MODERNIZING THE MODERNIZING THE INTEGRATED PASSPORT SYSTEM: ENHANCING EFFICIENCY AND SECURITY WITH AI: ENHANCING EFFICIENCY AND SECURITY WITH AI

A DESIGN PROJECT REPORT

submitted by

DHASHINESH K

HARIHARAN V M

BALAJI S

in partial fulfilment for the award of the degree

of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

K RAMAKRISHNAN COLLEGE OF TECHNOLOGY

(An Autonomous Institution, affiliated to Anna University Chennai, Approved by AICTE, New Delhi)

Samayapuram – 621 112

NOVEMBER , 2024

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BONAFIDE CERTIFICATE

Certified that this project report titled **“MODERNIZING THE INTEGRATED PASSPORT SYSTEM ENHANCING EFFICIENCY AND SECURITY WITH AI”** is Bonafide work of **DHASHINESH K (811722104031), HARIHARAN V M (8117221048), BALAJI S (81172210302)** who carried out the project under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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EXTERNAL EXAMINER

DECLARATION

We jointly declare that the project report on **“MODERNIZING THE INTEGRATED PASSPORT SYSTEM: ENHANCING EFFICIENCY AND SECURITY WITH AI”** is the result of original work done by us and best of our knowledge, similar work has not been submitted to **“ANNA UNIVERSITY CHENNAI”** for the requirement of Degree of Bachelor Of Engineering. This project report is submitted on the partial fulfilment of the requirement of the awardof Degree of Bachelor Of Engineering.

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ABSTRACT

In today's fast-paced and globally connected world, the need for an efficient, secure, and streamlined passport issuance and management system has become increasingly crucial. the modernizing the integrated passport system: enhancing efficiency and security with ai aims to centralize and automate the processes involved in passport application, verification, issuance, and renewal. This system is designed to enhance operational efficiency, reduce processing time, and improve the overall user experience. By leveraging advanced technologies such as cloud computing, biometric authentication, and data encryption, the IPS ensures secure storage and seamless access to user information. The system integrates various stakeholders, including applicants, government agencies, law enforcement, and consulates, into a unified platform. Key features include online application submission, automated document verification, real-time application status tracking, and appointment scheduling for in-person verifications. By offering multilingual support and mobile-friendly interfaces, ensuring accessibility and inclusivity. the modernizing the integrated passport system: enhancing efficiency and security with ai represents a significant step towards digitizing government services, fostering transparency, and promoting international mobility with enhanced security and convenience. This innovative approach aligns with the vision of a digital-first governance framework, bridging the gap between citizens and public services.

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LIST OF ABBREVIATIONS

ABBREVIATION	FULL FORM
IPS	Integrated Passport System
RFID	Radio Frequency Identification
BAC	Biometric Authentication Chip
OCR	Optical Character Recognition
OTP	one-time passcodes
MFA	Multi-factor authentication
AI	Artificial Intelligence
RBAC	Role-Based Access Control
SSO	Single Sign-On
OS	Operating System
RTOS	Real-Time Operating Systems
DBMS	Database Management System
PKI	public key infrastructure

CHAPTER 1
INTRODUCTION

1.1 BACKGROUND

The Integrated Passport System (IPS) is a transformative solution designed to modernize and streamline the passport issuance process. It consolidates application, verification, and issuance into a unified platform, addressing inefficiencies, delays, and security vulnerabilities in traditional systems. By integrating advanced technologies such as biometrics, artificial intelligence, and blockchain, IPS enhances accuracy, automates verification, and ensures robust data security.

A key feature of IPS is its ability to facilitate interagency collaboration, linking immigration, law enforcement, and civil registries for seamless data sharing and faster processing. Citizens benefit from an intuitive online application portal, real-time tracking of application status, and secure e-passports equipped with encrypted microchips. The system also incorporates fraud detection mechanisms to prevent identity theft and document forgery.

IPS is designed to be accessible, scalable, and inclusive, offering multilingual support and extending services to remote areas. It improves operational efficiency, reduces manual dependencies, and ensures compliance with international standards. By prioritizing transparency, security, and user experience, IPS not only accelerates passport issuance but also builds public trust, reflecting a commitment to efficient and citizen-centric governance.

1.2 OVERVIEW

The Integrated Passport System (IPS) is a comprehensive digital solution aimed at transforming the passport issuance process by integrating all stages, including application submission, verification, and issuance, into a unified platform. This system addresses inefficiencies, delays, and security vulnerabilities in traditional systems, providing citizens with a streamlined and user-friendly experience.

Using advanced technologies such as biometrics, artificial intelligence (AI), and blockchain, IPS enhances the accuracy and security of the entire process. Citizens can submit their applications online via a secure portal, upload required documents, and track the status of their applications in real time. Automation is at the core of IPS, with AI-driven verification and fraud detection, enabling faster processing and minimizing manual intervention. The system also facilitates seamless interagency collaboration between immigration authorities, police departments, and civil registries, improving efficiency and reducing delays.

One of the key features of IPS is the issuance of e-passports, which embed biometric data in encrypted microchips for secure, machine-readable documentation, adhering to international standards. Fraud prevention mechanisms detect and address anomalies, reducing the risks of identity theft or document forgery. IPS is designed to be accessible and inclusive, offering multilingual support and provisions for citizens with disabilities or limited digital literacy.

Scalable and future-ready, IPS is capable of handling increasing volumes of applications while maintaining high standards of service. By prioritizing transparency, user convenience, and robust security, the system reflects a commitment to efficient, citizen-centric governance and ensures global compliance for international travel.

1.3 PROBLEM STATEMENT

Traditional passport systems suffer from fragmentation, inefficiency, and security vulnerabilities. Multiple agencies operate in isolation, causing delays in processing and increasing the risk of human error. The lack of real-time tracking and outdated systems lead to poor transparency, leaving applicants uncertain about their application status. Security concerns, such as identity theft and document forgery, persist due to limited use of advanced technologies like biometrics and encryption. Additionally, limited access to services in remote areas and the inability to handle increasing demand further exacerbate inefficiencies.

1.4 OBJECTIVE

The objective of the Integrated Passport System (IPS) is to modernize and streamline the passport issuance process by creating a unified, automated platform that integrates application, verification, and issuance procedures. It aims to enhance efficiency through automation, improve security using advanced technologies like biometrics and encryption, and increase transparency with real-time application tracking.The system is designed to be accessible to all citizens, including those in remote areas, and scalable to accommodate growing demand. Ultimately, IPS strives to provide a user-friendly, secure, and efficient service that aligns with international standards.

1.5 IMPLICATION

The Integrated Passport System (IPS) improves efficiency, security, and transparency in passport issuance by automating processes and enabling interagency collaboration. For citizens, IPS offers a more convenient, accessible, and user-friendly experience, with real-time tracking and online applications. However, the transition to IPS requires attention to data privacy, system updates, and ensuring widespread infrastructure and citizen training. Overall, IPS transforms the passport process, making it more secure, efficient, and inclusive.

CHAPTER 2

LITERATURE SURVEY

TITLE: An Improved E-passport system

AUTHORS: T. Vignesh,K. K. Thyagharajan

YEAR: 2022

A stepped forward E-Passports with IoT devices assumes an essential element in momentum research. Additionally, getting the data, placed away on E-Passport is also an essential difficulty. In this paper, we've got proposed a stepped forward far- off E-Visa framework with simple stage protection. The number one aim of this advanced system is to devise and foster an excessive stage tremendous far-off identity and Savvy card which conveys the identity subtleties and visa limits. Radio Frequency Identification (RFID) is a programmed ID innovation this is using Radio recurrence signals. Utilizing RFID labels as opposed to identity and visa information to conquer the paper works and document lacking difficulty with IoT devices improvements the superior protection highlights of an identity. Also, this advanced system provides high level security in customer information storage.

TITLE: Elliptic Curve Cryptography on E-Passport Authentication Protocol

AUTHORS: S. Saoudi, S. Yousfi and R. Robbana

YEAR: 2017

The paper introduces a novel approach to enhance the security of e-passport authentication. By leveraging Elliptic Curve Cryptography, Identity-Based Encryptionthe proposed protocol aims to establish a secure channel for data storage and authentication between the e-passport and the inspection system.The authors believe that this innovative solution addresses the vulnerabilities of existing e-passport authentication methods and provides a more robust and secure framework for future e-passport systems.

TITLE: Authentication enhancement techniques in 2G passport

AUTHOR: N. M. Abdal-Ghafour, A. A. Abdel-Hamid, M. E. Nasr.

YEAR: 2016

This research paper focuses on enhancing the security of the Biometric Authentication Chip (BAC) in 2G e-passports. The authors propose several techniques to improve the authentication process, including the use of advanced cryptographic algorithms, secure key management, and robust biometric template protection. By addressing the vulnerabilities identified in existing BAC systems, these techniques aim to strengthen the overall security of e-passports and prevent unauthorized access to sensitive information. The paper provides a detailed analysis of the proposed techniques and discusses their potential impact on the future of e-passport technology.

TITLE: Classifying Passport Cover Using Deep Convolutional Neural Networks

AUTHOR: A. Ahsan Jeny, M. Shah Junayed

YEAR: 2018

This paper introduces a novel approach to identify the country of origin of a passport using deep convolutional neural networks. The proposed system, PassNet, effectively classifies passport covers based on their unique visual features. By leveraging the power of deep learning, PassNet achieves high accuracy in recognizing different passport designs. This technology has the potential to streamline border control processes and enhance security measures. The paper provides a detailed explanation of the architecture and training process of PassNet, along with experimental results demonstrating its effectiveness.

TITLE: Digital Passport of the Object During the Survey of Transport Infrastructure

AUTHOR: M. D. Shutin and D. V. Dolgov

YEAR: 2019

This research paper explores the concept of creating a digital passport for transport infrastructure objects during surveys. By leveraging advanced technologies, the authors propose a system that can capture and store comprehensive information about the object's condition, maintenance history, and other relevant details. This digital passport can serve as a valuable tool for infrastructure management, enabling efficient monitoring, analysis, and decision-making. The paper delves into the technical aspects of creating and maintaining these digital passports, including data collection methods, storage formats, and security considerations. The authors believe that the implementation of such a system can significantly improve the overall efficiency and reliability of transport infrastructure.

TITLE: Eye Gesture Recognition Based on Computer Vision

AUTHOR: S. Panchamia and D. K. Byrappa

YEAR: 2017

This research paper proposes a blockchain-based solution for managing passports, visas, and immigration processes. By leveraging the decentralized and immutable nature of blockchain technology, the authors aim to enhance the security, transparency, and efficiency of these critical operations. The proposed system would enable secure storage and sharing of sensitive information, such as personal details, biometric data, and travel history, across various government agencies and border control authorities.

CHAPTER 3

SYSTEM ANALYSIS

3.1 EXISTING SYSTEM

The existing passport systems in many countries are primarily manual or semi-automated, with fragmented processes across various departments and agencies. These systems involve multiple stages, such as application submission, document verification, police clearance, and passport issuance, often handled by different entities, which can cause delays and inefficiencies. Key characteristics of the existing system include:

- **Manual Application Process**: Applicants typically need to visit passport offices in person, fill out paper forms, and submit physical documents. This can be time-consuming and inconvenient for citizens, particularly those in remote areas.
- **Fragmented Data Management**: Various government departments (immigration, police, civil registries) operate on separate databases, leading to data silos. Information often needs to be manually transferred between these agencies, increasing the risk of errors and delays.
- **Limited Automation**: While some processes may be automated, such as payment collection or document scanning, much of the verification and processing remains manual. Police verification, for example, often requires physical visits, adding significant time to the process.
- **Lack of Real-Time Tracking**: In most existing systems, applicants have limited visibility into the status of their passport applications. Updates are often not provided in real-time, causing uncertainty and frustration.
- **Security Vulnerabilities**: Existing systems are vulnerable to identity theft, fraud, and document forgery due to inadequate security measures, such as lack of biometric authentication or weak encryption.

3.2 PROPOSED SYSTEM

The proposed system for modernizing the integrated passport system aims to revolutionize the passport application and management process by leveraging cutting-edge AI technologies. This initiative addresses critical challenges such as inefficiencies, manual errors, and security vulnerabilities while providing a user-centric framework for applicants. By integrating AI-driven tools, the system ensures speed, accuracy, and enhanced security.

Key components of the system include automated document verification using Optical Character Recognition (OCR), which digitizes and analyzes submitted documents with precision. Advanced AI algorithms detect forgeries or discrepancies by cross-referencing with established standards. Biometric authentication, such as facial recognition and fingerprint scans, adds a robust layer of identity verification, reducing risks associated with impersonation or duplicate applications.

Fraud detection is another vital feature, utilizing machine learning models to identify suspicious patterns and flag potential irregularities, such as identity mismatches or attempts to circumvent the system. Blockchain technology further strengthens data security by creating tamper-proof records, ensuring sensitive information remains secure and trustworthy.

The system also prioritizes user experience. AI-powered chatbots assist applicants in real-time, addressing their queries and guiding them through the application process.

3.3 USECASE DIAGRAM

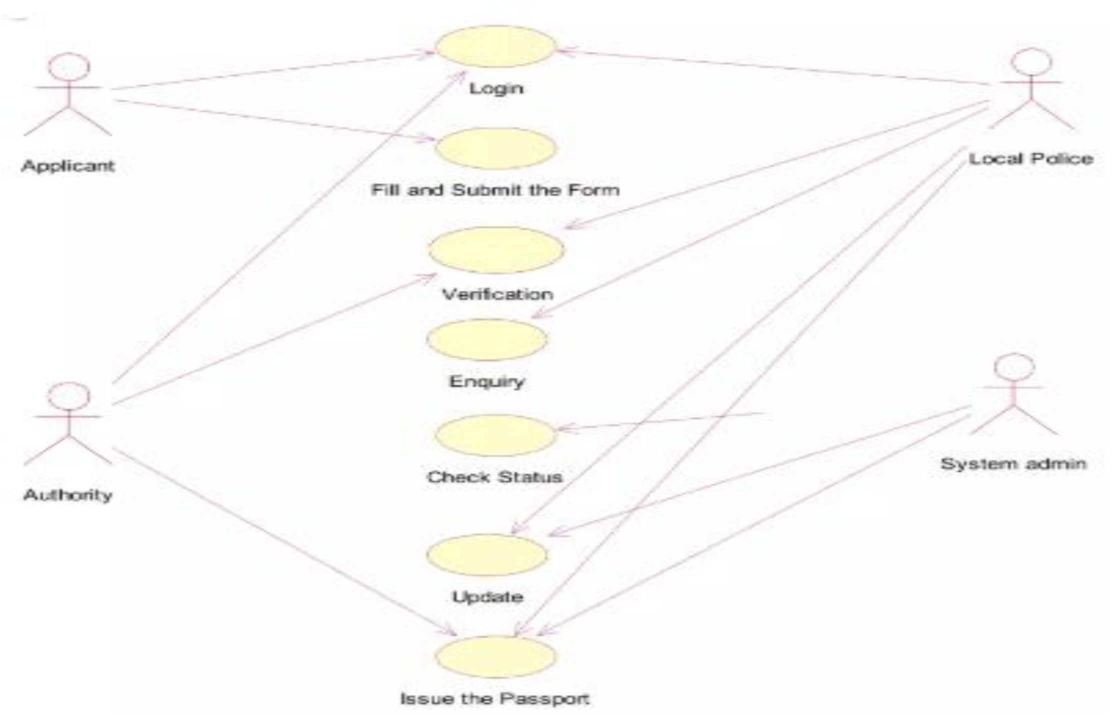


Figure 3.1: Use case Diagram

3.4 FLOWCHART

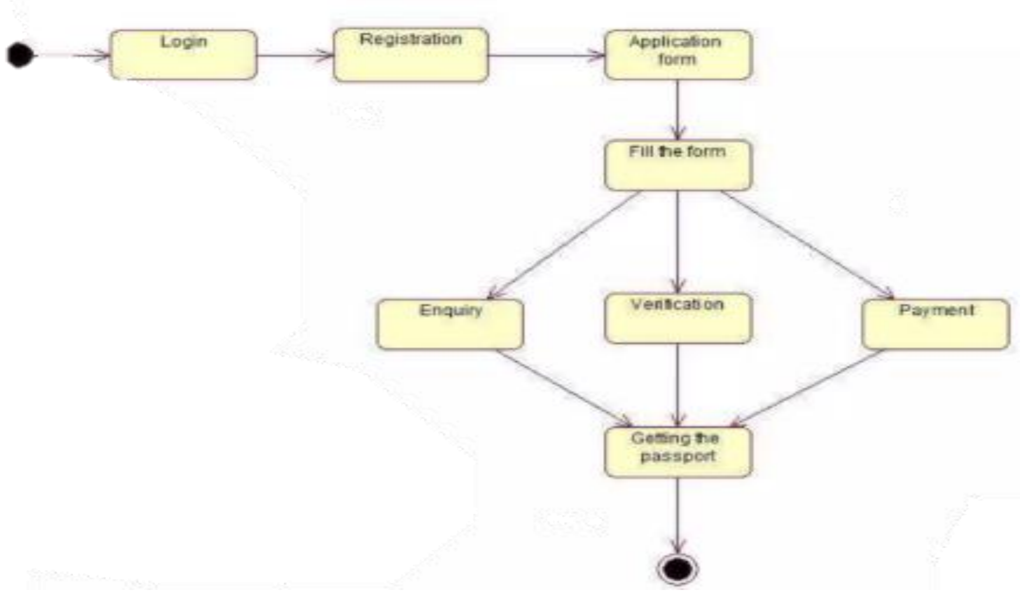


Figure 3.2: Flow Chart

3.5 CLASS DIAGRAM

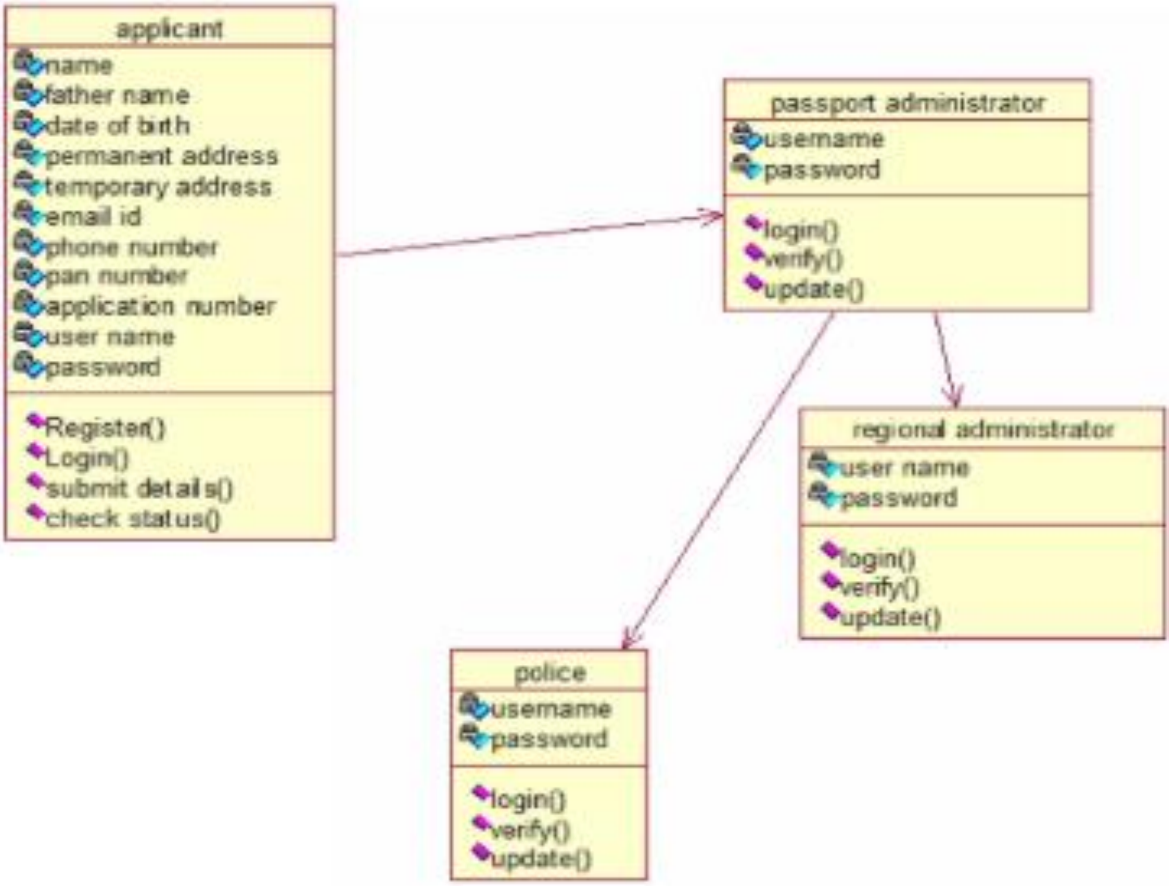


Figure 3.3: Class Diagram

CHAPTER 4

MODULES

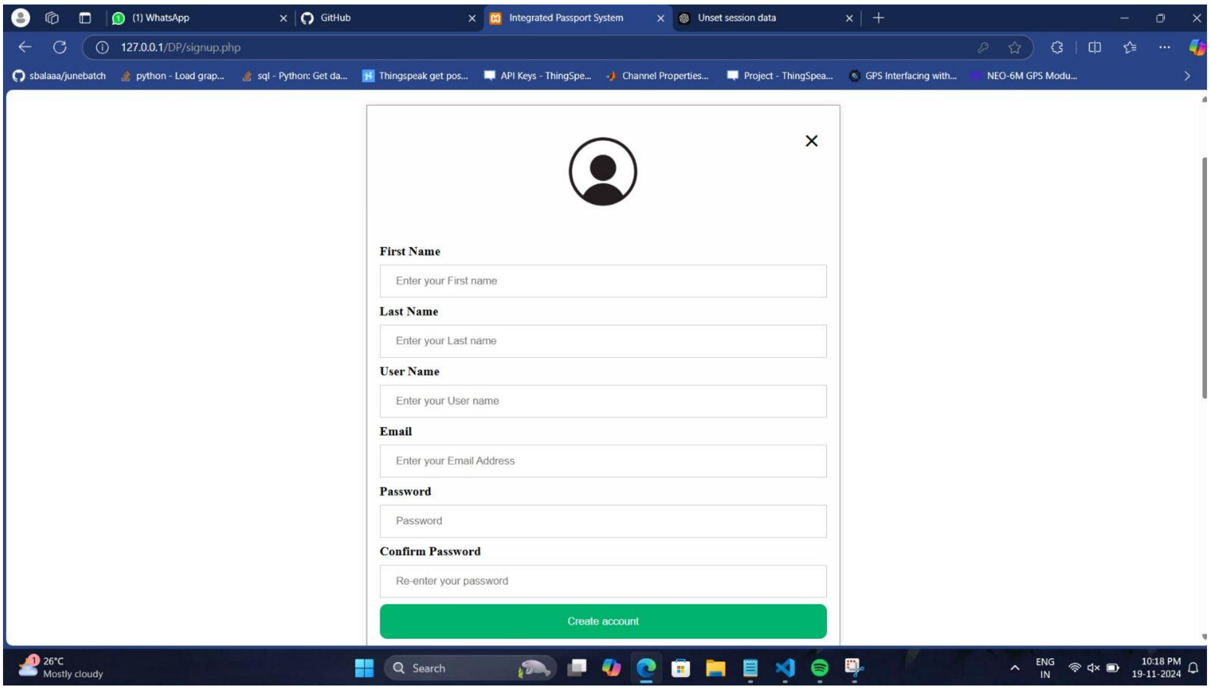
4.1 MODULE DESCRIPTION

- User Registration Module
- Authentication Module
- Application Submission Module
- Real-Time Tracking and Notification Module

4.1.1 User Registration Module

The User Registration Module for the Integrated Passport System (IPS) is responsible for securely creating user accounts and verifying the identity of applicants. Users begin by providing personal information such as name, contact details, and nationality. To ensure authenticity, the system verifies the user's identity through email or SMS-based one-time passcodes (OTP). Applicants are also required to upload essential documents, such as a government-issued ID, proof of residence, and a passport-sized photo, which are validated for completeness and correctness before proceeding further.

For added security, the module may also collect biometric data, such as facial recognition or fingerprint scans, to verify identity and prevent fraud. Multi-factor authentication (MFA) is implemented to enhance login security, requiring users to authenticate their identity through multiple steps. Once the registration details are verified and approved, the user gains access to the system and can begin the passport application process. The module ensures the protection of user data by encrypting sensitive information and adhering to privacy regulations, providing a secure and user-friendly gateway for citizens applying for passports.



First Name

Enter your First name

Last Name

Enter your Last name

User Name

Enter your User name

Email

Enter your Email Address

Password

Password

Confirm Password

Re-enter your password

Create account

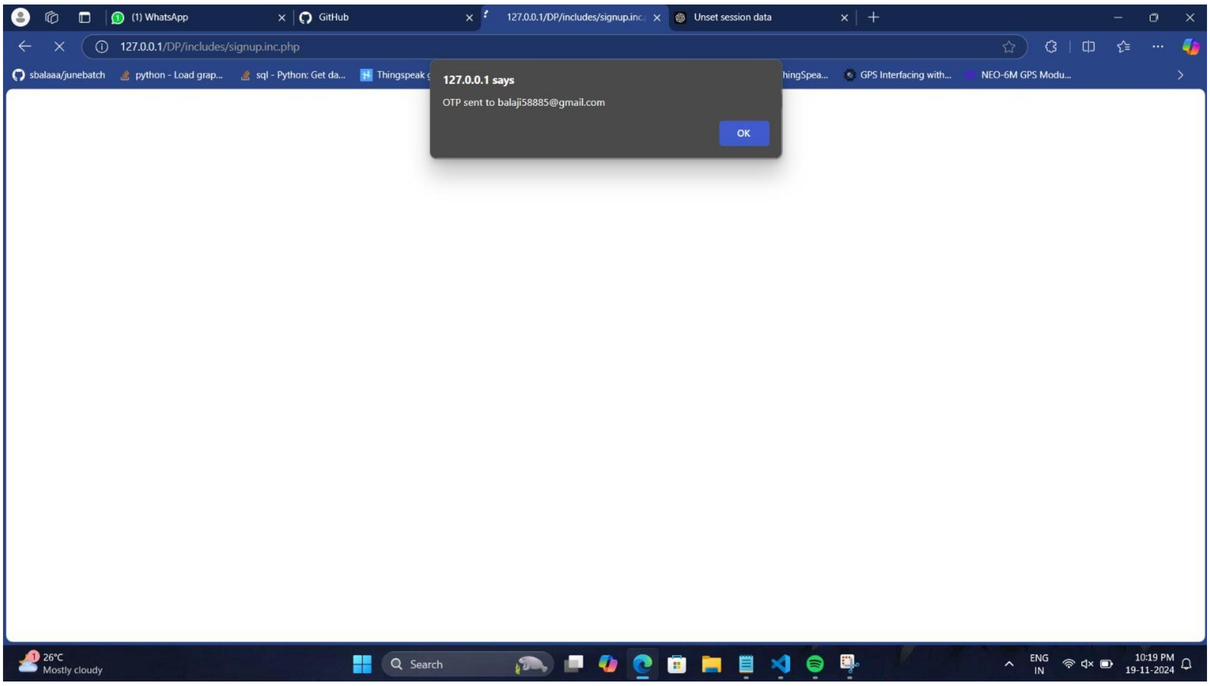
Figure 4.1: Account Creation

4.1.2 Authentication Module

The Authentication Module for modernizing the Integrated Passport System is a critical component aimed at enhancing security, efficiency, and user convenience. This module leverages cutting-edge technologies, including Artificial Intelligence (AI), to safeguard sensitive information while streamlining access to passport-related services. At its core, the module employs multi-layered authentication mechanisms, such as Multi-Factor Authentication (MFA), combining passwords, one-time passwords (OTPs), and biometric data like fingerprints or facial recognition. This layered approach ensures that only legitimate users gain access, mitigating risks like unauthorized entry, identity theft, and fraudulent activities. Additionally, the module incorporates AI-driven threat detection, which monitors user behavior, access logs, and activity patterns in real time. By analyzing anomalies, such as repeated failed login attempts or unusual geographical access, the system proactively identifies.

The module also enforces Role-Based Access Control (RBAC) to define and limit user permissions based on their roles within the system. For instance, applicants are restricted to viewing application statuses and updating personal details, while officers handle document verification, and administrators oversee system configurations. This ensures users have access only to what is necessary for their tasks, reducing the risk of accidental or intentional misuse. Furthermore, Single Sign-On (SSO) integration enhances user convenience by allowing seamless navigation across interconnected services, such as visa applications and travel authorizations, without repeated logins.

By modernizing the Integrated Passport System with such a robust Authentication Module, governments can achieve a balance between security and operational efficiency. The system not only protects against evolving digital threats but also enhances the user experience by simplifying processes and reducing delays.



127.0.0.1 says

OTP sent to balaji58885@gmail.com

Figure 4.2: OTP Verify

4.1.3 Application Submission Module

The Application Submission Module for modernizing the Integrated Passport System is designed to transform the passport application process, making it more efficient, secure, and user-friendly through the integration of Artificial Intelligence (AI). This module provides applicants with a streamlined platform to submit passport applications, significantly reducing manual errors and processing delays. Accessible via web and mobile interfaces, it ensures users can complete their applications conveniently from any location. Multilingual support and intuitive navigation enhance inclusivity, catering to diverse populations and eliminating barriers to access.

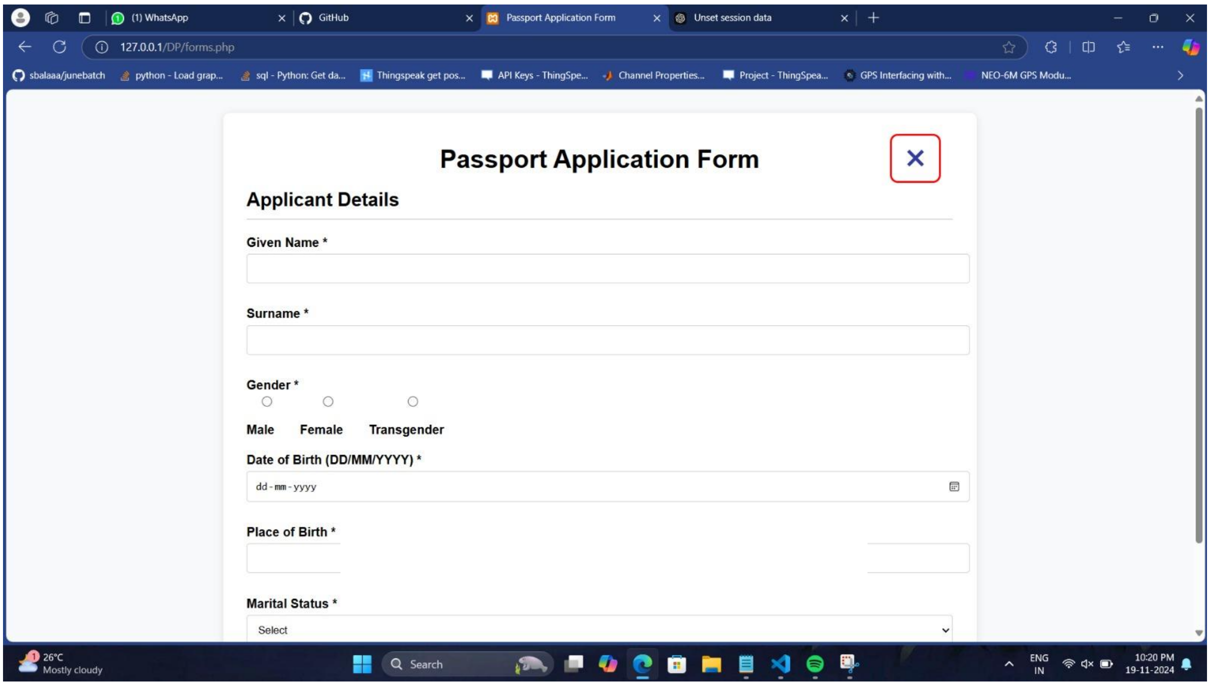
The module employs AI-driven form validation to guide applicants through the submission process. By pre-populating data fields using linked national databases, such as government-issued identification records, it minimizes manual data entry and reduces errors. Real-time validation checks ensure all mandatory fields are completed accurately, and any inconsistencies or missing information are flagged instantly, preventing rejections. This intelligent assistance improves the overall user experience and boosts application success rates.

Document submission is a key feature of the module, allowing users to upload required files directly through a secure interface. The system leverages Optical Character Recognition (OCR) powered by AI to scan, verify, and authenticate uploaded documents, ensuring compliance with prescribed standards. Real-time feedback on document quality or format errors enables users to correct issues immediately. Additionally, the module cross-checks documents against centralized databases to detect duplicates or fraudulent submissions, enhancing system integrity and security.

To further simplify the process, the module integrates payment gateways for secure online fee transactions. AI-powered fraud detection systems monitor payment activities to identify anomalies, ensuring the safety of financial data. Moreover, all personal and transactional data are encrypted during transmission and storage, safeguarding applicant information from cyber threats.

A robust tracking system is embedded within the module, enabling applicants to monitor their application status in real time. Notifications and updates via email or SMS keep users informed at every stage, enhancing transparency and reducing the need for follow-ups. For administrative efficiency, the module consolidates applicant data into centralized dashboards, allowing officials to review and process applications systematically.

By incorporating AI technologies and secure practices, the Application Submission Module not only modernizes the passport system but also enhances trust and accessibility. It represents a significant step forward in delivering efficient, secure, and user-centric passport services.



Passport Application Form ✕

Applicant Details

Given Name *

Surname *

Gender *
○ Male ○ Female ○ Transgender

Date of Birth (DD/MM/YYYY) *
dd-mm-yyyy

Place of Birth *

Marital Status *
Select

Figure 4.3: Application Form

4.1.4 Real-Time Tracking and Notification Module

The Real-Time Tracking and Notification Module is an essential feature in the modernization of the Integrated Passport System, designed to enhance transparency, user engagement, and operational efficiency. This module leverages Artificial Intelligence (AI) to provide applicants and administrators with up-to-date status information and timely notifications throughout the passport application process. By offering real-time tracking capabilities, users gain clear visibility into the progress of their applications, reducing uncertainty and the need for frequent follow-ups.

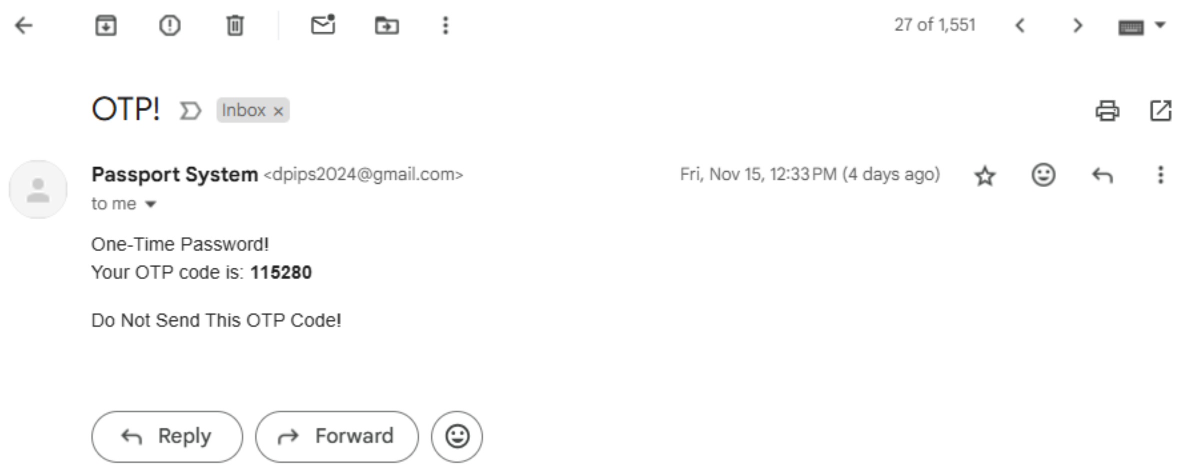
The module integrates seamlessly with the overall system, allowing applicants to track the status of their applications from submission to final delivery through web or mobile platforms. A user-friendly interface displays each stage of the process, such as document verification, biometric data capture, police clearance, and passport dispatch. AI-powered analytics optimize the tracking system by predicting delays or bottlenecks, providing applicants with accurate timelines and helping administrators proactively address issues.

To keep applicants informed, the module uses a robust notification system that supports multiple communication channels, including email, SMS, and mobile app alerts. Notifications are triggered at key milestones, such as successful submission, request for additional documents, or approval of the application. These real-time updates not only enhance user satisfaction but also ensure that applicants are promptly aware of any actions required on their part, reducing processing delays.

For added security and reliability, the module employs end-to-end encryption to protect sensitive tracking data during transmission. Advanced AI models analyze user interactions to identify and address anomalies.

On the administrative side, this module consolidates tracking data into centralized dashboards, providing passport officials with a comprehensive view of the system's performance. AI-driven insights assist in monitoring application workflows, identifying bottlenecks, and streamlining processes. For instance, if a specific stage consistently delays applications, administrators can intervene and implement corrective measures to enhance efficiency.

By integrating AI technologies and secure communication practices, the Real-Time Tracking and Notification Module significantly enhances the user experience while ensuring system reliability and efficiency. This innovation transforms the passport application process into a transparent, user-centric service, reinforcing trust and confidence in the system.



OTP!

Passport System <dpips2024@gmail.com>

to me

Fri, Nov 15, 12:33 PM (4 days ago)

One-Time Password!
Your OTP code is: **115280**

Do Not Send This OTP Code!

Figure 4.4: E-Mail Verification

CHAPTER 5

SYSTEM SPECIFICATION

5.1 SOFTWARE REQUIREMENTS

- Operating System
- Database Management System
- Front-End Languages

5.1.1 OPERATING SYSTEM

The Operating System (OS) plays a foundational role in the Integrated Passport System (IPS), acting as the backbone of its performance, reliability, and security. As the platform that hosts both application software and hardware integration, the OS ensures seamless functionality, efficient processing, and robust protection of sensitive data. Modernizing the IPS involves leveraging advanced OS technologies to handle complex tasks such as biometric processing, secure communication, and AI-driven decision-making.

Linux-based operating systems are widely adopted for IPS implementations due to their flexibility, stability, and security. Linux distributions, such as Ubuntu, CentOS, or Debian, offer a modular design that allows fine-tuning for performance and security. Additionally, open-source customization enables system administrators to tailor the OS for specific IPS requirements.

BSD-based systems, such as FreeBSD or OpenBSD, are also suitable for their minimal attack surface and high network performance. OpenBSD, in particular, is renowned for its built-in security features, such as secure by default configurations, which minimize vulnerabilities. These features are essential for an IPS, which requires a fortified infrastructure to protect against potential threats.

For organizations with heavy reliance on Microsoft ecosystems, Windows Server is a viable option. Its seamless integration with Active Directory, group policy management, and user-friendly interfaces simplifies administrative tasks in a Windows-centric environment. However, these systems often require additional hardening to match the security robustness of Linux or BSD counterparts.

Real-Time Operating Systems (RTOS), such as QNX or VxWorks, are employed in specialized IPS scenarios where ultra-low latency and high-speed processing are critical. These systems excel in environments like airport border control, where real-time biometric verification ensures rapid passenger processing.

AI integration within the IPS necessitates an OS capable of supporting machine learning frameworks and tools. Operating systems with support for frameworks like TensorFlow, PyTorch, and AI-based libraries are essential for enabling predictive analytics, fraud detection, and intelligent decision-making.

A well-chosen and optimized OS ensures that the IPS operates efficiently while safeguarding sensitive information. It supports modern security practices, scalability, and interoperability, creating a reliable foundation for a future-ready passport system.

5.1.2 DATABASE MANAGEMENT SYSTEM

The Database Management System (DBMS) is central to the modernization of the Integrated Passport System (IPS), offering a secure and scalable framework for managing sensitive and diverse datasets. The system efficiently handles personal details, such as names and addresses, passport-specific metadata, and biometric data like fingerprints, facial recognition, and iris scans. These components collectively form the backbone of streamlined operations, including passport issuance, verification, and renewal.

Structured relational databases like MySQL and PostgreSQL dominate IPS implementations for managing structured data due to their advanced querying capabilities and strong transactional support. They ensure consistency and reliability, particularly in applications where accuracy is paramount. Meanwhile, NoSQL databases such as MongoDB or Cassandra cater to unstructured biometric data, providing horizontal scalability and high-performance storage. This combination ensures that the IPS can handle both traditional and modern data types efficiently.

Data security is a top priority in any IPS implementation. Encryption protocols protect data during storage and transmission, reducing risks associated with unauthorized access or breaches. Multi-factor authentication (MFA) and Role-Based Access Control (RBAC) further enhance security by restricting access based on user roles and verifying user identities. Audit logs monitor activities, providing transparency and aiding compliance with data protection regulations like GDPR.

High availability is essential to avoid downtime in the IPS. Techniques such as database replication and clustering ensure uninterrupted service even during hardware failures. Backup strategies and disaster recovery plans safeguard data integrity, allowing rapid recovery in the event of cyberattacks or system crashes.

Scalability is another key consideration for the DBMS, as the IPS must accommodate growing populations and data demands. Cloud-based DBMS solutions, such as Amazon RDS or Azure SQL Database, offer elastic scalability, ensuring the system remains efficient even as the user base expands.

With the integration of AI, the DBMS plays a critical role in enabling predictive analytics for fraud detection and optimizing application workflows. Machine learning models trained on historical data can enhance decision-making, further improving IPS efficiency.

In conclusion, a robust, secure, and scalable DBMS is the cornerstone of a modernized IPS, ensuring data integrity, operational efficiency, and regulatory compliance in a rapidly evolving digital landscape.

5.1.3 FRONT-END LANGUAGES

The front-end of the Integrated Passport System (IPS) serves as the user interface that connects applicants and officials to the system's underlying functionalities. A well-designed front-end ensures seamless interactions, data accuracy, and user satisfaction, making it a critical component in the modernization of the IPS.

HTML (HyperText Markup Language) forms the structural backbone of the IPS interface. It organizes key elements such as input forms, data tables, and buttons. HTML5 introduces enhanced capabilities like input validation, multimedia integration, and semantic tags, ensuring that users can enter information efficiently while minimizing errors. For instance, HTML5 validation can check fields like passport numbers and dates of birth, streamlining the application process and reducing manual errors.

CSS (Cascading Style Sheets) is responsible for styling and enhancing the visual appeal of the IPS. By employing responsive design techniques, CSS ensures that the system adapts seamlessly to various devices, including desktops, tablets, and smartphones. Advanced features like media queries and flexible grid layouts create a user-friendly interface, essential for both applicants and officials. A consistent and visually appealing design fosters trust and makes navigation intuitive.

JavaScript brings interactivity and dynamic functionality to the front-end. Features such as real-time form validation, error notifications, and live updates for passport application statuses enhance user experience. JavaScript frameworks like React and Angular enable the development of Single-Page Applications (SPAs), which minimize page reloads and provide a fluid navigation experience.

To meet accessibility standards, modern front-end frameworks integrate tools to ensure that the IPS is usable by individuals with disabilities. Features like screen reader compatibility, keyboard navigation, and high-contrast modes make the system inclusive.

Incorporating AI into the front-end allows for intelligent features, such as chatbots for user queries and predictive suggestions for form completion. This further enhances usability and efficiency.

5.2 HARDWARE REQUIREMENTS

- Smart Card Readers
- Networking Equipment
- Data Center Requirements

5.2.1 SMART CARD READERS

In today’s digital age, modernizing the passport system is crucial to ensure efficiency, security, and global accessibility. The integration of smart card readers, enhanced with artificial intelligence (AI), offers a transformative approach to address the limitations of traditional systems. Smart cards embedded with microchips securely store biometric data, digital signatures, and passport details, which can be accessed using smart card readers.

By leveraging AI, the system can significantly improve identity verification and decision-making processes. AI-driven biometric matching enables real-time cross-verification of facial recognition, fingerprints, and iris scans with data stored on smart cards, reducing identity fraud risks. AI algorithms can also identify patterns in passport usage to detect anomalies, enhancing fraud detection.

Smart card readers, combined with AI-powered automation, improve the efficiency of passport issuance and verification processes. AI-based queue management systems streamline operations at airports and passport offices, reducing wait times and optimizing resource allocation. Predictive analytics further supports decision-making by forecasting service demand during peak travel periods.

Security is paramount in this integrated approach. Advanced encryption technologies ensure secure communication between smart cards and readers, while blockchain systems protect the integrity of passport issuance records. AI-driven threat monitoring systems provide real-time alerts to safeguard against cyberattacks.

Despite these advantages, implementing such a system presents challenges. High costs, interoperability concerns, and the need to adhere to stringent global data protection regulations pose significant hurdles. However, these challenges can be mitigated through phased deployment, international collaboration, and robust compliance frameworks.

In conclusion, the fusion of smart card readers and AI is a game-changer for the passport system, enhancing security and operational efficiency. This innovation paves the way for a more seamless, secure, and future-ready global travel experience.

5.2.2 NETWORKING EQUIPMENT

The integration of networking equipment with artificial intelligence (AI) in the passport system is revolutionizing how passports are managed and verified, addressing inefficiencies and security vulnerabilities in traditional systems. Advanced networking infrastructure ensures seamless communication between various passport offices, immigration checkpoints, and central databases.

High-speed routers and switches facilitate real-time data transmission across geographically dispersed nodes, enabling instant access to passport records. Cloud-based storage solutions, supported by networking equipment, enhance scalability and data accessibility while ensuring data redundancy. AI algorithms analyze this data to identify anomalies, improve decision-making, and detect fraudulent activities.

AI-powered networking also supports robust biometric verification systems by ensuring low-latency connections during facial recognition or fingerprint matching processes. Edge computing devices, placed at key checkpoints, process sensitive data locally before securely transmitting it to central servers, enhancing both efficiency and privacy.

Security is bolstered through the integration of AI-driven intrusion detection and prevention systems. These systems monitor network traffic in real time, identifying and neutralizing cyber threats. Virtual private networks (VPNs) and advanced firewalls further secure data transmission channels, ensuring compliance with global data protection regulations.

Moreover, AI-enhanced predictive analytics optimize network resource allocation. This ensures uninterrupted operations during peak periods, such as holiday seasons, and minimizes downtime

Despite the benefits, challenges such as the high cost of implementation, interoperability issues across international systems, and the need for skilled personnel remain. Addressing these through phased deployment and global standardization can drive successful adoption.

In conclusion, integrating advanced networking equipment with AI transforms the passport system, ensuring efficiency, scalability, and top-tier security. This modernization enables seamless global operations, aligning with the demands of the digital age.

5.2.3 DATA CENTER REQUIREMENTS

Modernizing the passport system with artificial intelligence (AI) demands advanced data center infrastructure to support secure, efficient, and scalable operations. Data centers must handle vast amounts of sensitive information, including biometric data, travel histories, and digital records, ensuring real-time accessibility for global passport offices and immigration checkpoints. High-performance computing (HPC) resources, such as GPUs and TPUs, are essential for processing AI algorithms used in fraud detection, anomaly identification, and predictive analytics. Scalable storage solutions like Network Attached Storage (NAS) and cloud integration enable seamless expansion to accommodate increasing data volumes.

Low-latency, high-speed networking infrastructure is critical for real-time communication between data centers and distributed nodes, ensuring uninterrupted operations. Software-defined networking (SDN) enhances flexibility by dynamically managing data traffic. Security remains paramount, with AI-powered intrusion detection systems, multi-layered encryption, and role-based access control (RBAC) safeguarding data against cyber threats. Additionally, compliance with international data protection standards like GDPR is necessary to maintain public trust.

CHAPTER 6

METHODOLOGY

6.1 SYSTEM REQUIREMENTS AND ANALYSIS

The initial stage of developing an Integrated Passport System (IPS) involves identifying and analyzing system requirements to ensure comprehensive functionality that meets both security and user needs. This foundational step focuses on defining core objectives, such as enhancing border security, preventing identity fraud, and reducing processing times for immigration and passport verification. These objectives help shape the system's design and functionality, ensuring it aligns with the authorities' need for secure and efficient operations and the travelers' desire for seamless service.

A critical aspect of the analysis is assessing the legal and regulatory landscape. Compliance with international standards, such as those set by the International Civil Aviation Organization (ICAO), is mandatory for IPS to be globally interoperable and accepted. Moreover, the system should be scalable and adaptable to accommodate the diverse needs of various nations while maintaining robust security. Government agencies, border control authorities, and technology providers must collaborate to capture detailed requirements that reflect the priorities of each entity. This ensures that the system design caters to operational needs, technical specifications, and user experience expectations. Traveler input is also valuable for creating a user-centric design that facilitates ease of use, such as fast biometric verification and intuitive interfaces. an IPS that meets the balance of security, efficiency, and user satisfaction. This stage lays the groundwork for subsequent development and implementation, ensuring that the IPS can handle large-scale data while supporting seamless international travel and maintaining stringent security measures.

6.2 RFID AND SMART CARD INTEGRATION

RFID (Radio Frequency Identification) technology plays a crucial role in modernizing the passport system by enhancing data security and streamlining the border control process. The embedded RFID chip in electronic passports (e-passports) stores essential data, including personal information and biometric details like facial images and fingerprints. This chip uses encrypted data storage to prevent unauthorized access and tampering, making the passport system more secure and trustworthy.

RFID technology allows for rapid data transmission between the passport and reader devices, enabling faster verification processes compared to traditional manual checks. This improves the efficiency of border control, reduces waiting times for travelers, and helps manage high traffic at immigration points, especially during peak travel seasons. The integration of RFID chips also facilitates a high level of interoperability, ensuring that e-passports comply with international standards set by ICAO. This enables border control systems in various countries to read and validate e-passports, supporting seamless international travel.

Smart card technology complements RFID by adding another layer of security. The smart card's ability to store encrypted data and integrate with public key infrastructure (PKI) ensures that the passport's information is tamper-resistant and securely transmitted. With additional features such as holograms, UV ink, and watermarks, the physical passport becomes highly resistant to counterfeiting, enhancing overall document integrity.

Integration with AI-driven verification systems further improves security. Advanced AI algorithms can cross-check the passport data against international security databases, quickly detecting forged or stolen documents. The combination of RFID and smart card technologies strengthens the IPS by allowing automated, real-time checks and reducing the chance of human error.

6.3 Data Management and Database Infrastructure

Data management and robust database infrastructure are fundamental for the effective functioning of an Integrated Passport System (IPS). This system requires a comprehensive approach to data storage, retrieval, and security to handle the substantial volume of sensitive information, Effective data management ensures seamless operations, enabling passport issuance, verification, and renewal to be executed efficiently across various channels and regions.

Centralized database systems are often employed for data management, where all passport-related information is stored in one secure location. This approach simplifies the process of data updates and management, but it poses potential security risks if compromised. To address this, advanced encryption protocols like AES (Advanced Encryption Standard) and RSA (Rivest-Shamir-Adleman) are employed to protect data during storage and transmission. Additionally, access controls and stringent user authentication mechanisms are critical to ensure that only authorized personnel can access sensitive information.

On the other hand, decentralized databases offer increased resilience by distributing data across various secure locations. This reduces the risks associated with a single point of failure and enhances system scalability, as data can be managed locally in different regions or countries

Data synchronization across distributed databases is essential to keep the system up-to-date and maintain data consistency. The use of blockchain technology or distributed ledger systems is also gaining traction for providing tamper-proof data storage and verification, contributing to higher security levels. Furthermore, the database infrastructure must support high availability and disaster recovery mechanisms. This ensures the IPS operates seamlessly, securely, and without disruptions, even when handling massive volumes of passport data.

6.4 SECURITY MEASURES AND FRAUD PREVENTION

Security is paramount in an Integrated Passport System (IPS) as passports are critical documents susceptible to misuse, counterfeiting, and identity theft. To maintain the integrity of the system and protect against fraud, a multi-layered approach to security must be employed. This includes a combination of advanced encryption techniques, biometric verification, and physical security features that safeguard the data and ensure only authorized individuals can access and modify.

One key element is the use of encrypted RFID chips embedded within the passport. These chips securely store personal and biometric data and utilize advanced encryption protocols to prevent unauthorized access and tampering. Additionally, biometric verification, such as fingerprint scanning and facial recognition, adds an essential layer of security by ensuring that the passport holder is indeed the rightful owner. These biometric identifiers are cross-checked against security databases to detect stolen or invalid documents.

Tamper-resistant physical security features, such as holograms, UV ink, and watermarks, provide additional protection against counterfeiting and unauthorized alterations. The integration of these features into the design of the passport makes it difficult for counterfeiters to replicate or modify the document undetected.

Fraud prevention measures also include robust issuance and verification processes. Multi-factor authentication (MFA) adds an extra security layer by combining biometric data with PINs or one-time passwords (OTPsPost-issuance, continuous verification and real-time data cross-referencing with international and national security databases are employed to detect any fraudulent activity.

AI and machine learning algorithms can be used to detect patterns and anomalies that indicate fraudulent behavior. These technologies can enhance decision-making and improve the accuracy of identity verification.

CHAPTER 7
CONCLUSION AND FUTURE ENHANCEMENT

7.1 CONCLUSION

An Integrated Passport System (IPS) is a significant advancement in the way passport management and issuance are handled, combining modern technology with the evolving needs of both governments and citizens. As nations increasingly move toward digital transformation, an IPS provides an efficient, secure, and scalable solution to streamline passport services, from application submission to renewal and verification. By utilizing cutting-edge technologies such as biometrics, cloud computing, real-time data processing, and mobile applications, the IPS ensures the management of sensitive personal information with the highest level of security and accessibility.

One of the key strengths of an IPS is its scalability. The system can evolve to meet future needs, such as the integration of electronic passports, the addition of advanced biometric authentication methods, or support for smart city initiatives that require seamless integration with national IDs or other governmental services. Furthermore, the real-time updates facilitated by the IPS ensure that both citizens and government agencies are kept informed at all stages of the process, from application submission to passport delivery.

In conclusion, the Integrated Passport System is an essential innovation in modernizing the management of passport services. As cities and countries continue to embrace digital solutions, IPS will play a vital role in ensuring that passport systems are more efficient, secure, and accessible to all, contributing to a more connected, reliable, and user-friendly experience for citizens and governments.

7.2 FUTURE ENHANCEMENT

The future of the Integrated Passport System (IPS) is poised for significant advancements, driven by developments in biometric technology, artificial intelligence (AI), and data security. One major enhancement will be the adoption of multi-modal biometrics, which includes a variety of identification methods such as fingerprints, facial recognition, iris scans, voice recognition, and behavioral biometrics. These technologies provide more comprehensive, accurate, and secure verification, reducing the risk of fraud and enhancing user experience. Multi-modal biometrics combine data from different sources to create a more robust and multi-layered approach to identity verification. This will help identify individuals with greater precision, even in complex cases, and will be vital for preventing identity theft and unauthorized access.

APPENDIX – 1

SOURCE CODE

Login.php

```
<?php
  include_once 'import/header.php';
?>
<div id="id01" class="modal">
 <form class="modal-content animate" action="includes/login.inc.php"
method="post">
  <div class="imgcontainer">
   <span onclick="document.getElementById('id01').style.display='none'"
class="close" title="Close Modal">&times;</span>
   <img src="images/uprofile.png" alt="Avatar" class="avatar">
  </div>

<div class="container">
   <label for="uname"><b>Username or Email</b></label>
   <input type="text" placeholder="Enter Username" name="uname"
required>

   <label for="psw"><b>Password</b></label>
   <input type="password" placeholder="Enter Password" name="psw"
required>
   <button type="submit" name="login" class="login-button">Login</button>
   <label>
    <input type="checkbox" checked="checked" name="remember">
Remember me
   </label>
  </div>
```

```
    <div class="container" style="background-color:#f1f1f1">
      <button type="button"
onclick="document.getElementById('id01').style.display='none'"
class="cancelbtn">Cancel</button>
      <span class="psw">&nbsp&nbsp&nbspForgot <a
href="forgotpas.php">password?</a></span>
      <p style="text-align: right;" class="psw">New To The Site&nbsp<a
href="signup.php">Create an account</a></p>
    </div>
  </form>
</div>
<?php
    include_once 'import/footer.php';
?>
```

profile.php:

```
<?php
include_once 'import/header.php';
?>
<div class="manage-account-container">
        <h2>Manage Your Account</h2>

        <div class="user-profile">
            <img src="user-profile.jpg" alt="Profile Picture">
            <input type="file" class="upload-button" id="profile-image"
name="pic" accept="image/*">
        </div>
        <form class="account-form" action="includes/update.inc.php"
method="POST">
            <div class="form-group">
```

```
                <label for="first-name">First Name</label>
                <input type="text" id="first-name" name="first-name" value="John"
required>
            </div>
            <div class="form-group">
                <label for="last-name">Last Name</label>
                <input type="text" id="last-name" name="last-name" value="Doe"
required>
            </div>
            <div class="form-group">
                <label for="phone-number">Phone Number</label>
                <input type="tel" id="phone-number" name="phone-number"
placeholder="Enter your phone number">
            </div>
            <div class="form-group">
                <label for="meal-type">Meal Type</label>
                <select id="meal-type" name="meal-type">
                    <option value="vege">Vegetarian</option>
                    <option value="non-vege">Non-Vegetarian</option>
                </select>
            </div>
            <div class="form-group">
                <label for="passport-name">Name as in Passport</label>
                <input type="text" id="passport-name" name="passport-name"
required>
            </div>
            <div class="form-group">
                <label for="age">Age</label>
                <input type="number" id="age" name="age" required>
```

```
          </div>
          <div class="form-group">
             <label for="gender">Gender</label>
             <select id="gender" name="gender">
                <option value="male">Male</option>
                <option value="female">Female</option>
                <option value="other">Other</option>
             </select>
          </div>
          <div class="form-group">
             <label for="nationality">Nationality</label>
             <input type="text" id="nationality" name="nationality" required>
          </div>
          <div class="form-group">
             <label for="country">Country</label>
             <input type="text" id="country" name="country" required>
          </div>

          <button type="button" id="delete-account-button"
onclick="redirectdelete()">Delete Account</button>
          <button id="form-button" name="save" type="submit"
onclick="redirectToUpdate()">Save Changes</button>
       </form>
   </div>
<script>
   function redirectdelete()  {
      window.location.href='del.confirm.php';
   }
</script>
```

```
<?php
  include_once 'import/footer.php';
?>
```

register.php

```
<?php
session_start();
?>
<div class="modal fade" id="adminprofile" tabindex="-1" role="dialog" aria-labelledby="exampleModalLabel" aria-hidden="true">
 <div class="modal-dialog" role="document">
  <div class="modal-content">
   <div class="modal-header" style="padding:5px; background-color: #333; color: #fff;">
    <h3 class="modal-title" id="exampleModalLabel">Add Admin Data</h3>
   </div>
   <form action="code.php" method="POST">
    <div style="box-shadow: 0 4px 6px rgba(0, 0, 0, 0.1);">
    <div class="form-group">
     <label style="color: #333; font-size: 18px; font-weight: bold;">Username</label>
     <input type="text" name="username" class="form-control" placeholder="Enter Username" style="border: 2px solid #333; padding: 10px; font-size: 16px;">
    </div>
    <div class="form-group">
     <label style="color: #333; font-size: 18px; font-weight: bold;">Email</label>
     <input type="text" name="email" class="form-control"
placeholder="Enter Email" style="border: 2px solid #333; padding: 10px; font-
size: 16px;">
    </div>
    <div class="form-group">
     <label style="color: #333; font-size: 18px; font-weight:
bold;">Password</label>
     <input type="text" name="password" class="form-control"
placeholder="Enter password" style="border: 2px solid #333; padding: 10px;
font-size: 16px;">
    </div>
    <div class="form-group">
     <label style="color: #333; font-size: 18px; font-weight: bold;">Confirm
Password</label>
     <input type="text" name="comfirmpassword" class="form-control"
placeholder="Enter confirm password" style="border: 2px solid #333; padding:
10px; font-size: 16px;">
    </div>
    </div>
   </div>
   <div class="modal-footer">
 <button type="button" class="btn btn-secondary" data-dismiss="modal"
style="background-color: #333; color: #fff; border: none; padding: 10px 20px;
margin-right: 10px; cursor: pointer; transition: background
0.3s;">Close</button>
 <button type="submit" name="registerbtn" class="btn btn-primary"
style="background-color: #3498db; color: #fff; border: none; padding: 10px
20px; cursor: pointer; transition: background 0.3s;">Save</button>
</div>
```

```
<div class="container-fluid">
 <div class="card shadow mb-4">
  <div class="card-header py-3" style="background-color: #333; color: #fff;">
   <h4 class="m-0 font-weight-bold text-primary">Admin Profile
   <button type="button" class="btn btn-primary" data-toggle="modal" data-
target="#adminprofile" style="background-color: #3498db; color: #fff; border:
none; padding: 10px 20px; margin: 10px; cursor: pointer; transition:
background 0.3s;">
 Add Admin Profile
</button>
   </h4>
  </div>
  <div class="card-body">
   <?php
   if (isset($_SESSION['success']) && $_SESSION['success'] != '') {
    echo '<h2 style="background-color: #4CAF50; color: #fff;">' .
$_SESSION['success'] . '</h2>';
    unset($_SESSION['success']);
   }
   if (isset($_SESSION['status']) && $_SESSION['status'] != '') {
    echo '<h2 style="background-color: #FF5733; color: #fff;">' .
$_SESSION['status'] . '</h2>';
    unset($_SESSION['status']);
   }
   ?>
   <div class="card shadow mb-4" style="box-shadow: 0 4px 6px rgba(0, 0, 0,
0.1);">
    <?php
    $connection = mysqli_connect("localhost", "root", "", "flymaster_login");
```

```
        $query = "SELECT * FROM users";
        $query_run = mysqli_query($connection, $query);
        ?>

        <table class="table table-bordered" id="dataTable" width="100%"
cellspacing="0">
          <thead>
            <tr>
              <th>Id</th>
              <th>Username</th>
              <th>Email</th>
              <th>Password</th>
              <th>EDIT</th>
              <th>DELETE</th>
            </tr>
          </thead>

          <tbody>
            <?php
            if (mysqli_num_rows($query_run) > 0) {
              while ($row = mysqli_fetch_assoc($query_run)) {
            ?>
                <tr>
                    <td><?php echo $row['uid']; ?></td>
                    <td><?php echo $row['uname']; ?></td>
                    <td><?php echo $row['email']; ?></td>
                    <td><?php echo $row['password']; ?></td>
                    <td>
```

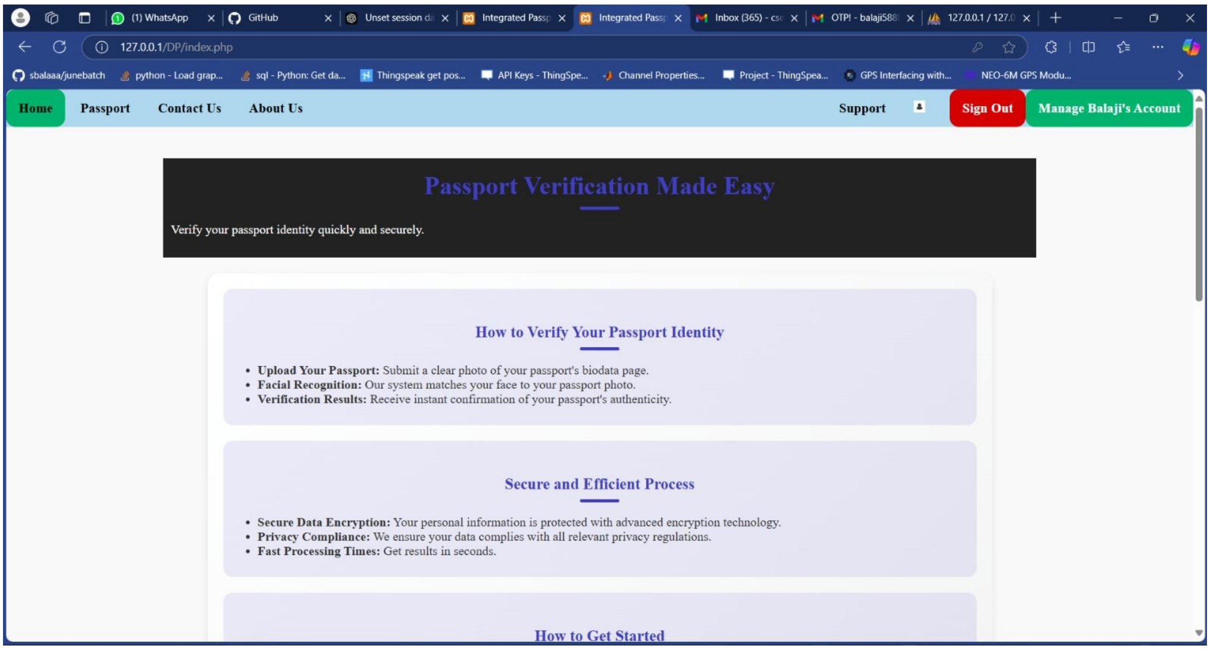
```
           <form action="register_edit.php" method="POST">
            <input type="hidden" name="edit_id" value="<?php echo $row['uid']; ?>">
            <button type="submit" name="edit_btn" class="btn btn-success" style="background-color: #4CAF50; color: #fff; border: none; padding: 5px 10px; cursor: pointer; transition: background 0.3s;">EDIT</button>
           </form>
          </td>
          <td>
           <form action="code.php" method="POST">
            <input type="hidden" name="delete_id" value="<?php echo $row['uid']; ?>">
            <button type="submit" name="delete_btn" class="btn btn-danger" style="background-color: #FF5733; color: #fff; border: none; padding: 5px 10px; cursor: pointer; transition: background 0.3s;">DELETE</button>
           </form>
          </td>
         </tr>

      <?php
       }
      } else {
       echo "No Record Found";
      }
      ?>
     </tbody>
    </table>
   </div>
  </div>
```

APPENDIX – 2

SCREENSHOTS

Sample Output



Passport Verification Made Easy

Verify your passport identity quickly and securely.

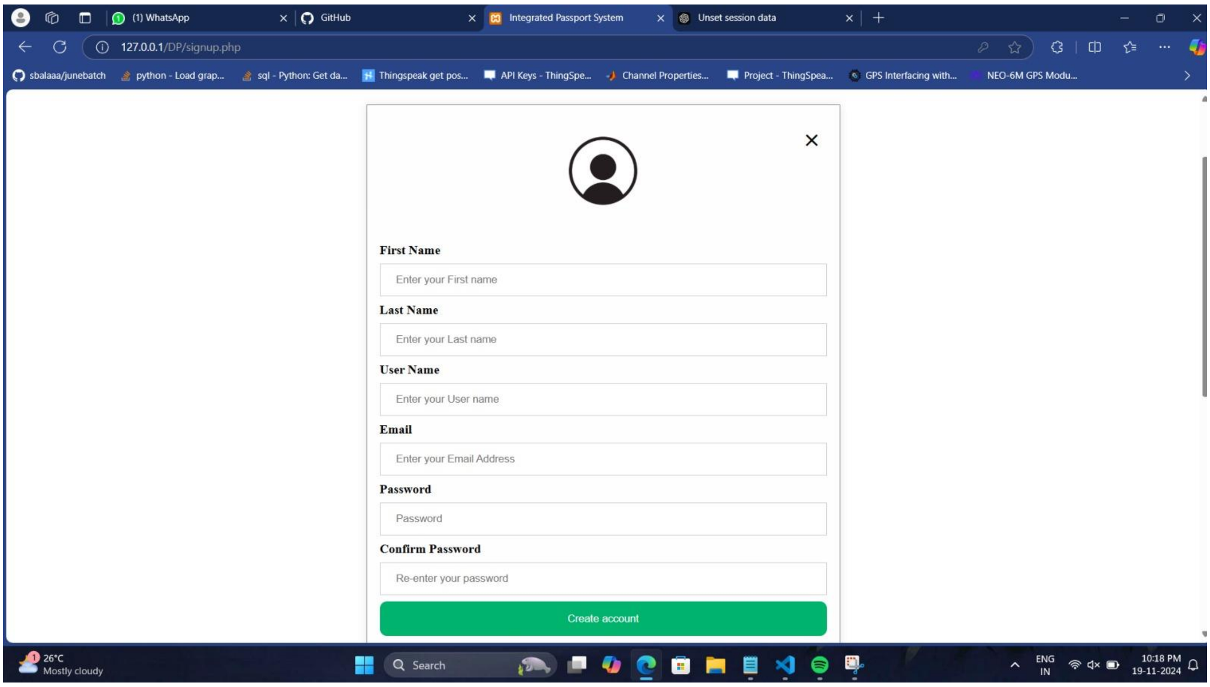
How to Verify Your Passport Identity

- **Upload Your Passport:** Submit a clear photo of your passport's biodata page.
- **Facial Recognition:** Our system matches your face to your passport photo.
- **Verification Results:** Receive instant confirmation of your passport's authenticity.

Secure and Efficient Process

- **Secure Data Encryption:** Your personal information is protected with advanced encryption technology.
- **Privacy Compliance:** We ensure your data complies with all relevant privacy regulations.
- **Fast Processing Times:** Get results in seconds.

How to Get Started



First Name

Enter your First name

Last Name

Enter your Last name

User Name

Enter your User name

Email

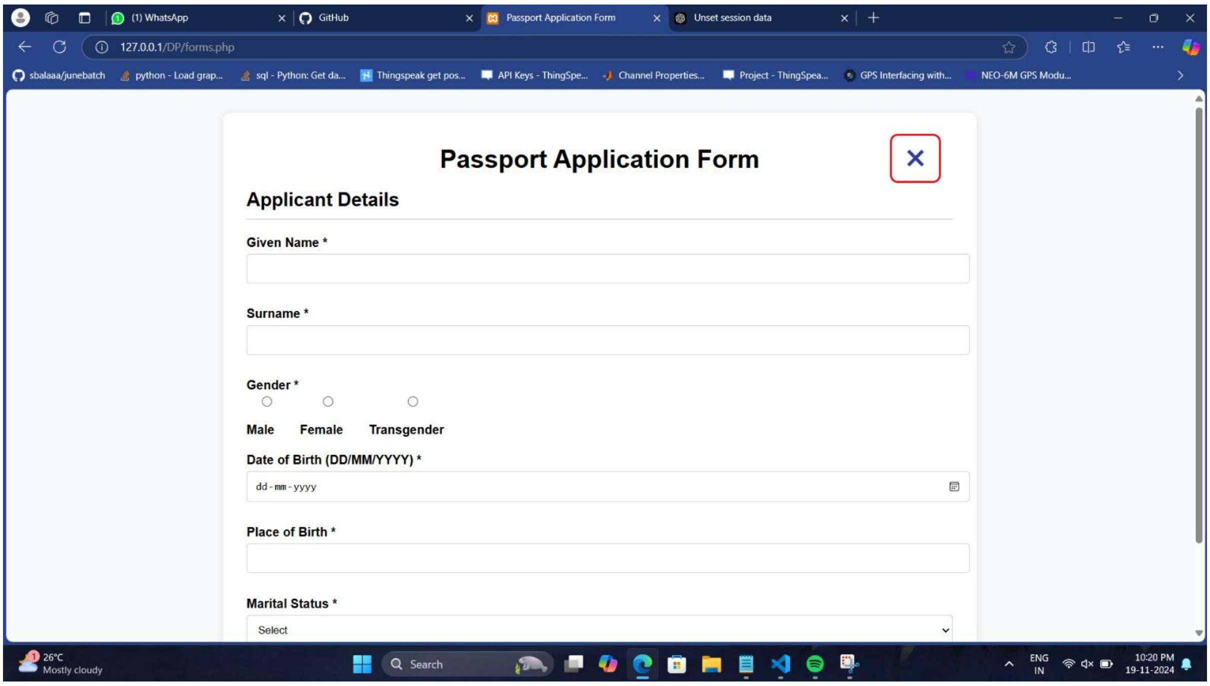
Enter your Email Address

Password

Password

Confirm Password

Re-enter your password



Passport Application Form

Applicant Details

Given Name *

Surname *

Gender *

○ Male ○ Female ○ Transgender

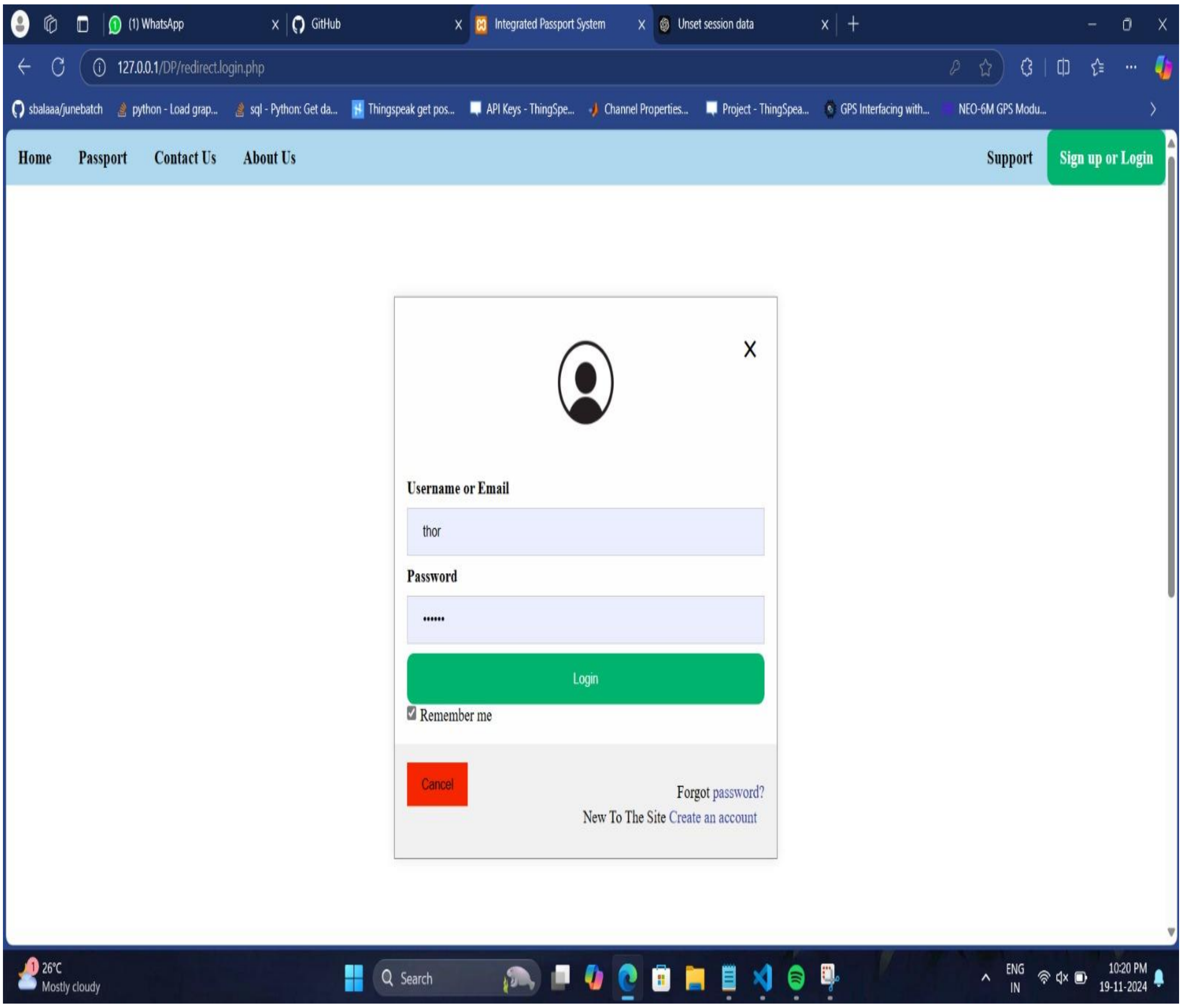
Date of Birth (DD/MM/YYYY) *

dd - mm - yyyy

Place of Birth *

Marital Status *

Select



X

Username or Email

thor

Password

••••••

Login

☑ Remember me

Cancel

Forgot password?

New To The Site Create an account

REFERENCES

1. B. Scherf, D. Lindner, and P. Finkel, “Integrated Identity Management for Secure E-Passport Systems,” *Journal of Applied Security Research*, vol. 8, no. 4, pp. 512–528, 2013.
2. M. Ma and A. K. Jain, “A Survey of Biometric Identification Systems for e-passports,” *International Journal of Biometrics*, vol. 4, no. 1, pp. 1-17, 2012.
3. R. Stojanovic, S. M. H. El-Ghareeb, and H. R. N. Nassar, “Design and Implementation of an Integrated Passport Control System Based on RFID Technology,” *IEEE Access*, vol. 7, pp. 45689–45698, 2019.
4. A. T. Shah and M. K. Khan, “Biometric Authentication for Border Control: Integration with E-Passport Systems,” *International Journal of Computer Science and Information Security (IJCSIS)*, vol. 10, no. 7, pp. 34–39, 2012.
5. W. Li, T. Yan, and W. Guo, “A Study on the Security of E-passport and its Integration with National Identity Systems,” *Procedia Engineering*, vol. 15, pp. 124–131, 2011.
6. International Civil Aviation Organization (ICAO), “Machine Readable Travel Documents (MRTD),” ICAO Doc 9303, 6th edition, 2015.
7. D. Zhao, Y. Li, and S. Liu, “Automated Passport Control Using Facial Recognition,” *Journal of Computer Vision and Image Processing*, vol. 23, no. 3, pp. 250–259, 2018.