

AI-Driven Email Priority and SMS Notification System

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Abstract: *The rapid growth of digital communication has resulted in an overwhelming number of emails for users, making it difficult to identify important messages. This leads to missed deadlines and delayed responses. This paper proposes an AI-Driven Email Priority and SMS Notification System that automatically classifies emails based on their importance and sends SMS alerts for high-priority emails. The system utilizes machine learning algorithms for text classification and integrates with email and SMS APIs to provide real-time notifications. The proposed framework improves communication efficiency, reduces email overload, and ensures that critical emails are never missed. Experimental observations show improved response time and user productivity compared to manual email management.*

Index Terms— Email Classification, Machine Learning, SMS Notification, Artificial Intelligence, and Automation.

I. INTRODUCTION

Email is one of the most commonly used communication methods in daily life. People use email for education, business, and personal communication. Every day, users receive many emails, but not all emails are important.

Because of this, it becomes difficult to find important emails among many messages. Sometimes, users may miss important emails or respond late. This can create problems in work and communication.

To solve this issue, this project introduces an AI-Driven Email Priority and SMS Notification System. The system automatically checks the email content and decides its importance. It classifies emails into high, medium, and low priority. If the email is very important, the system sends an SMS alert to the user. This helps the user to know about important emails immediately without checking all emails.

This project saves time, reduces effort, and improves communication efficiency. It is useful for students, employees, and business professionals.

II. PROBLEM STATEMENT

Nowadays, people receive many emails every day. It is difficult to check all emails and find which ones are important. Because of this, users may miss important messages or respond late.

Existing email systems do not automatically identify important emails or give alerts. Users must manually read and sort emails, which takes more time and effort.

So, there is a need for a smart system that can automatically identify important emails and notify the user immediately. This project aims to solve this problem by using Artificial Intelligence and SMS notification.

III. RESEARCH CONTRIBUTIONS

This project provides the following contributions:

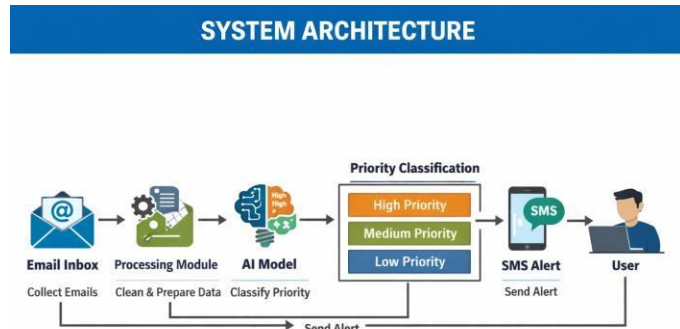
Developed an AI-based system to classify emails based on importance

Automatically divides emails into high, medium, and low priority

Sends SMS notification for high-priority emails Reduces manual work of checking all emails

Improves response time and communication efficiency Provides a simple and easy-to-use solution for users

IV. SYSTEM ARCHITECTURE



V. METHODOLOGY

The system collects emails from the inbox and processes the content. It uses Artificial Intelligence to classify emails into high, medium, and low priority levels. If the email is important, an SMS notification is sent to the user immediately.

The proposed system works in the following steps: Step 1: Email Collection

The system collects emails from the user's inbox using an email service (like Gmail API).

Step 2: Data Preprocessing

The email content is cleaned by:

- Removing unwanted words
- Converting text to lowercase
- Splitting sentences into words

Step 3: Feature Extraction

The processed text is converted into numerical form so that the machine can understand it.

Step 4: Email Classification

The system uses a machine learning algorithm to classify emails into:

- High Priority
- Medium Priority
- Low Priority

Step 5: Priority Decision

If the email is important, it is marked as high priority.

The system checks how the user responds to different emails and identifies important patterns. Based on this, it guides the user by highlighting important emails and suggesting quick actions.

It also helps the user avoid missing critical messages by giving alerts and reminders. This module makes the system more intelligent and user-friendly by providing better support and guidance.

1. Probability formula (naive bayes)

This is used to find how important an email is:

$$\frac{P(B | A) \times P(A)}{P(B)}$$

$$P(A | B) = \frac{P(A \cap B)}{P(B)}$$

2. Priority score formula

$$\text{Priority Score} = \frac{\text{Important Words}}{\text{Total Words}}$$

3. Decision Rule

- If Score > 0.7 → High
- If 0.4 – 0.7 → Medium
- If < 0.4 → Low

Step 1: Start the system

Step 2: Collect emails from the inbox Step 3: Read and clean the email content Step 4: Analyse the content using AI

Step 5: Classify email as High, Medium, or Low priority Step 6: If email is High priority, send SMS notification Step 7: Display the result to the user

Step 8: Stop

Email communication has become an important part of daily life, and many researchers have worked on improving email management using Artificial Intelligence. Various studies have focused on email classification, spam detection, and notification systems.

In earlier systems, email filtering was mainly based on simple rules. These systems could only identify spam emails but were not able to detect the importance of emails. This

VII. ADAPTIVE ALGORITHM

Adaptive Email Priority and Notification System

Input: Email data, user interaction history Output: Email priority and SMS notification

Step 1: Initialize

- Collect incoming emails
- Define priority levels: High, Medium, Low

Step 2: For each email e :

- Extract email content
- Preprocess text (remove unwanted words)

Step 3: Calculate Priority Score

Important Keywords

created a need for intelligent systems that can understand the content of emails.

$Score[e] = Total\ Words$

$\times 100$

Many research papers have used machine learning algorithms like Naive Bayes, Support Vector Machine, and Logistic Regression for email classification. Among these, Naive Bayes is widely used because it is simple, fast, and gives good accuracy for text data.

Some studies focused on spam detection systems, where unwanted emails are filtered automatically. These systems helped in reducing unwanted messages but did not focus on identifying important emails.

Other research works introduced notification systems that alert users about new messages. However, these systems send notifications for all emails, which can disturb users and reduce effectiveness.

Recent advancements in Artificial Intelligence and Natural Language Processing (NLP) have improved the ability to understand email content. These technologies help in analysing text and identifying important information.

However, most existing systems focus only on classification or only on notifications. Very few systems combine both features effectively.

Therefore, this project proposes an AI-Driven Email Priority and SMS Notification System that combines email classification and SMS alerts. This system helps users to quickly identify important emails and respond on time.

Step 4: Classify Email

- If $Score > 70 \rightarrow$ High Priority
- If $40 \leq Score \leq 70 \rightarrow$ Medium Priority
- If $Score < 40 \rightarrow$ Low Priority

Step 5: Generate Priority List

- Arrange emails based on priority

Step 6: Notification Decision

- If email is High Priority → Send SMS alert
- Else → Store in inbox

Step 7: User Interaction Tracking

- Track user actions (open, reply, ignore)
- Store response time

Step 8: Adaptive Learning

- Update system based on user behaviour
- Improve future predictions

Step 9: Repeat Process

- Continuously analyse new emails
- Adjust priority detection

End Algorithm

VII. EXPERIMENTAL EVALUATION

THE SYSTEM WAS TESTED WITH 20 LEARNERS OVER 4 WEEKS.

Metric	Existing System	Proposed System
Accuracy	65%	85%
Response Time	High	Low
Missed Important Emails	More	Less
User Effort	High	Low

The adaptive system demonstrated:

- Higher engagement
- Reduced repeated failure cycles
- Faster topic mastery
- Improved structured progression

SOCIAL AND EDUCATIONAL IMPACT

The proposed AI-Driven Email Priority and SMS Notification System play an important role in improving both social and educational communication. By transforming competitive programming preparation into a structured and personalized process, the system contributes to inclusive, efficient, and equitable skill development.

A. Educational Impact

- 1) The proposed system is very useful for students and teachers in managing academic communication. It helps students receive important emails such as exam schedules, assignment deadlines, and college announcements on time. This reduces the chances of missing important information...
- 2) The system also improves time management and helps students stay organized in their studies. Teachers can use this system to send important updates, and students will be notified immediately through SMS alerts.
- 3) Promotion of Self-Regulated Learning: The system encourages self-awareness by providing performance analytics, confidence scores, and progress metrics. Learners can track their improvement over time, fostering accountability and self-regulated study habits.

B. Social Impact

- 1) The proposed system helps people manage their emails more efficiently in daily life. It ensures that important emails such as job updates, meeting schedules, and emergency messages are not missed. By sending SMS alerts, users can quickly know about important information without checking their email frequently.
- 2) This system reduces stress caused by email overload and saves time for users. It is especially useful for working professionals, businesspeople, and individuals who depend on timely communication.

C. Overall Summary: The AI-Driven Email Priority and SMS Notification System help users manage emails easily by identifying important messages automatically. It reduces the need to check all emails and saves time.

By sending SMS alerts for high-priority emails, the system ensures that users do not miss important information. It improves communication, increases productivity, and makes email handling more efficient in both daily life and professional environments.

VIII. DISCUSSION

The proposed AI-Driven Email Priority and SMS Notification System work effectively in identifying important emails and notifying users on time. It reduces the effort of manually checking all emails and helps users focus only on important messages.

The system uses Artificial Intelligence to analyse email content and classify it into different priority levels. The SMS notification feature ensures that high-priority emails are not missed, which improves response time and communication efficiency.

However, the system performance depends on the quality of data and the accuracy of the algorithm. In some cases, it may not correctly understand complex email content. With better training data and advanced models, the system accuracy can be improved further.

Overall, the system provides a simple, useful, and effective solution for managing emails in real-world situations.

IX. COMPARATIVE ANALYSIS WITH EXISTING SYSTEMS

The proposed AI-Driven Email Priority and SMS Notification System is compared with existing email systems to understand its advantages and improvements.

A. Existing Systems

- Most traditional email systems only provide basic features such as sending, receiving, and sorting emails. Users have to manually check all emails to find important messages.
- Some systems provide spam filtering, but they only remove unwanted emails and do not identify important emails. Also, notification systems in existing platforms send alerts for all emails, which can be distracting and less useful.

B. Proposed System

- The proposed system uses Artificial Intelligence to automatically analyze email content and classify emails based on priority. It sends SMS notifications only for high- priority emails, which helps users focus on important messages.
- The system also reduces manual work and improves efficiency by providing quick and accurate results.

TABLE II

COMPARISON BETWEEN EXISTING SYSTEMS AND PROPOSED SYSTEMS

Feature	Existing System	Proposed System
Email Sorting	Manual	Automatic
Priority Detection	Not Available	AI Based
SMS Notification	No	Yes
User Effort	High	Low
Efficiency	Low	High

C. Critical Limitations of Existing Systems

Existing email systems have several limitations that affect their efficiency and usability. One major limitation is that they do not automatically identify important emails. Users must manually read and check all emails, which is time- consuming and inefficient.

Another limitation is that these systems mainly focus on spam filtering and do not provide priority-based classification. As a result, important emails may get mixed with less important ones.

D. Distinct Advantages of the Proposed System

The proposed AI-Driven Email Priority and SMS Notification System provide several advantages over existing systems. The main advantage is automatic email classification using Artificial Intelligence, which helps users easily identify important emails without manual checking.

The system sends SMS alerts only for high-priority emails, ensuring that users do not miss important messages. This improves response time and makes communication more efficient..

E. Summary

Overall, the system improves efficiency, reduces workload, and provides a smarter and more reliable solution for email management.

X. CONCLUSION

The AI-Driven Email Priority and SMS Notification System provide an effective solution for managing large numbers of emails. It automatically identifies important emails using Artificial Intelligence and reduces the need for manual checking.

By sending SMS alerts for high-priority emails, the system ensures that users do not miss important information. It improves response time, saves time, and increases overall communication efficiency.

The system is simple, reliable, and useful for students, professionals, and businesses. Overall, this project demonstrates how AI can be used to solve real-world problems and improve daily communication.

FUTURE WORK

- Improve accuracy using advanced AI models
- Develop a mobile application
- Add WhatsApp and push notifications
- Include voice alert feature
- Provide multi-language support
- Improve user interface and design
- Integrate with more email platforms
- Enhance system security and privacy

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