**DESIGN AND IMPLEMENTATION OF CASUAL WORKER MANAGEMENT SYSTEM**

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**CHAPTER 1**

**INTRODUCTION**

* 1. **Background of the System**  
     The Casual Worker Management System addresses the inherent challenges organizations face in efficiently managing casual labor. Traditionally, the process of coordinating temporary staff involves cumbersome paperwork, communication gaps, and limited visibility into worker availability and skills. This system is designed to streamline these processes by offering a centralized platform. With a digital approach, it eliminates manual inefficiencies, enhances communication between casual workers and management, and provides a real-time overview of task assignments and work hours. The need for a comprehensive solution arises from the growing importance of flexible staffing in today's dynamic work environment, and the system aims to modernize and optimize the management of casual workers within our organization.  
     **Global Perspective:**Casual Worker Management Systems are gaining prominence globally as organizations seek streamlined solutions for managing temporary staff. These systems digitize the coordination of part-time workers, simplifying tasks like scheduling and communication. For instance, companies like Uber and TaskRabbit utilize such systems to efficiently manage their flexible workforce, allowing real-time task assignments and enhancing overall operational agility.

Casual Worker Management Systems enhance efficiency in assigning tasks based on skills and availability. Companies like Upwork and Fiverr leverage these systems to match freelancers with suitable projects, streamlining the process of task allocation. According to a study by Freelancer (2021), implementing such systems has led to a significant reduction in the time it takes to connect workers with relevant tasks, thereby boosting productivity.

Effective communication between casual workers and management is crucial. Systems like Deputy and When I Work facilitate seamless communication through built-in messaging features. According to Smith (2020), this not only fosters a collaborative work environment but also ensures that workers are well-informed about assignments and organizational updates, regardless of geographical locations.

Casual Worker Management Systems contribute to operational excellence by providing centralized platforms for information management. Companies like Amazon Flex and DoorDash utilize these systems to coordinate a large pool of gig workers efficiently. As highlighted by Patel (2019), the real-time tracking and reporting capabilities of such systems enable organizations to optimize resource allocation, reduce administrative overhead, and enhance overall business performance.  
**Regional Perspective:**

Casual Worker Management Systems address specific workforce dynamics and labor regulations unique to the area. Regional variations in employment laws and cultural practices impact how organizations manage their contingent workforce. For instance, in Europe, where there's a strong emphasis on workers' rights, these systems may need to comply with stringent labor regulations. According to EU labour directives, companies like Deliveroo have adapted their casual worker management systems to navigate regional labor standards, ensuring fair treatment and compliance.

Regional perspectives play a crucial role in shaping Casual Worker Management Systems to align with local workforce practices. In Asia, where gig economy platforms like Grab and Gojek thrive, these systems are tailored to accommodate diverse working hours and multiple job commitments. According to a study by Tanaka (2020), understanding and integrating such local nuances are pivotal for the success and acceptance of these systems in different regions.

Effective communication in Casual Worker Management Systems is influenced by regional cultural norms. In the Middle East, where cultural nuances are significant, systems like WorkMarket and Deputy may incorporate features that respect local communication preferences and etiquette. According to Al-Hassan (2018), understanding and integrating cultural sensitivity in communication features foster better relationships between workers and management in the region.

**Local Perspective:**

Casual Worker Management Systems are shaped by the unique dynamics of the local workforce and business environment. With systems like MobiWork and FlexiCad ensuring adherence to local employment standards, including working hours and statutory leave.Integration with local hiring practices is crucial. Kenyan businesses, particularly in the informal sector, often rely on casual workers. Platforms such as WorkPuls and RosterBuddy may incorporate features that streamline the hiring process for local businesses, aligning with the country's emphasis on community and personalized employment practices.

Cultural sensitivity in communication is paramount. Kenya's diverse cultural landscape influences workplace interactions. Systems like SINC and Deputy might include features that resonate with Kenyan communication preferences, promoting a positive work environment by acknowledging and respecting cultural nuances.As Kenya continues to embrace technology and witness growth in its gig economy, Casual Worker Management Systems play a pivotal role in supporting local businesses, fostering compliance with labor laws, and contributing to the overall efficiency of workforce management.  
**1.2 Statement of the Problem**

The management of casual workers poses significant challenges for businesses, particularly in the absence of streamlined systems. Many organizations, including local construction sector and hospitality establishments, rely heavily on casual labor. The current manual methods of tracking hours, assigning tasks, and communicating with casual workers are time-consuming and prone to errors.

Construction sites,Small retail stores and eateries, face difficulties in efficiently managing their casual workforce. Without a centralized system, these businesses struggle to coordinate schedules, leading to inefficient task assignments and potential disruptions in service. For example, a local cafe might find it challenging to quickly adapt to changing staffing needs during busy periods, impacting customer satisfaction and overall business operations.

Moreover, compliance with Kenyan labor laws is a persistent concern. Businesses often grapple with ensuring that their casual worker management practices align with the intricate labor regulations in Kenya. For instance, manual record-keeping may lead to unintentional violations of working hour limits, exposing businesses to legal risks and potential penalties from authorities.

Communication breakdowns are another critical issue. Where interpersonal relationships are highly valued, ineffective communication channels impact the coordination between management and casual workers. Local examples, such as a neighborhood grocery store, may face challenges in conveying timely information about shift changes or new tasks to their casual workforce, leading to misunderstandings and reduced efficiency.

In summary, the lack of a dedicated Casual Worker Management System local businesses results in inefficiencies, potential legal complications, and communication gaps. Addressing these issues is crucial to enhancing operational effectiveness, ensuring legal compliance, and fostering a positive working environment for both employers and casual workers.

**1.3 System Objectives**

**1.3.1 System General Objective**To establish an efficient and automated Casual Worker Management System that optimizes the management of casual workers on construction sites

**1.3.2 System-Specific Objectives**1. To Develop a user-friendly task assignment module to efficiently match casual workers with appropriate tasks based on their skills and availability.

1. To Implement a robust time tracking system within the Casual Worker Management System to automate the recording of working hours, ensuring accuracy and reducing manual effort.
2. To Integrate features and alerts that align with labour laws, providing real-time compliance checks to mitigate legal risks for businesses managing casual workers.
3. To Enhance the communication module to include instant messaging and notification features, ensuring seamless and timely interaction between employers and casual workers.
4. **1.4 System Questions**

1. How are tasks efficiently assigned to casual workers based on skills and availability?

2. What ensures accurate and automated time tracking for casual workers, minimizing errors?

3. How does the system guarantee compliance with local labor laws in Kenya, reducing legal risks?

4. How are communication channels improved between employers and casual workers for seamless interaction?

5. How are positive work culture elements, like performance recognition and feedback, incorporated for the casual workforce?

**1.5 Justification of the System**The Casual Management System aims at aiding all parties involved in the casual temporary work, from the employee,workers and the government  
**1.5.1 Employee/Casual workers**

System would benefits employees by providing clear communication channels, efficient task assignments, and transparent time tracking. This empowers workers with a user-friendly platform that ensures they receive timely updates, understand their assignments, and have accurate records of their work hours.

**1.5.2 Employers/Contractors**

system would aid in optimizing workforce management, reducing administrative burdens, and ensuring compliance with local labor laws. The system's features streamline task assignment, automate time tracking, and provide valuable insights through reporting tools, enabling better decision-making.

**1.5.2 Government**

System would align with government objectives by promoting legal adherence within the business sector. The system ensures businesses comply with local labor laws, contributing to a fair and just working environment. Additionally, it facilitates transparency in employment practices, allowing government authorities to monitor and enforce labor regulations effectively

**1.6 The Scope of the System**

The Casual Worker Management System encompassing key aspects of workforce management. It includes functionalities such as efficient task assignment, automated time tracking, and enhanced communication features.Addressing the specific challenges and requirements of the local casual labor market. The system's scalability allows for potential expansion into other regions, fostering adaptability to different industries and business sizes. The overarching goal is to provide businesses with a versatile and tailored solution that not only ensures operational efficiency but also aligns with the cultural and legal context of the local workforce.

**CHAPTER TWO**

**LITERATURE REVIEW**

**2.1 Introduction**In the realm of workforce management, the evolution of technology has paved the way for innovative solutions, particularly in the management of casual workers as organizations increasingly grapple with the challenges of coordinating temporary staff efficiently, a critical examination of the historical context, current state, and emerging trends in such systems becomes imperative. This chapter aims to synthesize information from a variety of sources, ranging from academic studies to industry reports, shedding light on key themes such as task assignment, time tracking, communication channels, legal compliance, and the overall impact of these systems on the dynamics of the modern workforce. Through a detailed exploration of the literature, this chapter sets the stage for the development of an informed and effective Casual Worker Management System, tailored to meet the specific needs and challenges faced by businesses managing casual labor.  
**2.2 Empirical Review**The Casual Worker Management System is employed across diverse industries, contributing to efficiency and improved workforce coordination. Examples encompass platforms like UberFlex Casual Worker Management and TaskRabbit Casual Worker Management, showcasing its adaptability to various operational contexts and its role in enhancing labor management effectiveness.

**1. UberFlex Casual Worker Management System**

Application Server: Hosts the UberFlex application, managing the processing logic for task assignments, worker profiles, and data storage.

Database: Stores persistent data, including worker profiles, task assignments, and historical records.

User Interface: Offers interfaces for user interaction, with a mobile app for casual workers to view tasks, accept assignments, and communicate with employers.

Integration Framework: Integrates with other systems, such as payment processing and GPS tracking, facilitating real-time updates and seamless task execution.

Mobile Data Entry: Supports mobile devices for casual workers, enabling them to enter work hours, submit task completion updates, and access relevant information.

**2. TaskRabbit Casual Worker Management System**

Application Server: Hosts the TaskRabbit application, managing the processing logic for task assignments, reviews, and data storage.

Database: Stores persistent data, including task details, user reviews, and worker profiles.

User Interface: Provides interfaces for users to interact with the TaskRabbit system, accessible through web-based interfaces and a mobile app.

Integration Framework: Integrates with external platforms, such as payment gateways and scheduling tools, ensuring seamless coordination between clients and casual workers.

Mobile Data Entry: Supports mobile devices, allowing casual workers to update task progress, communicate with clients, and manage their schedules on the go**.**

**2.3 System Architectures**

The fundamental goals of a Casual Worker Management System are transparency, performance, scalability, availability, data integrity, reliability, security, and user mobility. These objectives are paramount in crafting a system that facilitates efficient coordination and oversight of casual workers, ensuring transparent communication, robust performance, and scalability to meet varying workforce demands.  
**Functionalities of the System**

Functionality- Real-time task tracking and status updates provide transparency in task assignments and completion.

Objective Relation- Ensures employers and workers have visibility into ongoing tasks, fostering clear communication and accountability.

Performance- Task assignment optimization algorithms enhance performance by efficiently allocating tasks based on worker skills and availability.

Objective Relation- Improves overall system performance by streamlining task allocation, minimizing delays, and optimizing workforce productivity.

Data Integrity- Robust data validation and verification mechanisms maintain data integrity by preventing inaccuracies in task details and worker profiles.

**llustrations of the casual worker management system**

**2.4 System Design Requirements** The requirement analysis for the Casual Worker Management System is conducted to analyze, validate, and manage the software or the system. This process aids in identifying opportunities within the casual labor management landscape, facilitating streamlined operations and improved workforce coordination.

**Hardware**

The hardware requirements for a Casual Worker Management System would depend on the scale, complexity, and specific functionalities of the system, example laptop, processor, memory size, available disc space and additional peripherals.

**Software**

The software components for a Casual Worker Management System typically involve various technologies and applications to support different functionalities. Operating System, Database Management System, Web Server, Programming Language.

**CHAPTER THREE**

**SYSTEM DEVELOPMENT METHODOLOGY**

In this chapter, we'll dive into the system development approach tailored for our casual work management system. This approach offers a structured method to craft, deploy, and uphold a seamless software solution that streamlines our work management processes, from task assignment to progress tracking.

**3.2 System Design Methodology**

The chosen system design methodology for the casual work management system is the Iterative and Incremental approach. This approach offers flexibility in the development process, ensuring that each iteration brings valuable features and functionalities.

The Iterative methodology focuses on flexibility, adaptability, and delivering value in incremental stages. It divides the development process into smaller increments, facilitating continuous feedback and improvement throughout the project lifecycle.

**This methodology encompasses several key phases:**

1.Task Identification - I will collaborated with stakeholders to identify tasks and requirements for the casual work management system. This involves understanding current workflows, pinpointing challenges, and defining desired system functionalities.

2.System Blueprinting - Once requirements are gathered, the system blueprinting phase commences.I will create detailed blueprint, outlining system modules, workflow diagrams, and user interface mock-ups. This ensures alignment with identified needs and promotes user-friendly navigation.

3.Development and Quality Assurance- The development phase involves coding the system based on the blueprint specifications. Simultaneously, rigorous testing is conducted to detect and rectify any glitches or inconsistencies. This encompasses unit testing, integration testing, and system-wide testing to guarantee smooth functionality.

5.Ongoing Support and Optimization: - Post-implementation, ongoing support and optimization activities take place. This involves addressing user feedback, resolving issues, implementing enhancements, and providing regular updates to ensure system relevance and alignment with evolving work requirements.

**The strategy for managing casual workers in our organization centers around these core principles:**

1. Flexibility: I prioritize adaptability in our worker management processes. The approach is open to adjustments, allowing us to refine procedures based on feedback and evolving requirements.

2. Early Value Delivery: My goal will be to deliver value to our team and stakeholders from the outset. By breaking down our management system into smaller stages, we can introduce beneficial features early on, addressing immediate needs and providing early benefits.

3. Continuous Feedback and Improvement: I will be committed to continual enhancement. By maintaining open lines of communication and soliciting regular feedback, I will identify areas for improvement and fine-tune our management practices as we progress.

4. Risk Management: I will proactively address risks in our management approach. Utilizing an iterative method, we identify and address potential issues early in the process, minimizing the likelihood of significant problems arising later.

5. Enhanced Collaboration: Collaboration is at the core of our worker management strategy. I will foster close collaboration with all stakeholders - from supervisors to team members - ensuring that everyone's needs are considered and promoting transparency and active participation in shaping our management system.

**While our iterative and incremental approach offers benefits, it also poses certain challenges:**

1. Increased Complexity: The iterative method can add complexity to development and project management due to multiple iterations and frequent changes.

2. Potential Scope Creep: Without proper control, an iterative approach may lead to scope creep, expanding the project beyond its original plan and causing delays and increased costs.

3. Resource Allocation: Implementing iterative methodologies may necessitate a dedicated and skilled development team, requiring additional resources and expertise compared to traditional approaches.

4. Dependencies and Integration Challenges: Ensuring smooth integration between iterations and existing infrastructure can be complex and time-consuming.

5. Continuous Maintenance and Updates: Iterative methods require ongoing maintenance and updates to address issues and incorporate new features, resulting in long-term commitments and associated costs for system maintenance and support.

**3.3 Fact Finding Techniques**

**a) surveys and questionnaires**

I will distribute electronic surveys and questionnaires, both online and offline, to a diverse group of users in juja town to gather consistent feedback on their preferences and perspectives.

**Advantages**

1. Efficiency and Scalability: Surveys and questionnaires can quickly reach a large audience, gathering significant data in a short time.

2. Standardization: They ensure uniform data collection, reducing bias and enabling easy comparison of responses.

3. Quantitative Data: These tools help identify trends, correlations, and patterns.

4. Objective Insights: They provide unbiased insights into respondents' perceptions, attitudes, and behaviors, aiding in understanding the target audience or making informed decisions.

5. Cost-Effectiveness: Surveys and questionnaires are generally affordable, especially when administered electronically, compared to other data collection methods.

**Disadvantages**

1. Limited Depth: They excel at gathering specific information but may not delve into complex, in-depth contexts.

2. Response Bias: Respondents may provide inaccurate or socially acceptable responses, affecting data accuracy.

3. Non-Response Bias: Not all approached individuals respond, potentially skewing sample representativeness.

4. Limited Control: Researchers have minimal control over the survey environment, leading to varied response conditions.

5. Question Design Challenges: Poorly crafted questions can result in confusion, ambiguity, or biased responses, necessitating careful design considerations.

**b)Case Studies**

When it comes to case studies, our project I will conduct in-depth examinations of single instances or a small number of instances within various distribution construction sites.

**Advantages**

1. Rich, Detailed Insights: Case studies allow researchers to explore a specific situation in depth, offering a comprehensive understanding of its context, processes, and interactions.

2. Contextual Understanding: Focusing on a single case enables researchers to grasp unique factors and dynamics that broader research methods might miss.

3. Real-World Relevance: Case studies involve real-life scenarios, providing practical insights applicable to real-world situations and offering actionable recommendations.

4. Hypothesis Generation: Case studies can spark hypotheses or theories, serving as a foundation for further research and testing.

5. Qualitative Data: Case studies often yield qualitative data, capturing nuances, emotions, and contextual factors that quantitative methods may overlook.

**Disadvantages**

1. Selection Bias: Careful case selection is crucial to prevent distorting findings, as researchers must ensure cases are relevant and representative.

2. Subjectivity: Different researchers may interpret the same case differently, potentially leading to varied conclusions.

3. Time-Consuming: Conducting thorough case studies demands significant time and resources for data collection, analysis, and interpretation.

4. Limited Quantitative Data: While case studies offer rich qualitative insights, they may lack the quantitative data necessary for statistical analysis.

5. Complexity: Analyzing complex cases can be challenging, particularly when dealing with multiple variables and factors.

c)**Observation**

In the realm of casual work management systems, utilizing observation offers both advantages and disadvantages:

**Advantages**

1. Direct Insight: Observation provides firsthand insights into the behaviors and actions of casual workers, allowing managers to understand their work habits and performance.

2. Contextual Understanding: Observations capture the work environment in which casual workers operate, offering insight into the dynamics and interactions that influence their behaviors.

3. Non-Intrusive: Unlike some methods like interviews, observation typically does not require direct interaction with casual workers, reducing the likelihood of altering their behavior.

4. Behavior Validation: It allows managers to objectively validate the behaviors exhibited by casual workers, identifying any disparities between verbal reports and actual actions.

5. Naturalistic Setting: Observations take place in the natural work environment of casual workers, minimizing the risk of artificial behavior that may occur in controlled settings.

**Disadvantages**

1. Subjectivity: Despite efforts to remain unbiased, observers may unintentionally introduce their own interpretations and biases when documenting and analyzing casual workers' behaviors.

2. Limited Access: Managers may face challenges in accessing certain work situations or events, limiting their ability to fully comprehend the scope of casual workers' activities.

3. Time-Consuming: Observations can be time-intensive, especially if managers need to monitor casual workers over prolonged periods to obtain a comprehensive understanding of their work patterns.

4. Inability to Probe: Unlike interviews or discussions, observations do not afford managers the opportunity to ask follow-up questions or delve deeper into casual workers' motivations and reasons behind their actions.

5. Ethical Concerns: Observing casual workers without their explicit knowledge or consent may raise ethical considerations, particularly if the observed behaviors are sensitive or private.

**3.4Feasibility Studies**

Technical feasibility study for a casual worker management system, several considerations arise:

**3.4.1Technical Feasibility:**

The technical feasibility study evaluates whether the necessary technology infrastructure, hardware, and software are available or can be developed for the system.

Reasons for Conducting the Study:

1. Assessing Infrastructure Compatibility: This study examines whether the proposed technology or system can seamlessly integrate with the existing infrastructure, encompassing hardware, software, networks, and equipment utilized for managing casual workers.

2. Identifying Technical Challenges: It identifies potential technical obstacles that may emerge during system implementation, ensuring proactive measures can be taken to address them.

3. Evaluating Performance: The study gauges whether the proposed solution can meet performance benchmarks, encompassing factors like speed, capacity, reliability, and scalability, without hindering the functionality of the casual worker management system.

4. Analyzing Data Compatibility: If the proposed solution involves data exchange or integration with existing systems, the study assesses the compatibility of data formats, structures, and protocols to ensure seamless data flow across the management system.

**3.4 .2 Economic Feasibility:**

This study evaluates the financial capability of implementing and operating the Casual Work Management System, analyzing costs, potential benefits, and revenue generation.

Reasons for Conducting the Study:

1. Cost-Benefit Analysis: A thorough comparison is made between projected costs, including system development, software, hardware, integration, maintenance, and operations, against potential benefits and returns on investment (ROI). This analysis helps ascertain if the benefits outweigh the costs, guiding decision-making.

2. Revenue Projections: Potential revenue streams, such as service fees or subscription charges, are identified and evaluated for their revenue-generating potential. Timeframes for breaking even and achieving profitability are estimated, providing insights into the system's financial sustainability.

3. Financial Constraints: The study assesses whether the organization has the financial resources to fund system development, implementation, and ongoing operation. It also explores potential funding sources or investment opportunities to address any financial constraints and ensure the project's viability.

**3.4.3 Contractual Feasibility**

When evaluating the contractual feasibility of implementing a new system or process within the casual work management network, several factors are considered to ensure compliance with legal and contractual obligations:

Reasons for Conducting the Study:

1. Legal Compliance: Ensure that the proposed solution complies with all applicable laws, regulations, and industry standards governing the casual work management system. This helps mitigate the risk of legal disputes, fines, and other legal consequences.

2. Contractual Obligations: Assess whether the implementation aligns with any existing contracts, agreements, or partnerships the organization has with casual workers, suppliers, or other stakeholders. This ensures that contractual obligations are met and prevents conflicts with contractual terms.

3. Data Privacy and Security: Ensure compliance with data protection laws and regulations when collecting, storing, and sharing data within the casual work management system. This safeguards the privacy and security of worker and organizational data.

4. Risk Assessment: Identify potential legal and contractual risks associated with the implementation, including breaches of contract, liabilities, and legal disputes. This allows for proactive risk mitigation measures to be implemented to minimize potential negative impacts.

**3.4 .4 Environmental Feasibility**

In assessing the environmental feasibility of implementing a casual work management system, thorough consideration is given to potential environmental impacts and sustainability:

This study focuses on evaluating the environmental consequences of implementing a casual work management system, aiming to ensure sustainability and environmental responsibility.

Reasons for Conducting the Study:

1. Environmental Impact Assessment: Evaluate the potential environmental impacts of the casual work management system, including its effects on local ecosystems, resource consumption, and waste generation.