



e-ISSN: 2319-8753 | p-ISSN: 2347-6710

IJIRSET

International Journal of Innovative Research in
SCIENCE | ENGINEERING | TECHNOLOGY



INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH

IN SCIENCE | ENGINEERING | TECHNOLOGY

Volume 13, Issue 5, May 2024

ISSN INTERNATIONAL
STANDARD
SERIAL
NUMBER
INDIA

Impact Factor: 8.423

 9940 572 462

 6381 907 438

 ijirset@gmail.com

 www.ijirset.com

Medical Prescription Recognition Using Machine Learning and To Recommend Low-Cost Medicine

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ABSTRACT: In response to the growing need for efficient prescription handling and affordable healthcare solutions, this addresses the challenges associated with manual prescription interpretation and medication affordability. The system integrates optical character recognition (OCR) technology with machine learning models to extract and interpret text from handwritten or printed prescriptions. Utilizing a diverse dataset of medical prescriptions, a machine learning model is trained to classify prescription components, including medication names. Additionally, the system incorporates a recommendation engine that suggests low-cost alternatives for prescribed medications. Validation of the system involves rigorous testing with diverse prescription samples to evaluate its accuracy, reliability, and scalability. The solution offers significant advantages, including the reduction of manual errors in prescription interpretation, expedited prescription processing, and promotion of cost-effective healthcare solutions. By enhancing access to affordable medications, particularly in underserved communities, the system contributes to addressing healthcare disparities and improving overall healthcare accessibility and affordability.

KEYWORDS: Prescription handling, Affordable healthcare, optical character technology(OCR), medication, incorporates.

I. INTRODUCTION

In today's fast-evolving world of healthcare. Medical prescriptions are a cornerstone of healthcare, providing instructions for the administration of medications and treatment plans. However, the current process of handling and interpreting prescriptions, which often rely on manual human input, is susceptible to errors and inefficiencies. Misreading a prescription, whether due to illegible handwriting or other factors, can lead to potentially severe consequences for patients. These issues underscore the urgent need for a robust and reliable solution. Technological innovations have become indispensable for improving patient care, increasing efficiency, and mitigating human error. One critical area where technology can make a substantial impact is in the realm of medical prescription handling. The proposed project, a Medical Prescription Optical Character Recognition (OCR) system, represents a significant leap forward in this endeavor, addressing crucial issues and revolutionizing the way medical prescriptions are managed. In the context of an ever-expanding healthcare landscape, where information and data are integral to decision-making, the Medical Prescription OCR system holds the potential to improve patient safety, enhance the quality of healthcare delivery, and reduce administrative burdens on healthcare professionals. The application of cutting-edge technology to such a fundamental aspect of healthcare underscores the transformative potential of this project.

II. RELATED WORK

A. Existing System

The existing process of medical prescription management is riddled with inefficiencies and the potential for grave errors due to illegible handwriting, manual data entry, and a lack of accessible information for both healthcare professionals and patients.

- Inefficiency and Error-Prone Handling of Medical Prescriptions
- Lack of Accessible Prescription Information

- Administrative Burden on Healthcare Professionals

B. Proposed System

The Medical Prescription Recognition system, aims to solve these critical issues by automating the prescription interpretation process, improving data accessibility, empowering patients with detailed medication information, and ultimately enhancing patient care and healthcare efficiency. This innovative solution is designed to make healthcare safer, more efficient, and more patient-centered, providing a comprehensive answer to the identified problems in prescription management.

III. METHODOLOGY

Handwritten Prescription Detection: The system begins by taking in an image of a handwritten prescription. It then uses image processing techniques to extract the text from the image, isolating the prescription information such as medication names, dosages, and instructions.

Text Recognition and Analysis: Once the text is extracted, the system employs optical character recognition (OCR) technology to convert the handwritten text into digital text data. This processed text is then analyzed to identify key prescription details, including the names of medications, dosage instructions, frequency of use, and any additional notes.

Medical Knowledge Database: The system is integrated with a comprehensive medical knowledge database containing information about various medications, including their generic and brand names, indications, contraindications, side effects, and pricing information.

Medication Recommendation Algorithm: Using the extracted prescription details, the system's recommendation algorithm matches the prescribed medications with equivalent, lower-cost alternatives available in the database. The algorithm takes into account factors such as therapeutic equivalence, generic substitutions, and cost-effectiveness.

Cost Estimation and Comparison: The system calculates the estimated cost of both the prescribed medications and the recommended low-cost alternatives based on pricing data from pharmacies or drugstores. It then presents this cost comparison to the healthcare provider or patient, highlighting potential savings.

Patient-specific Considerations: In cases where patients have specific medical conditions, allergies, or contraindications, the system adjusts its recommendations accordingly, ensuring patient safety and efficacy.

User Interface: The system provides a user-friendly interface for healthcare providers, pharmacists, or patients to interact with. This interface allows users to upload prescription images, view medication recommendations, compare costs, and finalize medication choices.

Integration with Healthcare Systems: The system can be integrated with electronic health record (EHR) systems or pharmacy management systems, enabling seamless transmission of prescription data and medication recommendations between healthcare providers and pharmacies.

Feedback and Improvement Mechanism: The system includes mechanisms for collecting feedback from users, such as healthcare providers and patients, to continuously improve its accuracy, efficiency, and usability over time.

IV. EXPERIMENTAL RESULTS

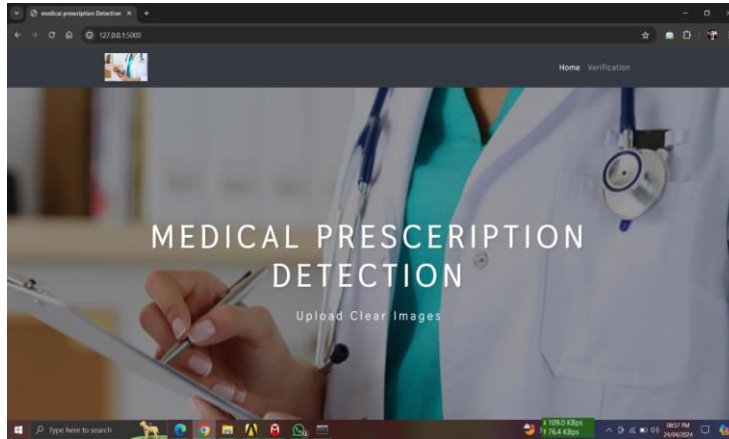


FIG 1.HOME PAGE

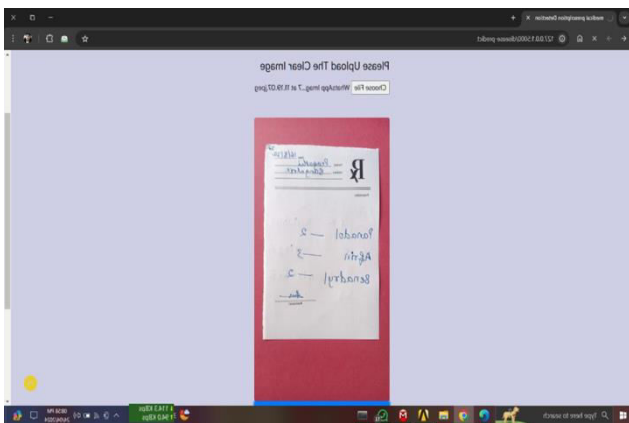


Fig 2. shows the pop-up menu when user clicks on “Choose File”

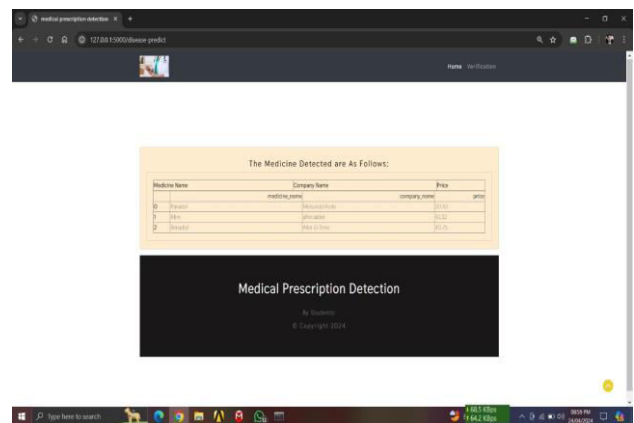


Fig 3. shows the classified result of the uploaded prescription images and also contains its low cost.

V. CONCLUSION

In conclusion, the development of the Medical Prescription Optical Character Recognition (OCR) system represents a significant milestone in the field of healthcare technology. This project has aimed to address the challenges in prescription management and empower healthcare professionals and patients with accessible, accurate, and understandable prescription information. The Medical Prescription OCR system bridges the gap between traditional manual prescription management and modern, efficient, and patient-centered healthcare processes. This project embodies the power of technology to improve patient safety, streamline healthcare, and engage patients in their treatment. As it moves from development to practical use, it has the potential to reshape the way medical prescriptions are handled, setting a precedent for a more efficient and patient-friendly healthcare system.

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