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SECURED MAIL SERVER

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Abstract: There are many mail client servers in the Internet world like Gmail, Yahoo Mail, Outlook, etc. All the mail servers has basic features like Inbox, Outbox, Compose message, sent mail, draft mail, Attachments etc. The mail servers categorized into two categories, i.e. Outgoing mail server and Incoming mail server. The mails sending from SMTP address and for receiving messages it is using IMAP or POP address. SMTP communication mail server uses TCP port 25 AND POP server uses port 465. The email servers like Gmail, Yahoo Mail, Outlook mails are sending and receiving Emails in the non encrypted form which is not secure. Even mail servers uploaded content stores directly in the directory of the server without any file encryption. Currently some popular servers allows user to enable OTP method to secure the Email. It's very easy to view those mails to hackers with the help of some software tools. Our secured mail server has client/server feature which helps users to send mail in a secured connection.

Index Terms - Security, Secured connection, Protocols.

I. INTRODUCTION

Mail server which helps to send mails through online with the help of unique Mail ID's. Here user can send mails within a fraction of second with a single click. Every mail the user sends it passes through mail servers. The person can send mail only from one companymailserver.com to another companymailserver.com. Our mail server project secures email account and its content. This Secured Mail Server which encrypts the Email messages to protect sensitive information from the hackers. In our project we have included OTP tool, Image encryption tool and password encryption tool to secure the Email data. Totally it allows organization to project overall access to multiple mail accounts.

We provide full-featured email server which supports S/MIME secure email (digital signing and message encryption using certificates) technology. Other encryption options include PGP and GNU Privacy Guard (GnuPG). This project can be used as Free and commercial basis. The PGP technology has ability to encrypt the message and in the same way it has option to decrypt the sent messages.

II. OBJECTIVES

The main objective of this project is to develop a fully functional Mail System that allows the users to with others in a secured method. Our secured Email server implements email security to secure user account and its email data from hackers. Our Email security technology encompasses with multiple techniques to secure all kinds of Email Service. Users can send and receive mails from the servers. Composed mail stores in sent box and received mail stores in the inbox. Users login ID and passwords are stored in the database, Email Inbox module handles all the functions related mails like email forwarding, composing mails, email reply, view attachments, download attachments, etc in a secured way. This system is reliable, cost effective and secure. The sent mail directly sending to receivers Email ID in encrypted format. Mail user needs to enter OTP (One time Password) to send and view the mail which is received by SMS. The send can send text files inside the image. User can select option of password before sending mail. All the mails are sending under secured port in the encryption format. This mail server supports secured threading support which is automated. It handles the port connection and disconnection to a peer. It supports all kinds of client and server port connections. The server port which accepts multiple connections and all the client socket connected to the server port.

II a. Purpose

Now a day's, Internet and WWW become very popular communication media. These technology changing our daily life. The modern life activities are driven by internet. Email feature also popular in the latest technology which everyone use. The main purpose of developing this project is to provide high secured Email server for any organization. This system handles multiple users. This project allows users to register through online by entering their profile details. This project will hide users profile data

and their email records. The login password also encrypted in this system. If the user is not using mail for 3-4 minutes the system will automatically logs out users account. This project is very helpful for many organizations to keep their Email data secure.

II b. Scope

The main scope of this project is to secure the Email account and Email data. The mails sent from Secured mail server can't be read anyone except end user. This email server doesn't required any anti-virus and spam detection software's. This system scans everything before sending the mail. For every user the system suggests to enter strong password. The entered password encrypts and stores in the database. While sending mail this system sends notification of current location, Sent date, IP address of the user etc.

The SECURED MAIL SERVER offers a secure 128 bit encryption to protect sensitive data from unauthorized access. An especially secured network is not required. Digital signatures protect the report from unauthorized manipulations and ensure the data integrity. The additional use of certificates makes sure the message was sent by you and can only be received by the authorized recipient. The report transmission is being logged and the message status is therefore always retraceable. The TCP and UDP protocols use following ports for mail communication. The mail server consists of several components that work together to compose, send, receive, store and deliver a mail.

File Transfer protocol (FTP) – Port 21

TELNET – Port 23

Simple Mail Transfer Protocol (SMTP) – Port 25

HTTP – Port 80

HTTPS – Port 443

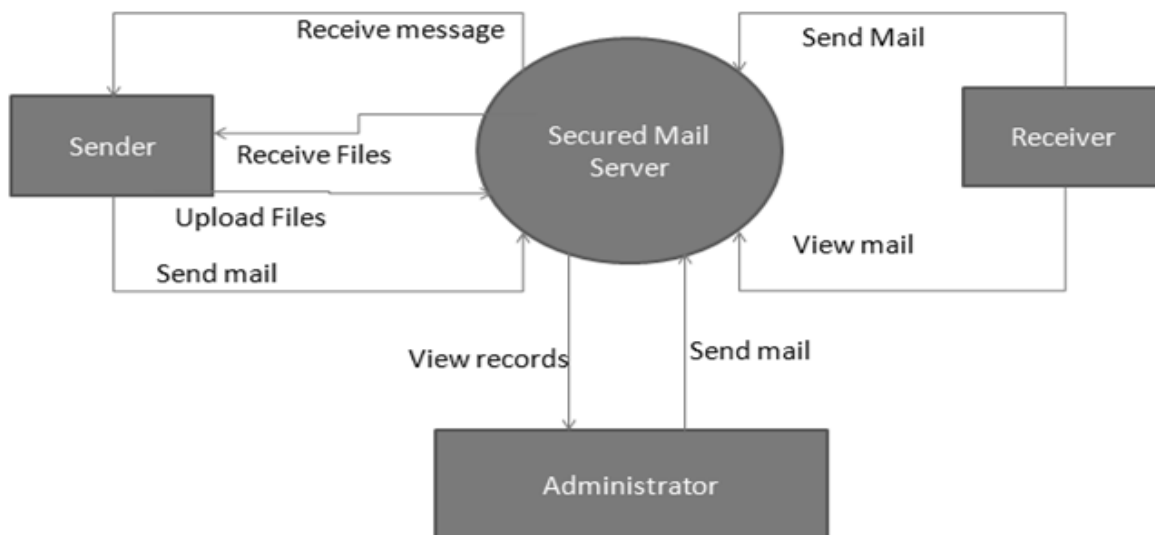
II c. Communication Interfaces

The project shall use the HTTP protocol for communication over the internet and for the intranet communication will be through TCP/IP protocol suite. Server user internet connection to send and receive the mails from one server to another server.

III. EXISTING SYSTEM:

A mail server also known as a mail transfer agent is an application that receives incoming email from local users and remote senders and forwards outgoing messages for delivery, but when comparing to security concern it is less secure.

IV. ARCHITECTURE:



V. Modules:

The project has two types of user. They are Admin and users. The Secured mail server project has following modules:

1. Home page:

The home page has two options. New can register to the system and existing user can login to the system by entering login credentials.

- Login component
- Registration component
- Forgot password component

2. Registration module:

In the registration module the new user can register by entering registration details such as name, email id, password, confirm password, date of birth, Recovery mail, mobile number, captcha code, etc. After the successful registration the system redirects to inbox page.

- Registration component
- Mobile registration component

3. Login module:

In the login module the user can login to the website by entering login id and password. After successful login the page redirects to inbox page. If security is enabled then the system asks to enter OTP password to login the system. After entering valid OTP code the system redirects to inbox page.

- Login module

4. Forgot password module:

In the forgot password page the existing user can recover password by entering mobile number or recovery mail. After entering mobile number or recovery mail the system request OTP code which is sent to Email or mobile phone. The user can change the password by entering new password and confirm password.

- Forgot password component
- Reset password component

5. Compose message

In the compose message user can write messages and they can upload files to the server. After composing message user can send to other mail ID. The unsent composed messages automatically stores in the draft folder.

- Compose message

6. OTP Login security

If the OTP login is enabled, then the user needs to enter 6 digit OTP code to login the system. OTP login authentication pass code is sent through users phone to login and validate the user. User must register their mobile phone to enable OTP login.

- Login module
- OTP entry component

7. Mail encryption technology:

In the mail encryption technology it sends mail in encrypted form. This provides a high level of security by encrypting messages and digitally signing messages. The contents of a message are protected so that it can only be read by the intended recipient. A digital signature provides authentication of messages and it assures those messages hasn't tampered.

- Mail Encryption component
- Mail composer

8. Stenography Technology

This encrypts mails inside the images. This is another encryption technique that can be used along with cryptography as an extra-secure method in which to protect data. The mail contents are protected inside images. Only the end user can read messages by decrypting the images.

- Image encryption tool
- Mail composer

9. Inbox module

The inbox module contains received messages. In the first page user can view subject with sender, date and time. After clicking message the inbox displays complete message content with attachments.

- View message list
- View individual message

10. Sent Mail module

The sent mail interface is same as Inbox but here only the sent mail can be viewed. Deleted sent mail goes to draft folder.

- View sent message list
- View sent detailed message

11. Change password module:

Logged in user can change password by entering old password and new password. Password stores in encrypted format.

- Change password

12. Account module

In the account module the user can update their profile record. The system will ask to enter login password to update the record.

- Update profile
- Update password

13. Mail server

The project "Secured Mail Server" is divided in to three main components i.e. Server component, Client component, Email Inbox component. Server accepts the connection from different clients through server socket class and all the details regarding user connection establishment, sending, receiving and termination is stored in the server. Users can connect to the server when server is active, each user can send and receive mails, attachments from other users.

- Mail encryption
- Stenography Technology
- Compose mail

14. Dashboard module

The administrator is the owner of the website who can view registered member records through online. Admin can create multiple employees.

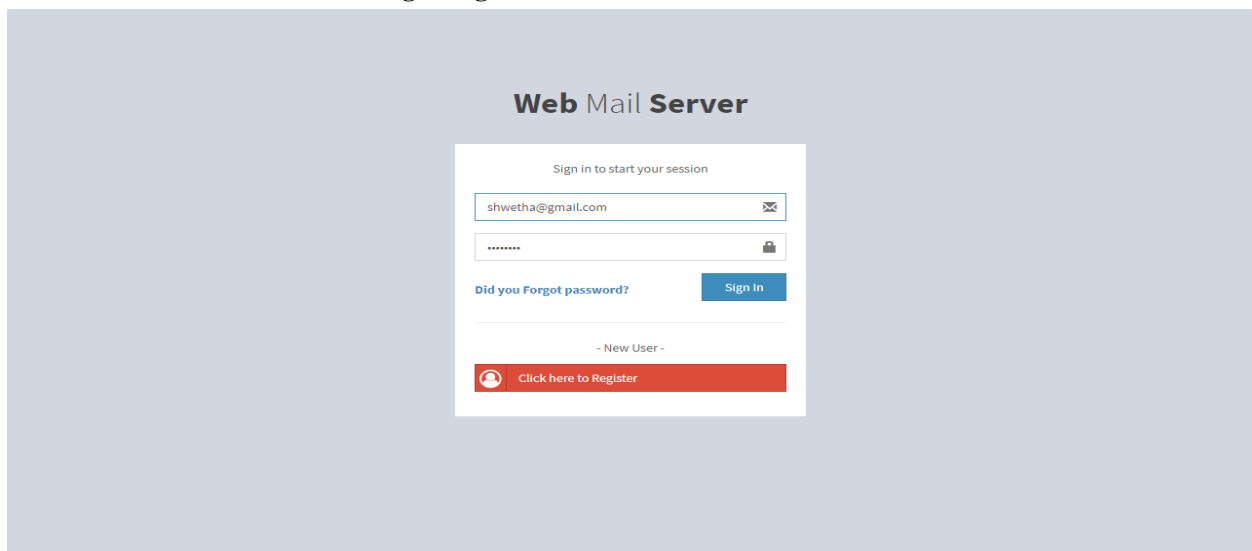
- View users
- View accounts
- Logout module: This module logs out user account. After the logout the system displays main page.

VI. Limitations of the system

- Internet connection required
- Basic computer knowledge required

VII. RESULTS

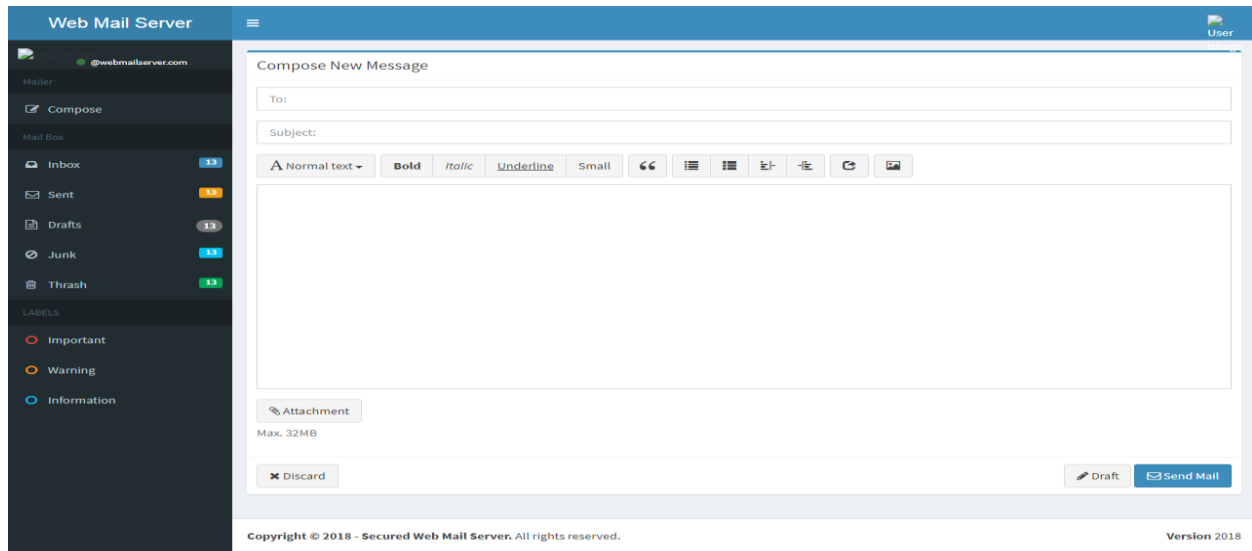
a. User Documentation: Login Page



b. Registration page:



c. Compose mail:



Future scope of the project

- In future we can implement this website with government tax system through API.
- We can create online shopping feature for customers where customers can purchase products directly without visiting shop.
- We can add online service and help online feature through online.

VIII. CONCLUSIONS

The project “Secured Mail Server” is a man-made project and therefore, there may be mistakes and limitations. Secured mail server secures email account and its content. This Secured Mail Server which encrypts the Email messages to protect sensitive information from the hackers. The ideas put up may be different. The terms and names may be different. The advanced techniques like sensor technology can be used in the future for measuring the quality of the product.

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