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# Introduction

The Worker Scheduling Application project aims to develop an automated, fully functional, and user-friendly solution that will change how businesses assign shifts to their employees. Surprisingly, even in this age of technology, at some places scheduling is a manual process, often laborious and prone to errors leading to operational inefficiencies, increased labor expenses, and discontent among employees in many industries. These are the problems that arise from having to strike a balance between the requirement to comply with the law and labor demands. With the incorporation of payroll reporting, automated monitoring for compliance, and real-time changes, this project proposes a modern scheduling platform to ease the task of managing shifts. Such technology will help organizations minimize errors, maximize productivity, and ensure employee satisfaction without compromising cost efficiency and operational excellence. It achieves it through optimization of shift allocation and by ensuring labor rules compliance.

## Purpose

The Project Vision Document serves as a means of guaranteeing that all parties involved in the Worker Scheduling Application agree with the project's aims, parameters, and intended results. Throughout the development process, it acts as a strategic roadmap to improve decision-making, clarify project deliverables, and expedite communication. The document guarantees that the team stays focused on providing a solution that improves operational efficiency and employee happiness by elucidating the business demands and possibilities the project addresses.

## Scope

The goal of the Worker Scheduling Application project is to create a comprehensive platform that will automate and simplify the scheduling and management of employee shifts. Automated shift assignments, customizable dashboard management, real-time notifications, and time-off and shift swapping tools are some of the key features. Along with producing payments and bills based on recorded hours, the platform offers sophisticated analytics to maximize worker productivity. Ensuring compliance with labor laws is a priority. Nevertheless, the project's purview does not include domains like hiring, performance management, integrating external payroll, and benefits administration.

### **In Scope**

The following areas are included within the scope of the Worker Scheduling Application project:

Shift Scheduling Automation: Development of an automated system to assign shifts based on employee availability, preferences, and business requirements.

Employee Management (CRUD Operations): Features to create, read, update, and delete employee profiles and availability data.

Shift Swapping and Time-Off Management: Implementing functionality for employees to request shift swaps, manage time-off requests, and handle last-minute schedule changes.

Real-Time Notifications: A notification system to inform employees and managers about upcoming shifts, shift swaps, time-off approvals, and schedule changes.

Payroll and Invoice Generation: Automated tracking of employee hours worked and generating accurate payroll and invoices based on this data.

Advanced Analytics and Reporting: Development of dashboards that provide insights into attendance, labor costs, shift efficiency, and other key performance metrics.

Compliance with Labor Laws: Ensuring that the scheduling system adheres to local labor laws, including regulations on overtime, breaks, and rest periods.

### **Out of Scope**

The following areas are not included in the scope of the Worker Scheduling Application project:

Recruitment and Onboarding: This project does not address the recruitment or onboarding of new employees.

Benefits Administration: Managing employee benefits such as healthcare, insurance, or retirement plans is not part of the project.

Payroll Integration with External Systems: The application will generate payroll and invoices, but integration with external payroll systems or providers is not included.

Training and Certification Tracking: The system will not manage or track employee training, certifications, or professional development.

Customization for Specific Industries: Industry-specific customizations beyond the general functionalities for scheduling and management.

## Definitions, Acronyms, and Abbreviations

This section explains all of the terms and abbreviations that are being used in this document, for those who are unfamiliar with them. Not everybody who reads this document will understand all of the terms, so this section is helpful.

|  |  |
| --- | --- |
| Term | Explanation |
| |  | | --- | | Shift Scheduling |  |  | | --- | |  | | The process of assigning workers to specific time slots or shifts in an efficient and organized manner. |
| |  | | --- | |  | | Employee Portal |  |  | | --- | |  |  |  | | --- | |  | | A platform for workers to view schedules, request time off, and receive notifications. |
| Payroll | The system of tracking hours worked by employees and generating pay slips or invoices accordingly. |
| Availability | The time periods when workers are available to take shifts, as defined by their preferences or schedule. |
| Invoice | A financial document showing hours worked and payment due, automatically generated by the system, used for both payroll and client billing purposes. |
| Shift Swaps | The process of exchanging or replacing a worker’s assigned shift with another available shift or worker. |
| Real-time Alerts | Instant alerts sent to users, typically via email or SMS, to inform them of changes in schedules or other updates. |
| Manager Dashboard | A platform for managers to oversee schedules, assign shifts, and view analytics. |

## References

This section also contains links to all other places that were referred to in this document. These may include:

* Web sites
* URLs or network locations
* Research done for similar products

|  |  |
| --- | --- |
| Name | Link |
| |  | | --- | | Research on Employee Scheduling Optimization |  |  | | --- | |  | | https://optimoroute.com/schedule-optimization/ |
| Research for Employee schedule types | https://easyroster.net/blog/work-schedule/ |
| Getting to know about HR Managing | https://getsling.com/blog/human-resource-management/ |

**Personal Contacts:**

| Reference File Name | Role | Description |
| --- | --- | --- |
| Company Owner (Sriven Security) | Owner | Provided insights and information on the current scheduling issues faced by the security company. |
| Scheduler (Sriven Security) | Scheduler | Consulted for expertise on challenges and best practices in employee shift scheduling at a different workplace. |
| Krishna (Sriven Security) | Security Guard | Provided practical insights into shift scheduling challenges and worker availability issues from the perspective of a security guard. |
| Ann (Friend) | Cashier | Shared details on how shift scheduling is managed in a retail setting, focusing on flexibility and availability issues for cashiers. |

# Positioning

## Business Opportunity

The Worker Scheduling Application project addresses a significant business opportunity by automating and optimizing employee shift management. Many businesses currently rely on manual scheduling methods, which are time-consuming, prone to errors, and lead to inefficiencies such as overstaffing, understaffing, and communication breakdowns. This project provides an opportunity to streamline these processes, reduce labor costs, and improve employee satisfaction by introducing a more efficient, flexible, and data-driven approach to workforce management.

The application is designed to serve industries like security companies, where staffing needs frequently change, and managing shifts effectively is crucial for operational success. By automating shift scheduling, facilitating shift swaps, and generating real-time notifications, businesses can not only save time and resources but also adhere to labor regulations and improve overall productivity. The opportunity lies in offering a scalable platform that addresses the growing demand for digital workforce management solutions.

## Problem Statement

|  |  |
| --- | --- |
| The Problem of | The current manual shift scheduling system leads to inefficiencies in workforce management, causing issues such as miscommunication, scheduling conflicts, and poor time management. |
| affects | This problem affects managers, employees, and business owners, ultimately hindering the organization's overall efficiency. |
| the impact of which are | diminished workforce productivity, poor employment engagement and lack of flexibility in managing work-life balance. |
| a successful solution would be | A successful solution will be automation of shift scheduling, providing real time notifications, advanced analytics and enhancing employee satisfaction by improving the flexibility and communication. |

Table 1 Problem Statement

## Product Position Statement

|  |  |
| --- | --- |
| For | Owners, managers and employees in industries such as security companies. |
| Who | Need a more efficient way to manage shift scheduling, provide analytics features, generate payroll and improve overall communication between managers and employees. |
| The ShiftSmart | Is workforce management and scheduling solution. |
| That | Automates shift scheduling, provides real-time updating, enables shift swaps, and includes payroll and analytics features, ultimately improving productivity, client and employee satisfaction. |
| Unlike | Manual scheduling processes such as basic spreadsheet-based tools and real time notifications. |
| Our product | Offers a fully automated, user-friendly platform with real-time communication, analytics dashboard, and payroll management capabilities, setting it apart by increasing efficiency and optimizing workforce between employee and client management. |

Table 2 Product Position Statement

## SWOT Analysis

|  |  |
| --- | --- |
| Strengths | Weaknesses |
| Automates scheduling processes, reducing errors and manual effort. | Initial development cost and time for implementation. |
| Real-time notifications and updates to handle last-minute changes efficiently. | Requires initial training for managers and employees to adapt to the new system. |
| Payroll integration streamlines the payment process, reducing errors and saving time. | Dependent on network connectivity for real-time features (may affect reliability in some environments) |
| User-friendly interface improves both employee and manager experiences. | Potential customization challenges for different industries and specific business needs. |
| Advanced analytics tools offer deep insights into labor costs, overtime, and employee performance, helping managers make data-driven decisions. | Ongoing maintenance and support may be required to address bugs, security updates, or changes in business operations. |
| Scalable architecture allows the platform to grow with the business, accommodating larger teams without sacrificing performance. | User adoption risks, as some employees and managers may resist shifting away from traditional scheduling methods. |
| Customizable scheduling rules allow for better alignment with company policies like overtime, holidays, and special shifts. | Data migration challenges when moving from existing manual or outdated systems could complicate the transition process. |
| **Opportunities** | **Threats** |
| Growing demand for digital workforce management tools in industries like security, retail, and manufacturing. | Security concerns regarding sensitive employee data like payroll and personal information. |
| Scalability of the platform for larger organizations or multi-location businesses. | Rapid technological advancements could make the platform obsolete if not continuously updated and improved. |
| Leveraging cloud-based solutions to offer a subscription model, increasing recurring revenue and providing flexibility for businesses. | Competition from established workforce management platforms, which may already have market share and customer trust. |
| Incorporating feedback mechanisms to allow employees to rate schedules or provide suggestions, enhancing the platform’s adaptability and worker satisfaction. | Varying regulatory requirements in different regions, such as labor laws, overtime rules, and data privacy regulations, which could complicate deployment. |
| Opportunity to integrate with other existing HR systems or third-party software. | Difficulty in ensuring compatibility with various legacy systems that businesses might currently use for workforce management. |

# Stakeholder and User Descriptions

## Stakeholder Summary

| Stakeholder Name | Represents | Role |
| --- | --- | --- |
| Security Company Management | Represents overall business interests and project success. | Ensures project aligns with company goals, provides final approval, and makes key decisions. |
| Manager | Represents day-to-day operations, especially managing Employees. | Defines system requirements for scheduling, shift swaps, leave requests, adding new shifts and sites. |
| HR Department | Focuses on staffing. | Ensuring the functionality of adding and assigning employees to different managers. |
| Payroll Manager | Focuses on financial management for employees and managers. | Ensure the payroll management, ensures accurate compensation based on shifts worked, integrates overtime or leave data. |
| Development Team (MMHS) | Responsible for developing the Worker Scheduling platform. | Develops and implements features, integrates feedback from security company stakeholders, and ensures delivery of the system. |
| End Users (Security Managers/Guards) | Represents the individuals who will be using the system daily. | Provide feedback during testing, ensure the system meets the practical needs of shift scheduling and management. |

Table 3 Stakeholder Summary

## User Summary

| User Name | Description | Responsibilities | Stakeholder |
| --- | --- | --- | --- |
| Company Owner | The individual responsible for the overall success of the company. | Sets strategic direction, oversees company operations, manages financial performance, manages client contracts and makes high-level decisions. | All Departments |
| HR | Responsible for staffing. | Hiring and managing employees along with their compensation and benefits, assigning them to the managers. | HR Department |
| Manager | Responsible for overseeing sites, employee shifts and scheduling. | Manages shifts and sites, employee schedules, approves shift swaps and leaves, monitors attendance. | Scheduling Management |
| Employees | Workers who receive shift assignments via the platform. | View assigned shifts, Input Availability, request time-off, and request shift swaps. | HR Department |
| Supervisor | Also, a worker, who is in charge at a shift. | Receive shift reports and incident reports. | HR Department |
| Payroll Administrators | |  | | --- | |  |  |  | | --- | | Handles payroll and client invoices. | | Processes payroll and invoices, clears payroll disputes and ensures legal compliance. | Finance Department |
| Client | The business or Individual who signs a contract with the company. | Gets the shift and incident reports | External Entity |

Table 4 User Summary

# Stakeholder Requirements

| ID | Requirement | Stakeholder |
| --- | --- | --- |
| R1 | Automate shift scheduling based on employee availability to reduce manual errors and conflicts. | Manager |
| R2 | Enable real-time notifications for schedule updates, shift swaps, and approvals. | Manager, Employees |
| R3 | Generate payroll and invoices based on hours worked, reducing reliance on manual record-keeping. | Financial Administrators |
| R4 | Implement an intuitive, user-friendly interface for both managers and employees to manage shifts easily. | Employees, Managers |
| R5 | Offer advanced analytics and reporting to optimize labor costs and improve scheduling efficiency. | Financial Administrators, Managers |
| R6 | Allow employees to submit availability and request time-off directly through the platform. | Employees |
| R7 | Provide secure access control and role-based permissions to protect sensitive data**.** | Business Manager |
| R8 | Allow supervisors to receive incident and shift reports in real time for quick decision-making. | Supervisors |
| R9 | Enable clients to access shift and incident reports for better transparency and communication. | Clients (External Entity) |
| R10 | Enable managers to approve or deny shift swap and leave requests quickly and efficiently. | Managers |
| R11 | Ensure the system can handle multiple locations/sites for scheduling and reporting purposes. | Managers |

Table 5 Stakeholder Requirements

# System Features

| ID | Feature | Stakeholder Requirement ID |
| --- | --- | --- |
| F1 | Automated Shift Scheduling: Automatically assigns shifts based on employee availability and business needs, reducing manual errors and ensuring optimal staffing. | R1 |
| F2 | Real-Time Notifications: Alerts managers and employees about upcoming shifts, schedule changes, and shift swaps in real-time, improving communication and reducing last-minute confusion. | R2 |
| F3 | Payroll and Hours Tracking: Tracks employee working hours and integrates with payroll systems to streamline payment processing, reducing administrative overhead. | R3 |
| F4 | Intuitive User Interface: Provides an easy-to-use platform where employees can view their schedules, submit time-off requests, and manage availability, enhancing user experience. | R4 |
| F5 | Advanced Analytics and Reporting: Generates reports on workforce performance, labor costs, and shift efficiency, enabling managers to make data-driven decisions. | R5 |
| F6 | Employee Self-Service Portal: Allows employees to manage their availability, request time-off, and swap shifts with approval, giving them more control over their schedules. | R6 |
| F7 | Secure Role-Based Access: Implements secure access controls to ensure that only authorized personnel can view or modify sensitive scheduling and payroll data. | R7 |
| F8 | Incident Reporting: Enables real-time submission of shift-related incidents, providing quick access for supervisors to address issues promptly. | R8 |
| F9 | Manager Approval Workflow: Enables managers to quickly approve or deny shift swaps, leave requests, and other scheduling changes through a streamlined process. | R10 |
| F10 | Multi-Site Scheduling Support: Provides capabilities for managing scheduling and reporting across multiple business locations, ensuring consistency and accuracy. | R11 |

Table 6 System Features

# Assumptions

1. Availability of Resources: It is assumed that all necessary technical resources, including developers, testers, and project managers, will be available throughout the project lifecycle.
2. Stakeholder Participation: Stakeholders, including business managers, employees, and IT administrators, will provide timely feedback during the design, development, and testing phases to ensure that the application meets their needs.
3. Data Accuracy: It is assumed that all employee availability, working hours, and payroll data input into the system will be accurate and up to date.
4. Regulatory Compliance: The application will be built to comply with applicable labor laws and regulations. Any changes in regulations will require system updates.
5. User Training: It is assumed that users, including managers and employees, will receive sufficient training to effectively use the platform’s features.
6. Integration Readiness: The existing HR and payroll systems in the organization will be compatible with the Worker Scheduling Application for seamless integration
7. Internet Connectivity: It is assumed that users will have reliable internet access to use the cloud-based features of the platform, including real-time notifications and updates.
8. Data Security Measures: Assumes the system will implement necessary security protocols to protect sensitive employee and payroll data, adhering to organizational and legal data protection standards.

# Constraints

Process Constraints:

* Project Timeline: The development must be completed within the given timeframe, that limits the scope of potential features and enhancements.
* Regulatory Compliance: The system must adhere with labour laws and regulations, potentially requiring additional time to design it.
* User Adoption: It the user interface should be easily adaptable to employees and managers and use the new scheduling system.

External Constraints:

* Network Reliability: Cloud-based features such as real-time notifications depend on consistent internet connectivity, and poor network performance may impact the system’s functionality.
* Data Privacy and Security Regulations: Adherence to GDPR, CCPA, and other data protection regulations is mandatory, restricting how employee data can be collected, stored, and shared.

Dependencies:

* HR System Integration: The Worker Scheduling Application depends on accurate data from existing HR and payroll systems for employee information and payroll processing.
* User Feedback: Continuous feedback from business stakeholders and end-users is essential to ensure that the system meets the actual needs of the organization.
* Software Updates and Maintenance: Future updates to integrated third-party systems may require modifications to the scheduling platform to maintain compatibility.