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**Software Development Group Project**  
**IS2106**  
**Group - Triad**

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Project - Passport expiry alert System

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## Declaration Page

We hereby certify that this project report and all the artifacts associated with it is our own work and it has not been submitted before neither is it being submitted for any other degree programs.

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## **Abstract**

This document outlines the System Requirements Specification for a Passport Expiry Alert System designed for Sri Lankan citizens. The system aims to improve passport renewal awareness by sending timely alerts through Electronic mail upon approaching expiry. It will securely access passport data from a government database, trigger alerts based on predefined thresholds, and provide clear renewal instructions.

# Acknowledgement

We've achieved a significant milestone in our challenging software project. Mr. H. M. K.T Gunawardana, leading our module, and the entire team provided valuable advice and feedback that played a crucial role in shaping our project.

Our families deserve special recognition for their unwavering support and encouragement throughout the project. Their backing was instrumental in our success.

A heartfelt thanks to everyone who participated in our interviews, contributing to our project's success. The insights gathered were pivotal, particularly in enhancing the effectiveness of our Passport Expiry alert System.

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## Abbreviations table

Abbreviation	Explanation	Use
(PEAS)	Passport Expiry Alert System	The software solution is designed to notify individuals about their passport expiration dates.
(SRS)	Software Requirement Specification	a document outlining the requirements for a software project.
Email	Electronic mail	a method of exchanging digital messages over the internet.
(DBMS)	Database Management System	Software for managing databases, ensuring data integrity and security.

# 1. Introduction

This document outlines SRS for a PEAS designed specifically for Sri Lankan citizens. This innovative system aims to revolutionize the passport renewal process by imposing technology to empower citizens and streamline government services.

The current system often leads to inconveniences for travelers due to unexpected passport expiry. Citizens might miss deadlines or experience travel disruptions if they are unaware of their passport's approaching expiration. This document proposes an automated PEAS to address these challenges.

## 1.1 Purpose

The primary purpose of the PEAS is to:

- **Enhance Sri Lankan citizen awareness:** Reduce the number of inconveniences faced by Sri Lankan citizens due to expiring passports.
- **Streamline passport renewal processes:** Proactively inform citizens about their approaching expiry dates, allowing them ample time to initiate the passport renewal process.
- **Improve government service delivery:** Demonstrate a citizen-focused approach by imposing technology to provide timely and essential information.

## 1.2 Scope

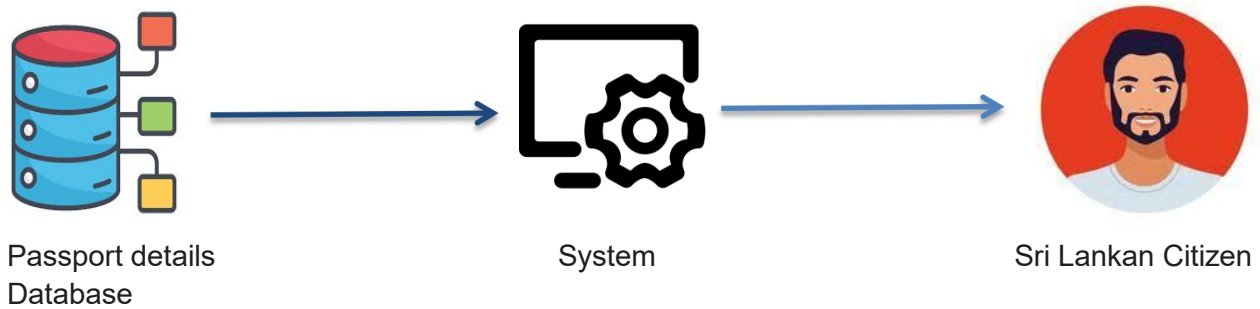
The scope of the PEAS encompasses the development of a software solution that will:

- Identify passport expiration dates accurately.
- Notify individuals about impending passport expiration through email.
- Allow customization of notification preferences.
- Maintain a secure database of passport details.
- Ensure compliance with relevant data protection regulations.
- This system will not handle passport renewal processes neither provide legal advice regarding passport expiration.

The application of the software includes enhancing individuals' awareness of their passport validity status, thereby facilitating timely renewals and preventing inconveniences associated with expired passports.



## 1.3 Rich Picture Diagram



## 1.4 Overview

The subsequent sections of this SRS will delve into the specific requirements, functionalities, and constraints of the PEAS. It is organized to provide a systematic understanding of the system's objectives, design, and implementation strategies.

## 2. General Description

### 2.1 Product Perspective

- **Target Users:** The Passport Expiry Alert System is designed for citizens of Sri Lanka who hold passports. This may be further segmented by age or professions most likely to travel internationally.

## 2.2 Product Functions

- The following functions fall under the main functions,
  - Securely accessing passport expiry data from the Sri Lankan government database.
  - Identifying citizens with passports nearing expiry based on predefined thresholds (e.g., 2 months before expiry).
  - Informing users through email two months before.
  - Delivering clear and concise alerts containing,
    - Citizen's name
    - Passport number
    - Current expiry date
    - Instructions for passport renewal process (link or phone number)
  - Allowing users to manage their communication channel preferences.

## 2.3 User Characteristics

- The system serves a diverse range of users with varying technical skills.
- The design should consider users with disabilities to ensure accessibility.

## 2.4 General Constraints

- The system adheres to strict data security regulations to protect sensitive passport information.
- Performance is crucial to ensure timely delivery of alerts, especially for a large user base.
- The system should be scalable to accommodate future growth in the number of users.

## 2.5 Assumptions and Dependencies

- The system relies on the availability and continued functionality of the Sri Lankan government's passport database and communication channels.
- Reliable internet connectivity is assumed for email notifications and system operations.
- User consent is required for collecting and using data for sending alerts.

## 3. Specific Requirements

### 3.1 External Interface Requirements

The PEAS interacts with various external systems and users. Here's a breakdown of the interface requirements.

#### 3.1.1 User Interfaces (UI)

- UI-1: Citizen Portal/Mobile App : A user interface (web portal) may be developed for users to,
  - View upcoming passport expiry information.
  - Manage communication through email.
  - Access passport renewal resources (link to relevant website or phone number).
- UI-2: System Administration Interface: An administration interface will be required for authorized personnel to:
  - Manage system configurations (thresholds, alert content).
  - Monitor system performance and alerts delivery.
  - Generate reports on user activity and system health.

### **3.1.2 Hardware Interfaces (HI)**

- HI-1: While technically software, a dedicated email server acts as a hardware appliance in many cases. If the system won't leverage an existing enterprise email server and needs to handle email delivery itself, then the email server software running on a physical machine or virtual server could be considered a hardware interface.

### **3.1.3 Software Interfaces (SI)**

- SI-1: Government Database Interface: The system will require a secure software interface to access passport expiry data from the Sri Lankan government database. This interface should comply with relevant security protocols and data access regulations.

### **3.1.4 Communications Interfaces (CI)**

- CI-1: Email Server: The system will utilize a software interface with an email server to send email alerts to users. This interface should ensure secure transmission and delivery of emails.

## **3.2 Functional Requirements**

### **3.2.1 Introduction**

This section details the functional requirements of the PEAS, outlining its inputs, processing logic, outputs, and error handling mechanisms.

### 3.2.2 Inputs

- IN-1: System Configuration: The system will receive pre-defined configurations including,
  - Alert threshold (e.g., number of months before expiry to trigger alert).
  - Alert content template for email notifications (including placeholders for dynamic data).
  - User communication channel(Email).
- IN-2: Passport Expiry Data: The system will securely access passport expiry data from the government database. This data will include:
  - Citizen's name
  - Passport number
  - Expiry date

### 3.2.3 Processing

- The system will periodically retrieve passport expiry data from the government database (e.g.daily).
- It will identify citizens with passports expiring within the predefined threshold (e.g., 2 months).
- Based on user preferences, the system will generate personalized alerts for each identified citizen.
- The alert content will be populated with dynamic data from the retrieved information (name, passport number, expiry date) using the configured template.
- The system will trigger notifications through the communication channel (email server).

### 3.2.4 Outputs

- OUT-1: Alert Notifications: The system will deliver personalized email to users based on their preferences. The alerts will include,
  - Citizen's name
  - Passport number
  - Current expiry date
  - Clear instructions for passport renewal process (link or phone number)

### 3.2.5 Error Handling

The system will implement robust error handling mechanisms to address potential issues:

- Database Connectivity Errors: If the system encounters issues connecting to the government database, it will log the error and retry after a defined interval. Additionally, alerts might be sent to system administrators for notification.
- Communication Failure: In case of email delivery failures, the system will log the error details and attempt to resend the notification after a set delay. Users may also receive a notification informing them of a temporary delivery issue.
- Invalid Data: If the retrieved passport data appears corrupt or incomplete, the system will log the error and potentially exclude the affected record from processing. Further investigation might be required to identify the source of the invalid data.

## **3.3 Non-Functional Requirements**

### **3.3.1 Performance**

- PR-1: Alert Delivery Timeliness: The system shall deliver alerts to users within a specified time frame (e.g., within 24 hours) after identifying an expiring passport.
- PR-2: System Response Time: The system shall respond to user interactions (e.g., on the administration interface) promptly (e.g., within 2 seconds).
- PR-3: Scalability: The system shall be scalable to accommodate a growing user base and increased alert volume without significant performance degradation.

### **3.3.2 Reliability**

- RE-1: System Uptime: The system shall maintain a high degree of uptime to ensure consistent delivery of alerts.
- RE-2: Data Consistency: The system shall ensure the accuracy and consistency of retrieved passport expiry data.

### **3.3.3 Availability**

- Alert Accessibility: Alerts shall be accessible to users through their Email.

### **3.3.4 Security**

- SE-1: Data Security: The system shall implement robust security measures to protect sensitive passport data throughout its life cycle including,
  - Secure communication protocols for data access from the government database.
  - Encryption of sensitive data at rest and in transit.
  - User authentication and authorization for accessing the system administration interface.

- SE-2: Penetration Testing: The system shall undergo regular penetration testing to identify and address potential security vulnerabilities.

### **3.3.5 Maintainability**

- MA-1: Modular Design: The system shall be designed with a modular architecture for ease of maintenance and future enhancements.
- MA-2: Documentation: Complete documentation shall be provided for the system, including user manuals, code documentation, and system configuration guides.

### **3.3.6 Portability**

Portability, which refers to the ability of the system to run on different platforms, is likely not a major concern for this application. The system will likely be deployed on a specific server infrastructure and won't need to be portable across different operating systems or hardware environments.

## **3.4 Inverse Requirements**

Inverse requirements define what the system should not do. Here are some examples for the Passport Expiry Alert System:

- IR-1: User Spam: The system shall not send excessive or unsolicited alerts to users. Users should only receive alerts related to their own expiring passports.
- IR-2: Data Sharing: The system shall not share user data (names, passport information) with any third-party entities beyond those authorized for passport renewal processes.
- IR-3: False Alarms: The system shall not generate alerts for passports that are already expired or have been renewed. Mechanisms may be implemented to remove processed records from future iterations.



### 3.5 Logical Database Requirements

The logical database design focuses on the data entities and their relationships without specifying the physical storage implementation. Here's a breakdown for the system:

- Entities:
  - Citizen: (Citizen ID, Name, Email, Phone Number)
  - Passport: (Passport ID, Citizen ID, Passport Number, Expiry Date)
- Relationships:
  - One Citizen can have one Passport (identified by Citizen ID).

### 3.6 Other Requirements

- OR-1: Internationalization : If the system needs to support multiple languages for user interfaces and alerts, internationalization requirements should be defined. This may involve storing language preferences for users and designing the system to dynamically adapt content based on the chosen language.
- OR-2: User Feedback Mechanism: A mechanism for users to provide feedback on the system (e.g., reporting issues, suggesting improvements) could be implemented. This might involve a feedback form or email address for user inquiries.
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