

Expense Management System Using OCR

Aniket Pawar¹, Vaibhav Nikam², Yogesh Markad³, Chirag Pandkar⁴, Prof. Shashikant Bong⁵

UG Students, Department of Computer Engineering^{1,2,3,4}

Professor, Department of Computer Engineering⁵

Smt. Kashibai Nawale College of Engineering, Pune, Maharashtra, India

Abstract: We present an intelligent expense tracker to efficiently manage the monthly expenses. Our system will help everyone who are planning to know their expenses and save from it. The user will be given the facility to set a monthly limit and if the user crosses that limit our app will notify the user about the same. The user can give receipts as an input, using our Android app. will sort it into different categories. Here user can also define their own categories like food, clothing, rent and bills and the user can also set limits for a particular category. User will be provided with visual statistics of expenses by transaction date or by category. This project is not indentedfor a particular user or age group but anyone and everyone who wants to track their expense can use this app. So, the general idea of this Project is to help people view and study their overall expenditure pattern by developing a mobile application to analyse all the purchases made by the user by simply scanning the receipts.

Keywords: Optical Character Recognition (OCR), Android, Text Extraction, Image Processing

I. INTRODUCTION

In order to trace their expenses, People generally use traditional paper system to stay the record of their income and expenditures. this sort of traditional system is burdensome and takes longer. So, there must be a management system which must help us to manage our daily earnings and expenses easily and helps us to find the records efficiently. So, we puzzled out the simplest way to eliminate the normal system with digital, portable, easier and easy to record these data in precisely few clicks with our Android application called “Expense Manager”. The thought of this Project is to assist people view and study their overall expenditure analysis with the assistance of a mobile app to research all the purchases made by the user by simply scanning all the bills and receipts. The User should just click a picture of a receipt or choose one from the Gallery and track their payments. Using machine learning, the app is able to group items category-wise, for example- food, clothes, stationery, etc. The User can monitor his/her expenses and analyse them categorically using graphs and tables, enabling them to raise understand their expense patterns and help them spend intelligently. Using this app, the users may set monthly limits over specific categories helping them to avoid over-spend on those items. The app also will prompt users after they overspend or make repeat purchases. Our main aim is to create our users capable of achieving Personal Life goals by giving them the flexibility to monitor their expenses; analyse the buying trends; and assess their account’s future transactions. And hence, the most objectives of developing this intelligent expense tracker are to supply higher a sense of expenditure to our users thereby promoting savings.

II. LITERATURE REVIEW

	Title	Author	Abstract
1	Identification of optimal Optical Character Recognition (OCR) engine for proposed system	Aditya Lakhadive, Mrunal G. Marne	In this project, the objective of the OCR is undertaken to recognize each letter in the image using the appearance-based recognition technique.
2	OCR (OPTICAL CHARACTER RECOGNITION) Based Reading AID	Sona P., G. Venifa Mini	This research studies the extraction of the characters from a Thai vehicle registration certificate via a Google Cloud Vision API and a Tesseract OCR.
3	Expense Manager Application	Abin Sabu, Anto Sahaya	OCR can be optimized up to certain level by increasing the scanning resolution so that the

		Das	OCR can analyse more details about the image. Since OCR uses language specific dictionary, multiple languages can be set to improve the efficiency.
4	Handwritten Optical Character Recognition (OCR): A Comprehensive Systematic Literature Review (SLR)	Maira Sami, Jamshed Menon	This research proposed automated hierarchical classification of scanned documents with characteristics content that have unstructured text and special patterns (specific and short strings) using CNN and REM.
5	Handwritten Character Recognition to obtain Editable Text	Ajinkya Upade, Poonam Pednekar	In this project, the objective of the OCR is undertaken to recognize each letter in the image using the appearance-based recognition technique.

III. SYSTEM DESIGN

The architecture of a system reflects how the system is used and how it interacts with other systems and the outside world. It describes the interconnection of all the system's components and the data link between them. The architecture of a system reflects the way it is thought about in terms of its structure, functions, and relationships. In architecture, the term "system" usually refers to the architecture of the software itself, rather than the physical structure of the buildings or machinery. The architecture of a system reflects the way it is used, and therefore changes as the system is used

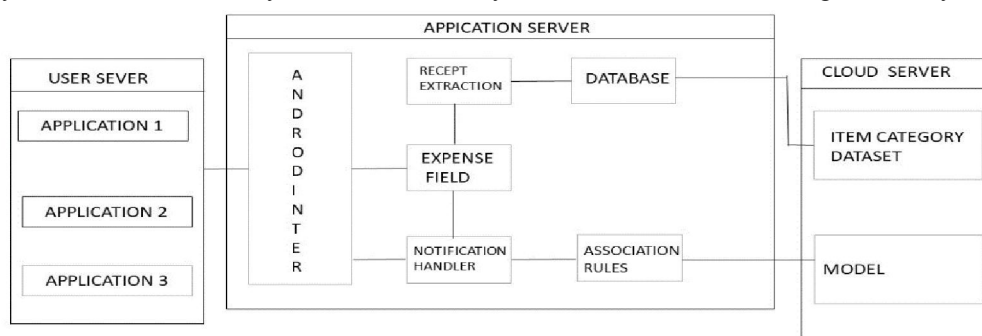


Figure: System Architecture

IV. RESULT

As the result the user can use this application in his/her daily life. After being used it can be a part of daily life to update and view our daily expense and our family expense. This helps to you to keep tracks of your expenses & manage it for us as we are in busy in our daily routine we cannot be able to keep track of our incomes & expenses.

V. FUTURE SCOPE

We have presented a working prototype of intelligent expense tracker. The development of this application has been conducted in a stepwise manner using the well-defined methodology, customized according to the requirements of the system. This application will successfully help all those people who wants to track their expenses to get a better sense of their expenditure thereby promoting savings. The development of this application has been conducted in a stepwise manner using the well-defined methodology, customized according to the requirements of the system. Most of the goals set at the beginning of the development phase have been met. Future work can be like we can integrate this app with any of our credit / debit / cash card & keep track directly from our saving account. Once when we start doing that this will help us to update details automatically rather than updating in manually.

VI. CONCLUSION

We have presented a working prototype of intelligent expense tracker. The development of this application will be conducted in a stepwise manner using the well-defined methodology, customized according to the requirements of the system. This application will successfully help all those people who want to track their expenses to get a better sense of their expenditure thereby promoting savings.

REFERENCES

- [1]. Baoguang Shi, Xiang Bai, Cong Yao, An End-to-End Trainable Neural Network for Image-Based Sequence Recognition and Its Application to Scene Text Recognition, PAMI, pp. 2298--2304.
- [2]. M. Van Rooyen, N. Luwes, "A deep learning approach for optical character recognition of handwritten Devanagari script", In International Journal of Emerging Research in management and Technology, ISSN:2278-9359, Volume 4, Issue 6, 2017.
- [3]. Rajaprabha, M. N. (2017). Family Expense Manager Application in Android. IOP Conference Series: Materials Science and Engineering, 263, 042050. doi:10.1088/1757-899x/263/4/042050.
- [4]. Joel Odd Emil Theologou. (2018). Utilize OCR text to extract receipt data and classify receipts with common Machine Learning algorithms. Linköping University Department of Computer and Information Science.
- [5]. Le, A. D., & Nakagawa, M. (2017). Training an End-to End System for Handwritten Mathematical Expression Recognition by Generated Patterns. 2017 14th IAPR International Conference on Document Analysis and Recognition (ICDAR). doi:10.1109/icdar.2017.175
- [6]. Anusha A. et al., "Product Reading for Visually impaired Persons," International Research Journal of Engineering and Technology, PpISSN: 2395-0072. Volume: 02 Issue: 04 | July-2015.
- [7]. C. C. Tappert, C. Y. Suen, and T. Wakahara, "The state of the art in online handwriting recognition," IEEE Trans. Pattern Anal. Mach. Intell., vol. 12, no. 8, pp. 787–808, Aug. 1990, doi: 10.1109/34.57669.
- [8]. M. Kumar, S. R. Jindal, M. K. Jindal, and G. S. Lehal, "Improved recognition results of medieval handwritten Gurmukhi manuscripts using boosting and bagging methodologies," Neural Process. Lett., vol. 50, pp. 43–56, Sep. 2018.
- [9]. M. A. Radwan, M. I. Khalil, and H. M. Abbas, "Neural networks pipeline for offline machine printed Arabic OCR," Neural Process. Lett., vol. 48, no. 2, pp. 769–787, Oct. 2018.
- [10]. A. Graves, M. Liwicki, S. Fernández, R. Bertolami, H. Bunke, and J. Schmidhuber, "A novel connectionist system for unconstrained handwriting recognition," IEEE Trans. Pattern Anal. Mach. Intell., vol. 31, no. 5, pp. 855–868, May 2009.
- [11]. T. Plötz and G. A. Fink, "Markov models for offline handwriting recognition: A survey," Int. J. Document Anal. Recognit., vol. 12, no. 4, p. 269, 2009.
- [12]. A. A. Desai, "Marathi handwritten numeral optical character reorganization through neural network," Pattern Recognit., vol. 43, no. 7, pp. 2582–2589, Jul. 2010.
- [13]. G. Vamvakas, B. Gatos, and S. J. Perantonis, "Handwritten character recognition through two-stage foreground sub-sampling," Pattern Recognit., vol. 43, no. 8, pp. 2807–2816, Aug. 2010.
- [14]. B. Alrehali, N. Alsaedi, H. Alahmadi, and N. Abid, "Historical Arabic manuscripts text recognition using convolutional neural network," in Proc. 6th Conf. Data Sci. Mach. Learn. Appl. (CDMA), Mar. 2020, pp. 37–42.