platforms can greatly cut hiring costs, improve transparency in the labour market, and increase access to work for vulnerable groups like women and youth (Okello et al., 2023). These findings clearly show that digital matching platforms could potentially transform Uganda's labour economy, especially in helping small businesses that struggle to work with locally existing recruitment methods. This proposed digital job-matching platform aims to solve these issues by providing an effective system, where small businesses can easily post job applications and casual workers to register, and apply for jobs using their mobile phones or personal computers. By using geolocation features, the platform will possibly allow employees to find employment within nearby locations, while automated matching platforms will pair workers with opportunities that fit their skills and availability. This will cut down on both the time and costs of recruitment for the employers, while also increasing access to income generating opportunities for workers.



According to world bank (2024), digital labour platforms boost economic participations and can significantly foster growth when adapted to local contexts.

To fill the identified gaps, this study suggests creating s user-friendly, secure and scalable digital job-matching platform that helps small businesses in recruiting professional competent workers and improves their livelihoods. The platform will enhance labour market efficiency and create a foundation for better decision tracking of informal work, supporting data-driven policy decisions. This project could serve as a model for addressing informal labour gaps in Uganda.

## 1.2 Statement of the Problem

Uganda has a total population of about 45.9 million people (UBOS, 2024), the majority (77%) of whom are young people. This young population is faced with several problems and challenges that hinder their full potential, one of them being high unemployment levels, with a few decent employment opportunities (Asiimwe, 2023; Indrawati & Kuncoro, 2021). Digital job-matching systems offer timely, efficient, and clear ways to connect employers with the right workers. According to OutworX, Small and Medium Enterprises increased their hiring by 60% in 2023. However, many small businesses in Uganda still depend on old-fashioned methods like word-of-mouth and manual hiring. This results in prolonged recruitment cycles, high transaction costs, and limited access to dependable casual workers (Uganda Bureau of Statistics, 2023). The traditional recruitment means at times lead to inefficiencies which create challenges in matching potential workers with the available jobs on the market. If these challenges persist, Uganda's small business sector may experience low productivity. Therefore, the skilled and potential workers will still face the same challenges of unstable incomes and underemployment. To solve these issues, this research suggests a digital matching platform for small businesses to hire skilled casual workers by utilizing existing mobile and web technologies. The platform can simplify recruitment, visibility of opportunities, match skills with employer needs, and reduce on hiring costs. This innovation seeks to boost efficiency in the labour market, expanding employment opportunities for workers and strengthening the operational capacity of Uganda's small business sector.

## 1.3 Project goal and Objectives

### 1.3.1 Project Goal

To develop a digital platform that connects small businesses with casual workers in Uganda.

### 1.3.2 Project Objectives

- i. To analyse the current challenges that small businesses and casual workers face in recruiting and providing short-term job opportunities in Uganda.
- ii. To design and develop a simple job matching platform that allows casual workers to register and job providers to post job requests.
- iii. To test and assess the effectiveness of the proposed digital matching solution.

### 1.3.3 Project Scope Summary

**Content scope:** This research will involve developing a digital, web-based job-matching application for small businesses to hire casual workers.

**User scope:** The intended users in this research will include small business owners, part-time job seekers, youth, freelancers, and short-term job seekers, among other job seekers.

**Geographical scope:** The study will be centred in Uganda, in districts like Wakiso and Kampala.

**Time scope:** The study will be conducted for a period of two months to cater to the complete development of the job matching platform.

### 1.4 Anticipated Significance of the Project

- i. The job-matching platform is expected to improve the efficiency of connecting casual workers to small businesses in Uganda by reducing the time and cost of finding work, enhancing worker-business connectivity, and providing up-to-date job availability.
- ii. The platform will also offer casual workers a convenient and reliable way to access short-term employment, while enabling small businesses to manage hiring more effectively.
- iii. The platform will contribute to modernizing Uganda's labour market, fostering a more efficient, inclusive, and reliable employment ecosystem.

## 1.5 Project Assumptions

- i. Resource Availability: It is expected that the necessary software, hardware, and stable internet connectivity will be available and adequate to support development of the job-matching platform.
- ii. User adoption: It is also assumed that majority number of business owners and casual workers are familiar with using web technologies and they will be willing to adopt the digital solution provided.
- iii. Stable Environment: It is expected that the business environment will remain stable during project timeline without changing in policies which may limit system acceptance into business operations.
- iv. Stakeholder participation: It is also assumed that the key stakeholders will participate in providing information during testing phase.

## SECTION TWO

### 2. REVIEW OF LITERATURE

This section provides a comprehensive review of literature relevant to making a digital job-matching platform to help small businesses hire casual workers. This review of literature examines already existing research on job-matching platforms, including design requirements, implementation processes, methodologies, and challenges. It also provides a foundation for developing an effective solution that addresses employment challenges faced by small businesses and casual workers in Uganda.

#### 2.1 Automated Employment Technologies and Digital Job Inclusion

Uganda faces challenges in line with digital inclusion, as evidenced by its digital score of 55 for 2021 (UNCDF 2021a). Digital matching platforms have become an innovative innovation to solving inefficiencies of the traditional recruitment methods by supporting connection of job seekers, with employers through online systems. According to Zhou & Wang (2023), such platforms utilize algorithms, user profiles, and real-time data to match candidates with opportunities that fit their skills, experiences and geographical preferences. In developing countries like Uganda, digital job-matching systems provide an innovative solution to bridge the employment gap for informal and casual workers who often lack access to formal recruitment channels (Nabunya et al., 2022). These platforms are designed to ensure accessibility, transparency, and efficiency, allowing both employers and workers to interact easily.

#### 2.2 Management of Job Recruitment Processes for Small Businesses

In Uganda, small and medium enterprises have a significant impact on the labour sector of the country, but often face numerous challenges and competition from large enterprises. The challenges include, limited resources, limited access to skilled workers, among others. Kiggundu (2022) explains that many small business enterprises rely on informal networks, and word-of-mouth in recruitment, which can result into inefficiencies and job mismatches between job requirements and worker skills. Digital matching platforms offer a wide opportunity to streamline the recruitment process through enabling small businesses to post jobs when in need for workers. Studies by Okello & Mirembe, (2023) highlight that technology enabled hiring reduces the administrative burden and provides a scalable solution for enterprises seeking reliable labour for casual or temporary tasks. Thus, the addition of digital recruitment tools can foster small business productivity through increasing access to potential job seekers.

### 2.3 Employment Landscape in Uganda

Recent data show that 51% of youth aged 18–30 years are classified as Neither Employed nor in Education or Training (NEET), reflecting their disengagement from the labour market and education (UBOS, 2024; NPA, 2022). The demographic trend in Uganda points to a bleak picture as 44% of the 46 million Uganda population below 14 years old. Uganda is increasingly urbanizing rapidly at a rate of 5.5% implying that 27% of Uganda's lives in urban areas. Uganda's urban population is projected to grow by 69%, adding an estimated 8.1 million people to the country's urban regions alone (UBOS, 2023). Despite the increasing smartphones usage, many of these workers still depend on manual job searches, limiting their access to better opportunities. A first effect operates through job search practices on the Internet, which provides firms with an efficient way to advertise jobs and connect them with job seekers (Hjort & Tian, 2021). A localized digital job-matching platform would therefore empower workers and employers in these districts by offering timely access to job postings and reliable labour (Nabunya & Lwanga, 2024). The absence of efficient matching systems means many casual workers depends on brokers or physical job boards, which can be exploitative and unreliable. Digital job-matching platform tailored to Uganda's local context can therefore promote inclusivity, transparency, and fair access to employment opportunities. Such systems can also contribute to national goals related to poverty reduction and economic growth by increasing participation in productive work (UNDP, 2024).

#### 2.3 Mobile Job-Matching platforms and systems

Mobile job-matching systems are designed to operate across web and mobile devices, making them suitable for regions with high mobile penetration but limited desktop usage (Uganda Communications Commission, 2023). These matching platforms majorly adopt GPS- based features such as, real-time notifications, and profile scoring to match employers with job seekers efficiently. For Uganda's context, integrating mobile payment systems like mobile money could facilitate wage transactions and contract confirmations digitally (Okello & Namaganda, 2023). makes the system not only a job matching tool but an employment and payment management solution.

#### 2.4 Application of Digital Job-Matching Platforms in Employment Landscape

There are several initiatives that have emerged in Uganda over the years to bridge employment gaps. These include, Fuzu, BrighterMonday Uganda, and LinkedIn, among others. However, these primarily target formal employment sectors (Kisaka, 2022). There still remains a digital gap for casual labour matching, especially for small enterprises across

Uganda. A tailored platform could provide short-term job alert notifications, employer ratings, and skill verification systems that enhances trust between workers and businesses (Lwanga et al., 2023). Such applications could significantly reduce unemployment and underemployment levels, especially among the youth in Uganda.

## **2.5 Designing a Digital Job-Matching Platform**

Designing an effective job-matching platform requires understanding user needs in a system, technological capacity, and the socio-economic impact of the system. According to Nakato & Mwesigwa (2023), user-friendly interfaces and localized accessibility. The system should include robust data management, Artificial intelligence-driven matching algorithms, and secure user authentication to prevent fraud and illegal accessibility of user data to unauthorized users. In Uganda, considerations such as internet costs and device compatibility are key factors in design (Uganda Communication Commission, 2023). Shukla (2023) examines the future of JavaScript as a full-stack programming language, emphasizing how Angular, React, and Vue.js have become pillars in modern web development. A third perspective is offered by AlGhamdi et al. (2023), who describes design as a design-making process that selects, organizes, and evaluates, architectural and component-level strategies to optimize system performance, maintainability, and user experience.

### **2.6.1 Implementation of Digital Mobile Job-Matching Platforms**

Implementation of digital mobile job-matching platforms involves system development, stakeholder engagement, pilot testing, and deployment. Collaboration with local governments such as Kampala Capital City Authority and Wakiso District Local Government ensures community acceptance (Ssekandi, 2024). During implementation process, mobile-based registration and verification can increase user adoption among informal workers. Implementation involves both technical and organizational considerations. Additionally, integrating feedback mechanisms helps to refine the platform based on user experiences and needs. Technically, developers must ensure interoperability, security, and scalability. Open-source frameworks such as PHP and JavaScript libraries (React, Vue) offer flexibility and integration with APIs for geolocation and communication. According to Nsubuga and Oketch (2022), successful implementation in Uganda depends on user training, stakeholder involvement, and pilot testing to address contextual usability challenges. The platforms backend should support real-time job posting, secure authentication, and data encryption, for example use of bcrypt to protect user information like passwords.

### **2.6.2 Importance of Digital Mobile Job-matching Platforms**

Digital job-matching platforms are important because they streamline recruitment processes. They democratize access to job opportunities and help small enterprises reduce costs associated with the recruitment of workers. The use of websites that connect the employer and employee by providing platforms through which to find each other has become popular. Priyanka & Rajeshwari (2024) appreciate the mobilization role of recruitment platforms, including LinkedIn, Indeed, and Naukri, among others, regarding employment. In the Ugandan context, these platforms contribute to national employment objectives by connecting labour supply and demand efficiently. They also help in obtaining valuable labour market data that can help in informing policy decisions and workforce planning.

## **2.7 Challenges in Designing and Implementing Digital Job-Matching Systems**

**User Engagement and Adoption:** Encouraging both job seekers and small businesses to regularly use the platform will be a challenge. This will be faced if users see the platform as complicated or unreliable.

**Integration with Existing processes:** Small businesses often use informal recruitment methods hence adding the digital platform to these traditional workflows might meet resistance or require user training.

**Connectivity and infrastructure issues:** Poor internet connections and limited access to electricity in some areas will limit real-time use of the platform.

**Complexity in developing the platform:** This will result from implementing the backend functionality for core functionality features of the platform such as, parameterized queries to enable it to work safely in the production environment.

### **2.7.1 Overcoming the challenges**

**User Engagement and Adoption:** By running user awareness campaigns, providing tutorials, and creating a simple, intuitive interface to encourage regular platform use.

**Integration with Existing Processes:** Providing mobile-friendly workflows and training for small business owners and securely integrating APIs for payments and automated functions.

**Connectivity and infrastructures issues:** By optimizing the platform for low bandwidth usage, enabling offline functionality with data syncing, and ensuring compatibility with low-end devices.

## **Research Gap and Contribution to knowledge**

Despite the increasing adoption of job matching platforms world-wide, the existing platforms in Uganda majorly attract interest from formal sectors and skilled job seekers. With many being urban centred, and offering fulltime employment, and professional qualifications

leaving the small businesses and casual workers left out. This proposed solution distinguishes itself by targeting the small businesses and casual labourers who may find challenges in the employment sector in Uganda. Thus, enhancing work efficiency, increasing employment opportunities and bridging the gap that has been vacuumed by current employment platforms.

## **2.8 Conclusion**

This literature shows that digital job-matching platforms could change employment systems for small businesses and casual workers in Uganda. As mobile usage increases in Uganda, these platforms can help to improve and ease job acquisition and access, lower the high level of youth unemployment, and boost business operations. However, careful design, implementation, and collaboration among stakeholders are crucial for sustainability.



## SECTION THREE

### RESEARCH METHODS

#### 1. PROJECT METHODS

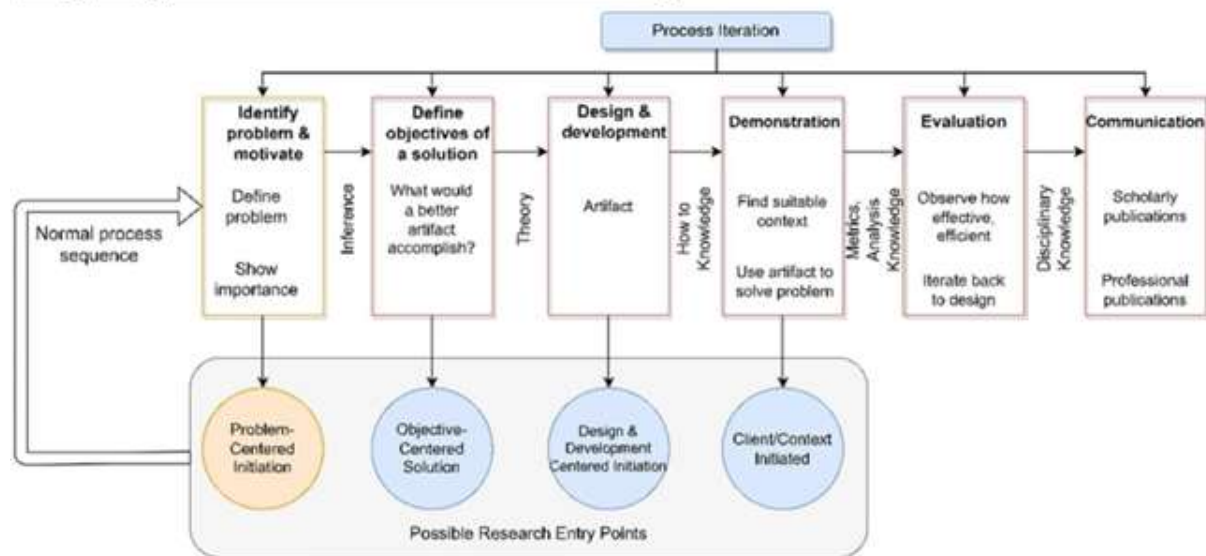
This section highlights the research methods, research design, target population and sample, sampling technique, project development process, requirements elicitation methods, project constraints, and ethical considerations.

##### 3.1 Research Design/ Research Approach

For this project, the Design Science Approach will be used, which focuses on creating and designing innovative artifacts such as systems or frameworks to solve identified real-world problems (De Sordi, 2021; Tuunanen, Winter & Vom Brocke, 2024).

**Illustration of the DSR Process:**

**From: Development of a mobile health infrastructure for non-communicable diseases using design science research method: a case study.**



A design science approach model (Peffer et al. 2007)

**How the different stages of the Design Science Research approach will be integrated to achieve the study's research objectives**

##### Stage 1: Problem Identification

The problem identification stage emphasizes on finding out the employment flaws that Ugandan job seekers and small businesses face. This research will conduct data collection through carrying out interviews and surveys with the target groups. This will then help in understanding the existing challenges like skill mismatches, unlimited access to reliable information, geographical constraints. The findings obtained will be used or creating a digital

job-matching solution that solves the identified challenges to meet the needs of the respective target groups in this particular study.

### **Stage 2: Objective definition**

This stage supplements on the insights gained during problem identification stage. Therefore, the project team will define clear and concisely measurable objectives to guide system development which involves eliciting functional requirements like posting job applications, user login and authentication. Non-functional requirements in this context include factors that define how the system should perform rather than what it should do. These include usability, user-friendliness and scalability among others to help in operational efficiency.

### **Stage 3: Design and Development**

This stage involves converting the defined project objectives into a practical solution. This can be through developing designs such as the logical and conceptual designs so as to show the system's structure and functionality. These designs guide the creation of a working prototype that integrates key features such as secure data management, user authentication through login models, and job posting for employers. This stage primarily focuses on usability and security of data.

### **Stage 4: Demonstration**

At this stage, presentation of the developed solution to its intended users. This group includes, small business owners and casual job seekers in Uganda with an aim of showing system functionality towards addressing real-world employment challenges. Some key features include job posting, user registration and login attempts. The demonstration will be carried out in sequential controlled sessions where participants will be able to interact with the system by creating accounts, and applying for jobs so as obtain evidence of system usability, and relevance in Uganda's job market. The demonstrations will also help to inform further improvements to the final system so as to ensure it functional properly and meets user needs.

### **Stage 5: Evaluation**

On completion of development of the prototype, it will go through a thorough evaluation process such as testing to assess performance, security and usability to establish how well the system meets user needs and operational goals. Feedback will be obtained once again to measure practicality, user-friendliness and reliability of the system towards achieving user needs. The results will help in guiding improvements to the system and confirm whether it also meets functional and non-functional requirements.

### **Stage 6: Communication**

This primarily focuses on documentation and dissemination of research results and development process. Reports and findings will be compiled into a detailed report to present to an academic audience to show how the platform solves unemployment challenges in Uganda.

### 3.2 Project Organization

The project seeks to develop a digital job-matching platform for small businesses to hire casual workers. It is comprised of two groups namely;

**Casual workers:** These include job seekers who find challenges in getting jobs. This group provides critical insights on the user experience and preferences regarding the use of digital job-matching platforms.

**Small businesses:** These primarily include the public and private business owners. Their role helps in understanding the business constraints so as to develop effective solutions to their challenges.

#### 3.2.1 Sampling Technique

A purposive sampling method will be used, to enable the project team members target the most relevant stakeholders and, reduce on the cost and effort of data collection while ensuring that the system requirements reflect the needs of the actual users.

**For Small businesses:** Employers will be chosen randomly basing on how often they hire and their readiness to embrace digital solutions. We will use convenience sampling to guarantee a variety of business types and sizes.

**For casual workers:** These will be chosen using stratified and purposive sampling. This will guarantee representation from various job categories, for example, construction, cleaning, hospitality and transport, as well as different geographical areas, including urban and peri-urban areas. This approach will provide a complete understanding of needs and constraints.

### 3.3 Sources of Project Data

The project team will gather both primary and secondary data to understand the problem, its causes, and possible solutions. This data will help define the requirements for creating an IT solution designed for small businesses and workers.

**Primary data** will be obtained from small business owners and stakeholders who recruit and hire worker. This data will be obtained using;

**Interviews:** Through conducting discussions with senior management personnel such as managers and staff other staff members.

**Observations:** Through observing the current hiring practices, workflows, and challenges

faced by both employers and casual workers.

Company documents: These will include existing records, reports, and operational manuals of the respective organizations.

### **3.3.1 Requirement Elicitation Techniques/ Data collection methods**

To obtain requirements for designing and developing the proposed job-matching platform, the researcher will use various primary data collection techniques such as;

Observation: The researcher will observe the current workflows and processes to identify inefficiencies and obtain adequate information needed for informed decision making.

Interviews: This will involve structured discussions with key stakeholders, for example managers, staff, and end users. These discussions will help gather informed insights into system requirements challenges and expectations.

Participatory techniques: The researcher will adopt the use of collaborative methods where necessary, including Focus Group Discussions to encourage stakeholder engagement and reveal complex requirements.

On completion with information gathering, the project team will conduct a thorough study of the existing job matching systems so as to understand their processes, limitations, and areas of improvement so as to guide the development of a more reliable and effective system that improves acquisition of skilled workers based on data obtained from already existing businesses.

### **3.4 System Analysis and Design Approaches**

The project team will use the Object-Oriented design approach combined with the prototyping method within the System Development Lifecycle (SDLC). This combination aims to foster modularity, reusability, and ongoing improvements based on user feedback to guide in the development of the digital job-matching platform for small businesses to hire casual workers in Uganda.

#### **Choice of Design Approach: Object-Oriented Design (OOD)**

The Object-Oriented approach will be used since it fits well with the projects' ever changing nature during development. It also allows the system to model real-world entities, which refer to anything about which data can be collected. Such as users, jobs, and applications where each entity can be represented as an object with its own attributes and behaviours. This approach also improves other factors such as;

Reusability: This is because common features like authentication, profile management, and notifications can be reused across various models.

Scalability: New and visually appealing features like AI-based job-matching can be integrated without having to redesign from scratch.

Modularity: This is because components can be developed and tested separately which helps in error detection and prevention in the production environment.

### **Choice of Development Approach: Prototyping Method**

This is because this approach highlights the importance of creating a functional prototype earlier on, which can be refined through obtaining feedback from potential small business owners and job seekers. Other notable reasons for selecting this prototyping method include;

- i. **User-centred design:** This approach allows for feedback collection from users as they interact with the system which helps in ensuring that the platform meets objective 2 by allowing casual workers to register and job providers to post job requests.
- ii. **Iterative Refinement:** Continuous feedback obtained from users helps in improving the system over time, which enhances usability, functionality, and importance. This helps in achieving objective 1 by helping the research team understand and address the challenges faced by small businesses and job seekers in Uganda.
- iii. **Requirements clarification:** Early prototypes help in detecting and fixing gaps or misunderstandings in system requirements. This also aids objective 2 by ensuring that geolocation services and real-time job posting features are implemented correctly and they meet user needs.

### **3.4.1 Design Techniques**

To implement the digital job-matching platform, the project will use Entity Relationship (ER) and Input-Output (I/O) diagrams to design the system. This will ensure it is well-structured, user-friendly, and meets project objectives.

Entity relationship (ER) diagrams: These diagrams will model the data structure and the relationships between entities (such as job, users, and applications), as well as outline the database schema. Er diagrams will also serve as a blueprint for the database design and data management.

### **3.5 Anticipated Project Constraints**

This part explains the likely constraints that may impact the project and the suitable solutions to the limitations. Some of the likely constraints that may impact the project include;

- i. The project may be affected by limited funding, hardware, and internet connectivity, which could affect the development and deployment processes. The team plans to

obtain income from their parents to fund the development process.

- ii. The team expects some degree of unwillingness in information disclosure by some small businesses and casual workers in various organizations. The team will solve this by providing user assurance based on Uganda's Data Protection and Privacy Act (2019).
- iii. The team may not have enough technical skills to develop the system. The team plans to adopt generative AI in implementing the backend functionality in order to develop a fully functional digital job-matching platform.

### 3.6 Ethical Considerations

The project will follow ethical standards in the following ways;

**Informed consent:** Participants will first be informed about the study's purpose and the data collection methods to get their genuine consent.

**Data privacy and security:** All collected data will remain confidential and stored securely. The system will use secure authentication, encrypt storage, and comply with Uganda's Data Protection and Privacy Act (2019).

**Confidentiality:** All user data and information will be kept private and secure to stop unauthorized access.

#### Disclosure and Declaration Statement

The project team states that Artificial Intelligence tools can be used to help with research, literature review, and creating non-analytical content. Any use of AI will be under supervisor's instructions. This ensures that all outputs maintain academic integrity, ethics and originality.

Additionally, the team confirms that there are no conflicts of interest related to this proposed project. The digital job-matching platform is being developed as an independent research project and is not connected to any business owned by team members or their relatives.

## References

- Peppers, K., Tuunanen, T., Rothenberger, M. A., & Chatterjee, S. (2007). A Design Science Research Methodology for Information Systems Research. *Journal of Management Information Systems*, 24(3), 45–77. <https://doi.org/10.2753/MIS0742-1222240302>
- Shukla, A. (2023). Modern JavaScript frameworks and JavaScript's future as a full-stack programming language. *Journal of Artificial Intelligence & Cloud Computing*. [https://doi.org/10.47363/jaicc/2023\(2\)144](https://doi.org/10.47363/jaicc/2023(2)144)
- Uganda Bureau of Statistics. (2023). National Labour Force Survey 2021: Thematic report dissemination presentation. Kampala: UBOS. [https://www.ubos.org/wp-content/uploads/publications/06\\_2023THEMATIC\\_REPORT\\_DISSEMINATION\\_Presentation\\_-\\_Final\\_010620023.pdf?](https://www.ubos.org/wp-content/uploads/publications/06_2023THEMATIC_REPORT_DISSEMINATION_Presentation_-_Final_010620023.pdf?)
- Tuunanen, T., Winter, R., & vom Brocke, J. (2024). Dealing with complexity in design science research: A methodology using design echelons. *MIS Quarterly*, 48(2), 427-458. <https://doi.org/10.25300/MISQ/2023/16700>
- Aditya Mishra. (2023). Staffing for SMEs- Challenges and Solutions to improve hiring for small businesses. <https://outworkssolutions.com/technology-blogs/staffing-recruiting/staffing-for-smes-challenges-and-solutions-to-improve-hiring-for-small-businesses/>
- Asiimwe, G.B. (2023). Interrogating unemployment amid growth: Tracking youth unemployment in neoliberal Uganda, 1990-2019. *Journal of Asian and African Studies*, 58(5), 812-828. <https://doi.org/10.1177/00219096221076113>
- UBOS (2021). The National Labour Force Survey 2021 – Main Report, Uganda Bureau of Statistics (UBOS), Kampala, Uganda. [https://www.ubos.org/wp-content/uploads/publications/11\\_2022NLFS\\_2021\\_main\\_report.pdf](https://www.ubos.org/wp-content/uploads/publications/11_2022NLFS_2021_main_report.pdf)
- Rogers Kasirye. (2025). Empowering Uganda's Youth: A Pathway to Employment and Resilience with Insights from the Access to Employment Project. <https://doi.org/10.58425/ijeib.v3il.317>
- De Sordi, J.O. (2021). Design Science Research Methodology: Theory Development from Artifacts. Cham: Springer. <https://doi.org/10.1007/978-3-030-82156-2>



## Appendices

### i. Proposed Project Budget

ITEM CATEGORY	DESCRIPTION	Duration	RATE(Ugx)	TOTAL(Ugx)
Data charges	For research & development.	2 months	-	50000
Field visits	Transport for data collection	1 day	-	20000
Printing	2 copies (proposal & report)	-	10000	10000
Flash disk	System storage during development.	-	1	30000
Miscellaneous Expenses	For any unexpected charges	-	-	20000
			<b>Total:</b>	<b>130,000</b>

### ii. Schedule of Activities/Ghant Chart

