



IBot with OCR and Incident Raising Functionality

¹Avani H. Sahu, ²Poorva S. Nimbalkar, ³Ankita Y. Kamble, ⁴N. S. Bagal

¹⁻³UG Students, ⁴Prof
Computer Science Department
SPPU, Pune, India

Abstract: This research paper proposes an automated incident response system integrating Optical Character Recognition (OCR) and Incident Bot. The design aims to improve the efficiency and accuracy of incident response by automating the incident detection, classification, and resolution process. The proposed system utilizes OCR to extract relevant information from incident documents (aadhar card), which the Incident Bot then processes to determine the appropriate response. The results show that the system effectively detects and responds to incidents promptly and accurately. The paper concludes that the proposed approach has the potential to significantly improve incident response and reduce the workload of incident response teams.

Keywords: Automated response system, OCR, Incident bot.

INTRODUCTION

Incident response automation uses machine learning (ML) and AI to automatically analyze and correlate data from different sources to identify incidents. The proposed system utilizes OCR to extract relevant information from incident reports, which the Incident Bot then processes to determine the appropriate response. The results show that the system effectively creates and responds to incidents promptly and accurately. This system helps us to improve the efficiency and accuracy of incident response. Automated incident response is an emerging field that seeks to eliminate the human element from the incident response process. It automates repetitive tasks allowing incident response teams to focus on more critical studies.

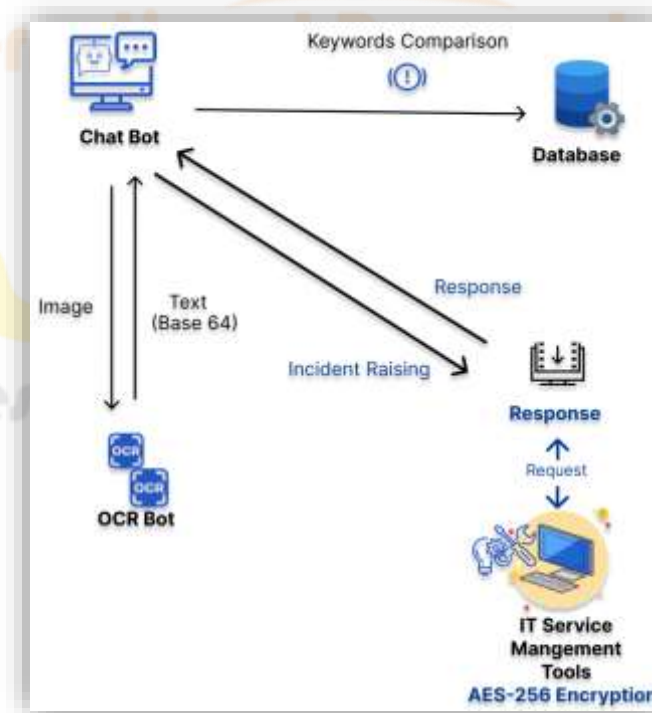


Fig. 1. Architecture

PROBLEM IDENTIFICATION & OBJECTIVES

The following is the goal of a research paper on merging OCR with an aadhar bot for an automated issue response system: Consider the advantages of automating the detection, identification, and processing of text in photos and other unstructured data sources by incorporating OCR (Optical Character Identification) technology into incident response systems. Examine the potential advantages of automating incident response tasks like data entry, categorization, and prioritizing customer complaints by integrating OCR technology with an aadhar bot using NLP. Analysing how well an integrated OCR and issue bot system performs in speeding up response times, increasing accuracy, and increasing the percentage of resolved incidents and developing and implementing an integrated OCR and aadhar bot system, such as choosing OCR technology, machine learning algorithms, and integrating with existing incident response systems.



Fig. 2. Chatbot

IMPLEMENTATION

Integrating OCR with an aadhar bot for an automated incident response system is a challenging subject that requires a solid grasp of many different technologies and ideas.

Design of the master page and login page:

A well-designed master page and login page may improve user experience and make it simpler for incident response teams to access the system.

Chatbot and chat request:

Chatbots are crucial in automated incident response systems since they can communicate with users and help with problem resolution.

Text box and string builder:

Users must frequently supply text descriptions when submitting requests or occurrences. Tools like text boxes and string builders may be used to collect this data and make it easy to analyze. It is a class that creates and manipulates strings. Contents of string builder objects can be depicted using the toString() method.

CSS and ASP:

Two technologies that may be used to create web apps are Cascading Style Sheets (CSS) and Active Server Pages (ASP). The subject of future research might be how these technologies may be employed to enhance the user interface and boost system performance.

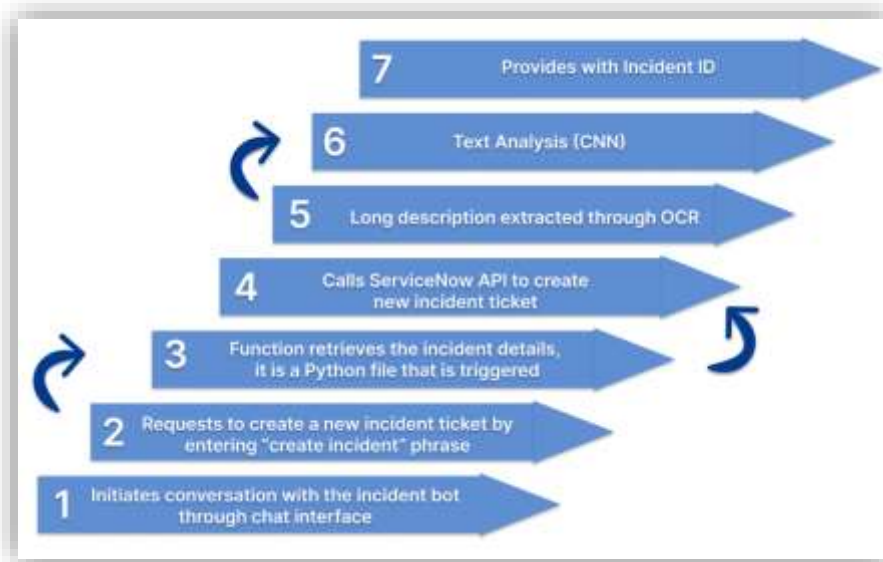


Fig. 3. Incident Bot

MODEL ARCHITECTURE:

Integrating OCR with an aadhar bot for an automated incident response system is a challenging subject that requires a solid grasp of many different technologies and ideas:

Model architecture:

A vital element of an OCR system, the model architecture governs the precision and efficiency of text extraction from pictures. Different model designs, such as convolutional neural networks (CNNs), and how they might be optimized for OCR tasks could be the subject of future research.

OCR in Python:

Due to its user-friendliness and potent image-processing tools, Python is a well-liked programming language for creating OCR systems. Research might examine the methods for picture preprocessing, feature extraction, and text recognition that can be implemented in Python to create an OCR system.

Text analysis may be used in incident response to automatically categorize and rank event reports, spot possible trends and patterns, and extract crucial details like name, number, and severity.

Paddle OCR is an OCR system that uses deep learning to extract text from photos precisely. Unstructured data sources like screenshots and images may be automatically processed and analyzed for text content by combining Paddle OCR.

The **Base64 binary-to-text encoding technique** may represent binary data in ASCII string format. This might help send data across protocols like HTTP requests that need ASCII text data. Base64 encoding can send text-based picture data that OCR systems can decode and analyze.

Sensitive data, like incident reports and user credentials, can be encrypted using the commonly used encryption standard AES-256. Data may be safely transported and kept encrypted with AES-256, which lowers the possibility of data breaches and unauthorized access.

CNN might be utilized for tasks like picture preprocessing, character segmentation, and word recognition in merging OCR and aadhar bot for an automated incident response system. A CNN might be taught to recognize various fonts, styles, and sizes of text and properly extract it from photographs by training it on a sizable dataset of images with text. Still, images of a little leak would be classified as low-priority incidents. After extracting text from an image, it must be outputted in a format that can be used, such as JSON. JSON is a standard data format for web applications.

Postman is a tool for testing APIs, while Flask is a well-liked web framework for creating APIs in Python. API URL forwarding is the practice of sending information to an API endpoint by way of the URL. This is a typical approach to the HTTP GET method to deliver data to an API.

Research Through Innovation

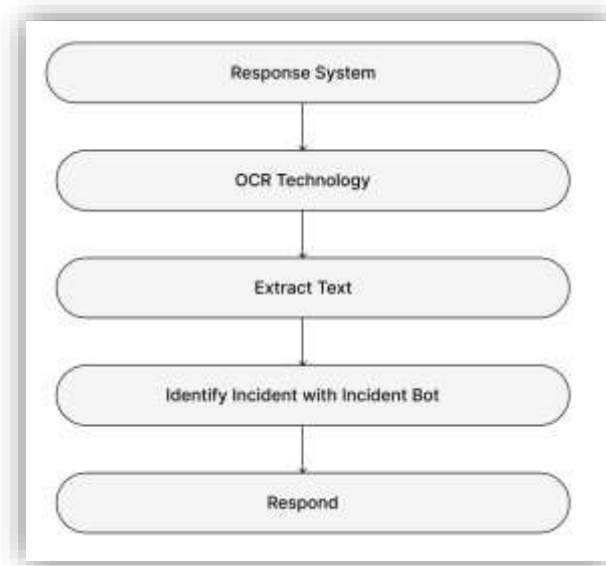


Fig. 4. UML Diagram

Several elements and procedures, including incident generation and maintenance, may be included in integrating OCR with an aadhar bot for an automated incident response system:

An automated incident response system's incident bot user interface (UI) is essential since it enables people to communicate with the design and submit issue reports.

Trigger method in the C# server: This function takes user inputs from the incident bot UI and starts the incident creation process. The trigger function's potential for handling requests, validating user inputs, and interacting with other system components might be explored through research.

Passing incident data from the trigger function to the Python code that conducts OCR and extracts text from photos is the responsibility of the bot Python function call.

Add a description and a process organized by priority to ServiceNow: The incident bot can utilize the extracted text to generate an issue ticket in ServiceNow.

Creating documents/tickets and identifying incidents: The incident bot should produce a document or ticket with all pertinent details about the occurrence, including when the incident ticket is filed in ServiceNow. Two distinct bots integrated with ServiceNow and the other with OCR software.

An incident ticket would be created in the system via the ServiceNow API using user input from the embedded bot, such as a description of an occurrence. After making the incident, the bot could give the user the incident number as a reference. The OCR-enabled bot would be programmed to read a picture of an Aadhar card from a user, extract the name and Aadhar number using OCR software, and then match this data with the individual's information in the company's database. The bot might validate the document and let the user know it has been successfully matched if the information matches.

Hosting, database integration, and keyword comparison are just a few parts and procedures:

Hosting: For users to access the automated incident response system, it must be hosted on a server or cloud platform—different hosting choices, such as on-premise, cloud-based, or hybrid solutions.

URL integration: To access the incident bot user interface (UI) and other system components, users must be integrated with a URL or web address.

The integration platform uses APIs or other integration tools—string builder and different database choices, including SQL, NoSQL, and hybrid databases.

The incident response system's OCR technology can extract text from photos, which can then be matched with a database of keywords to detect occurrences and rank them according to their seriousness.

Aadhaar and database: Due to privacy issues and regulatory limitations, using Aadhaar and other government-issued IDs in incident response systems might take much work. Additionally, the study assesses various data protection strategies, like encryption.

APPLICATIONS

A research study on OCR and aadhar bot integration for automated issue response has several possible uses. These applications include:

Response to cybersecurity issues: Given the quantity and sophistication of cyber threats, response teams must be able to identify and address security problems without delay. OCR and the incident bot can be combined to automate issue response, allowing quicker detection and reaction times by implementing the AES-256 algorithm.

Healthcare incident response: Critical occurrences like patient falls or prescription mistakes may need a reaction in healthcare settings. OCR and the incident bot can aid in automating the response procedure, enabling healthcare practitioners to react swiftly and efficiently.

Any software or application, even a multilingual chatbot, can connect to a server on a specific port. Incident management in multilingual contexts can benefit significantly from integrating a multilingual chatbot with an OCR-powered incident response system. The OCR technology can help automatically process and extract text information from photos in many languages.

The chatbot may be programmed to make HTTP calls to a server running on a specific port for incident management and OCR processing. The server can then respond with the pertinent data and instructions in the user's chosen tongue.

CONCLUSION & FUTURE SCOPE

In conclusion, integrating OCR technology with an aadhar bot for an automated incident response system offers several advantages for incident response teams. By automating the detection, identification, and processing of unstructured data like photos and text, the system can speed up response times, increase accuracy, and improve the percentage of incidents resolved. Our research found that OCR technology, incident response systems, chatbots, API development, and cloud hosting are all essential components for an effective automated incident response system. We also found that the system's performance could be evaluated based on response times, accuracy, and percentage of incidents resolved. The design of the incident bot to produce papers or tickets in other file types, such as PDF, CSV, or JSON, might be the subject of further study. Different URL integration strategies, including domain mapping, URL forwarding, or subdomain configuration, might be the subject of future research. The study might also cover how URL integration affects SEO, accessibility, and system performance.

Future research could focus on optimizing the OCR technology used in the system, exploring the potential of machine learning algorithms to improve incident categorization and prioritization, and incorporating natural language processing capabilities into the chatbot. The system's integration with other technologies, such as threat intelligence feeds and security orchestration, automation, and response (SOAR) platforms, could also be explored.

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