



UTILITY BILL REMINDER AND AUTOMATED PAYMENT APP (AUTOPAY)

Computer Science

Supa Kunjumon

APJ Abdul Kalam Technological University Trivandrum, Kerala, Mount Zion College of Engineering, Kadammanitta.

ABSTRACT

AutoPay is basically a utility bill reminder and automated payment app using AI. when it comes to bill payments like electricity, internet broadband bills etc., we either forget or need to spend too much time for the process or wait long in a queue or have to pay an extra fee / fine. Here is where this AI Feature comes in.

KEYWORDS

Artificial Intelligence(AI), Machine Learning(ML), API, Optical Character Recognition(OCR).

INTRODUCTION

Advancement in the fields of Artificial intelligence, Machine learning in the last decade is changing the world so fast than we can even think of. Most of the popular applications which we use right now rely AI or ML in one way or another. Most industries working with large amounts of data have recognized the value of machine learning technology. By gaining insights from this data – often in real time – organizations are able to work more efficiently or gain an advantage over competitors. We all have smart technology with online facilities for different purposes. The technology has made it more hassle-free for us. Yet when it comes to bill payments like electricity, mobile bills etc. We either forget or need to spend too much time for the process or wait long in a queue or have to pay an extra fee / fine. Here is where this AI Feature comes. The App consists of Scanning bills, Recording Data, Automated Payment and Wallet Service. Scanning feature in the app makes it easier for the user to scan a bill printed on paper or in emails. The paper printed bills are captured with a smartphone camera and ML service will read data like utility name, receipt no., due date, amount, etc.. and store it. Scanning the data is done by a well-trained AI Model which find all the required info on the printed bill. With the acquired data, AI set reminders for each billing prior to the due date and remind us. Even after the reminder, if the user forgets, the automated payment feature in the app will do the payment on the due date on behalf of the user. Here the automated feature uses the inbuilt Wallet service to deduct the payment. The user can deposit the amount in the wallet beforehand. Also, the user has the option to set or input bill details manually.

2. Overview

Autopay is an android app to simplify task related to bill payment such as electricity bill, internet broadband bill etc, this is done with the help of AI. App consists of Scanning bills, Recording Data, Automated Payment and Wallet Service. Scanning feature in the app makes it easier for the user to scan a bill printed on paper. Scanning the data is done by a well-trained AI Model. After scanning the data it will be saved to the node server and the data from the node server is given to the python server. And from the python server their will be an API call by using google vision API we can obtain certain fields from the document such as utility name, bill number, amount payable, due date etc. After extracting documents the result is given back to the server and does a pre-processing. Unwanted contents from the document are then removed and then the remaining result is given back to the node server. User can view the result and verify that the extracted document is correct. And if there is any misreading in the extracted document then the user has an option to edit them. After user verifying the details the user can make their respective payment. After obtaining the due date field from the document the user has an option for setting remainder so that they are notified about the payment date. Even after the remainder if the user fails to pay the bill then the automated feature in app does the payment for the user. For this automated payment we use an inbuilt wallet service which is integrated to a payment gateway. The user can deposit amount in the wallet beforehand. Also the user has the option to set or input bill details manually.

Figure 2: High Level Architecture



3. Existing System

There are lot of services available such as Amazon Pay, Google Pay, Payment Gateways by service providers etc. for paying the utility bills and other bills for the services consumed also still the user can go to the offices of service providers to pay the bills.

Drawbacks in the existing systems:

- In this digital age, lots of services are there for the processing of payment but there exist some drawbacks as follows.
- User forgets to pay the bill - As the payments are done by humans

there is always a chance of forgetting about it and there by the service providers may terminate the service.

- Time consuming - Processing payments are always done by humans after verifying their payment method.

4. Proposed System

The Proposed System targets on the two specified drawbacks of the current system. Through the AI powered bill payment app, the customer only need to take a pic of the bill (bills of the supported service providers) and the well trained AI model will infer data from the bill such as consumer number, amount, due date etc. System will auto set a reminder for the date and the payment will be done automatically through the wallet service of the application. The system will have a fully fledged wallet service to which the user can add money and from their wallet the amount will be debited and credited to the service providers accounts.

5. Future Enhancement

Autopay can be deployed as a fully fledged application if there is proper way to access the API's of service providers. New services can be added which will add more value to the project. We can also add additional features based on the users feedback. Software must be in such a way that it should adapt to changes easily. Our system is capable of meeting all future changes without much modification. The program is coded in more structured manner. So we can include more future enhancements. There is a scope for improvement of this system. I believe that this software can be extended easily.

6. CONCLUSION

This software project is meant for bill payments like electricity, mobile bills etc. The objective of the application is to make the system efficient and tension free for users about their payment dates. In the existing

system Processing payments are always done by humans after verifying their payment methods. Auto Pay is a proof of concept project where by using various machine learning and OCR techniques we automate bill payment; this can be extended into different fields. Although currently the payment mechanism of auto pay is limited as we need access to the API's of service providers to make payment for a bill. This project is an example on how the daily tasks can be simplified by using various computation technologies. The Proposed system, the customer only need to take a pic of the bill (bills of the supported service providers) and the well trained AI model will infer data from the bill such as consumer number, amount, due date etc. System will auto set a reminder for the date and the payment will be done automatically through the wallet service of the application. The system will have a fully fledged wallet service to which the user can add money and from their wallet the amount will be debited and credited to the service providers accounts.

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