WEB-BASED EXPENSE APPROVAL SYSTEM

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Abstract— 'Web-Based Expense Approval System' is a responsive web application whose main aim is to provide a utility to review, approve, and maintain an organization's financial transactions. When there is a need to approve invoices and transactions by various stakeholders located in different parts of the country, the invoices must go through a designated authority at every level, where they are reviewed and approved/rejected. On similar lines, the invoices should proceed through the stakeholders residing in the subsequent levels until it reaches the highest authority, which generally would be an administrative office of the organization. The invoices undergo a series of checks for regulatory and compliance norms. Once these necessary checks are completed, the invoices get the final approval, and the amount gets disbursed.

Keywords— invoices, transactions, stakeholders.

I. INTRODUCTION

In this project, we develop an end-to-end web application that will serve as a multi-layered expense approval system with necessary business analytics. This system is a client-server model that consists of a web server and a database. The user connects to the application through HTTP via a browser. This web application offers high reliability, ease of use, and security. Administrators of the organization will use this application, and we provide each of the participating stakeholders with login credentials to the system, where they will be able to log in through an OTP (One-Time Password) mechanism. Post login, they can perform various actions like creating a new request, approve or reject the requests that are approved by the previous levels, and also review and add comments for each expense under a particular request. Once this chain of approval is complete, the request will be sent to the final level in the hierarchy, the Administrative or the Trust Office. They shall further review the expenses, seek more information, provide final approval, complete payment disbursal, and close the request.

- The frontend for the proposed system will be implemented using HTML, CSS and JavaScript. To make CSS more responsive and modular, we have used a popular framework called Bootstrap.

- Bootstrap is a free and open-source CSS framework directed at responsive, mobile-first front-end web development. It contains CSS- and JavaScript-based design templates.

- We develop a backend API using PHP. This API is designed to be modular so that adding additional functionality and maintenance is simple.

- Hypertext Preprocessor (PHP) is a general-purpose scripting language that is especially suited for web development and can be embedded into HTML

- All the data is stored in a MYSQL relational database. MySQLis an open-source relational database management system. For the OTP service we are using the fast2sms API to send text messages to the registered users.

II.   LITERATURE SURVEY

When compared to ASP.NET, PHP is more cost-effective and does not require extra licensing. The members of the PHP software bundle, known as LAMP (Linux, Apache, MySQL, and PHP), are free, and also upgrades are provided at no extra cost. On the other hand, Microsoft's server software is expensive, which makes LAMP a very popular platform for designing inexpensive yet effective web-based applications. [1]

Regardless of the data engine, you are using, PHP is known to work "effortlessly" on servers, considering the programming language only, and is better than ASP .NET because there are no unnecessary packages. The lack of GUI's also gives PHP servers an extra edge in performance. [2]

Based on the knowledge acquired from various sources, we have noted some common expense management merits and demerits. [7], [8], [9].

The merits of using automation software for expense approvals:

- Improves transparency

- Saves time

- Simplifies auditing

- Speeds up approval

- Provides budget overview

- See all of your expense data in one place.

- Achieve better visibility with system integration.

- Multi-Layered Approval chain.

- Easy digitized maintenance of all expense details.

Demerits:

- Wrong Budget Management

- Improper Distribution of Approved Expenses

- Too Much of Pending Approvals

- Time consumption

- Capturing spends from multiple sources.

- Maintenance of lengthy, tedious paper-based approval processes.

- Manual reviewing and approving of expense reports.

- Delayed amount disbursals.

III.   PROBLEM DEFINITION

In most non-profit organizations, the finance is controlled by a panel of stakeholders residing in various parts of the country. For any payment to be disbursed, all of these stakeholders must approve the invoices. For this, the invoices have to be physically mailed to each of the stakeholders. This process can take anywhere from a few weeks to months in some cases.

To streamline this process, we aim to develop a web application that can simulate this workflow by

allowing the stakeholders to approve the invoices' soft copies. Only when the invoices are approved, they can move to the next person in the hierarchy. This eliminates the organizations' need to send the invoices' physical copies to all the stakeholders; rather it is sent directly to the Administrative office. Once the entire approval process is complete, the Administrative office can verify the soft copy with the hard copy and disburse the amount to the vendors.

This workflow allows the process to be completed in less time, thereby digitizing the entire process and saving the organization a lot of time and money. It also ensures that the vendors receive their money on time.

IV. OBJECTIVES

- This project aims to develop a complete end-to-end solution to digitize the entire invoice approval process according to the auditing regulations.

- The application should be efficient, reliable, compliant, and time-saving.

- Integrate with other systems, meet security, performance, and scalability requirements.

- Reduce costs by streamlining and automating workflows and tasks.

- Grow the company's bottom line and increase profitability.

V. METHODOLOGY

1. The application is private to an organization and the users are the specified stakeholders of that organization.

2. Every user will have login credentials based on a One-Time-Password (OTP) sent to their respective mobile number.

3. Users are divided into different levels according to their role:

- ➔ Front-desk - Users who raise the expense request, attaching the invoice details.

- ➔ Approvers - Users who are required to confirm the request before it can go to the next level will have privileges to approve or reject an expense.

- ➔ Trust Office - Users who are required to review the approved request and compare it with the bill's physical copy, after which they can disburse the amount to the vendors. Also, be able to reject the request if necessary.

5. Back up the data in the organizations' cloud.

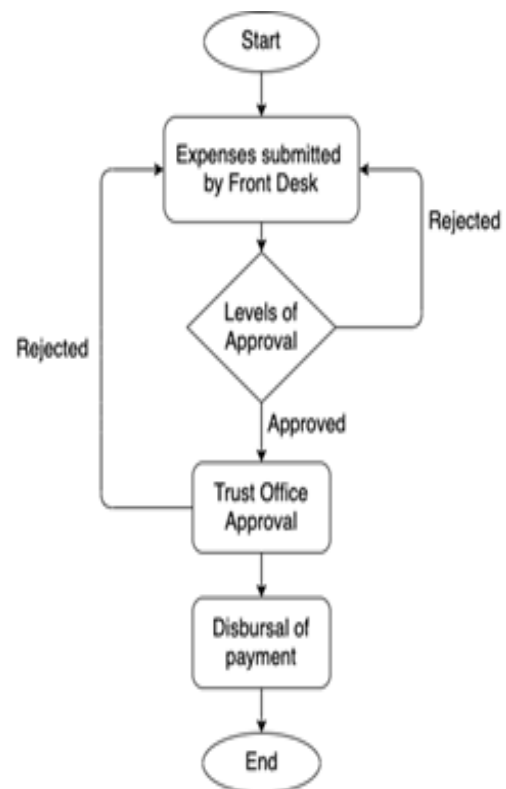6. System to be compliant with the auditing requirements.
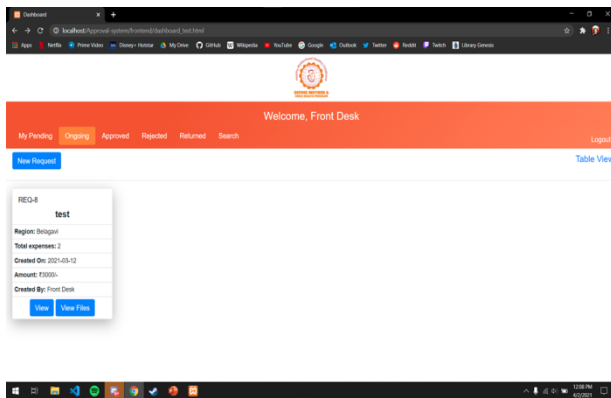

Fig 1.0 Flowchart of the proposed system

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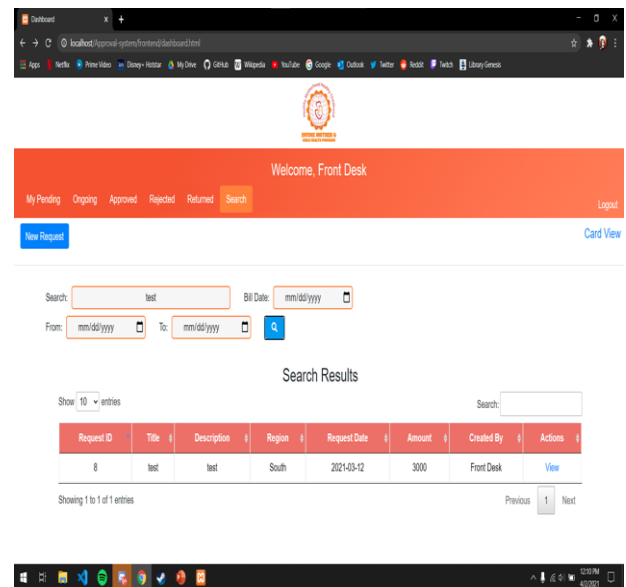**Advances in Computing & Information Technology (IACIT-2021)**
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VI. RESULTS

Fig 2.0 Dashboard

Fig 2.1 New Request Page
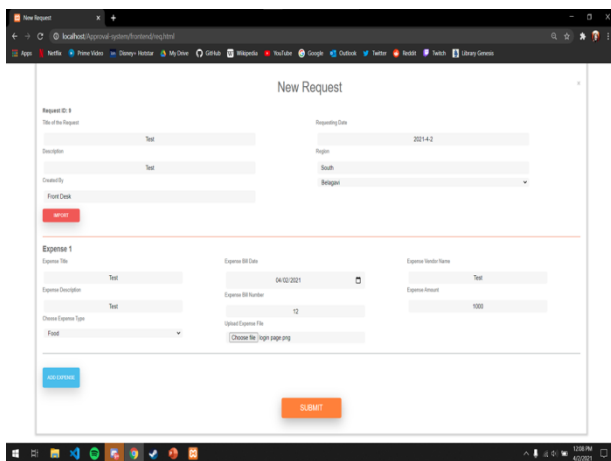

Fig 2.2 Request Logs Page
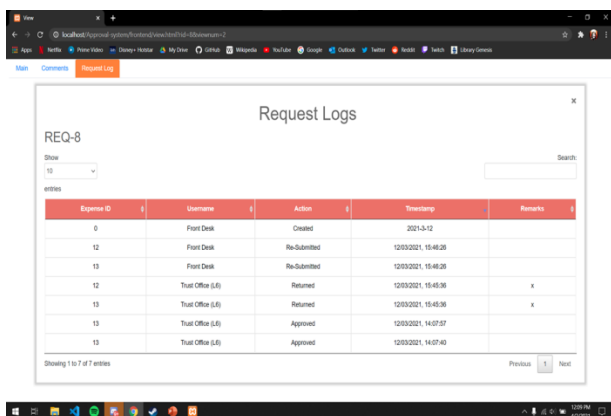

Fig 2.3 Search Page

VII. CONCLUSION

This web application provides an internal bill approval system for any organization. We are expected to develop a web application for 'Sri Sathya Sai Health & Education Trust' that will simplify the process of approval of their expenses in an audit-compliant way. Additionally, to provide insights on region-wise spending under different categories. This application will be integrated into their website and will be used by the trustees of the trust. This shall replace the existing system of physical handover and approvals using the hard copies.

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