

Auto Response System for Legal Consultation

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ABSTRACT

The Auto response system for legal consultation will provide the knowledge of cyber laws. The objective is to implement the legal consultant system service by using chat-bot Technology. It was implemented based on the information of the offence, previous records of cyber-crimes and under sections of INDIAN IT ACT 2008 and their penalty all the records are gathered. User will input the offence then the chat-bot will take the keyword from that offence and search for the law for that particular offence or crime and it will show the penalties, sections, and imprisonment for that offence or crime.

KEYWORDS: Cybercrime, cyber law, offenses, IT ACT 200, RNN, Chat-Bot, Tensor Flow, Android, Firebase, Case studies

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1. INTRODUCTION

Cyberlaw covers a fairly broad area, encompassing several subtopics including freedom of expression, access to an usage of the internet, and online privacy. Generically, cyber law is referred to as the law of the internet. Created to help and protect people and organizations on the internet from malicious people and help to maintain order. An important aspect of the Auto response system for legal consultants is to introduce it in people's day to day life as we live in a world of internet. Cybercrime is one of the most deadly yet underrated subject to work and even more challenging to implement. Benefit to society. If someone breaks a cyber law or rule, it will allow another person or organization to take action against that person or have them sentenced to a punishment. There are different forms of punishment depending on the type of cyberlaw you broke, whom you offended, where you broke the law, anywhere you live. If you've committed a more serious offense such as hacking, attacking another person or website, or causing another person or company distress, additional action may be taken against that person or have them sentenced to a punishment. A Chat-Bot is a computer system, which can interact with users by using natural language. Usually, it is designed to serve in a particular domain such as online shopping, online frequently asked questions, and also assistant system. Users can easily use it without background knowledge or experiences [2].

Moreover, Chat-Bot can serve many people at the same time with the same topic and without getting bored. User will input the offence then the Chat-Bot will take the keyword

from that offence and search for the law for that particular offence or crime and it will show the penalties, sections and imprisonment for that offence or crime. This test results show the capability of the proposed system. The Auto-response system for legal consultants is part of the legal system that deals with the internet, Cyberspace, and their own legal issues. Moreover, it is used as a guideline for future improvement and also a guideline for future studies [3].

The Chat-Bot can be easily implemented in Instant Messaging (IM), application, or online chat such as Facebook, Hangout, and Line by using the provided APIs[2].

2. LITERATURE SURVEY

A Chat-Bot is an Artificial Intelligence (AI) feature that can be embedded and used through any major messaging applications that simulate human conversation through voice commands or text chats or both.

A. Chat-Bot types:

1. Rule-Based ChatBot
2. AI-Based ChatBot

Rule-Based approach: A rule-based system uses rules as the knowledge representation. These rules are coded into the system in the form of if-then-else statements. The main idea of a rule-based system is to capture the knowledge of a human expert in a specialized domain and embody it within a computer system.

AI-based approach: AI is a technology that bases on the human ability to learn by themselves and gain effective information. This approach allows us to move from tedious traditional processes to automating intent, making it possible to manage millions of devices in minutes.[2]

Chat-Bot Utilization for Medical consultant system:"MedBot" is an application developed by Nudtaporn Rosruen and Twaesak Samanchuen, which uses Dialogflow. This application is trained according to symptoms and their treatments. The Chat-Bot gives proper response to the particular symptoms with the proper guidance for handling their disease. It increases service capability and decreases the operation cost of medical consultant service[1].

Cyber Law and its Usefulness in IIT ACT: Cyberlaw is important because it touches almost all aspects of transactions and activities and on involving the internet, World Wide Web, and cyberspace. Every action and reaction in cyberspace has some legal and cyber legal angles.

Any illegal behavior committed by means of, or in relation to, a computer system or network, including such crimes as illegal possession [and] offering or distributing information by means of a computer system or network. There are multiple types of cybercrime, such as Software Piracy, Pornography, Phishing, E-mail spoofing, and many more[3].

What happens if you break a cyber law?

There are different forms of punishment depending on the type of cyberlaw you broke, whom you offended, where you broke the law, and where you live. In many situations, breaking the rules on a website result in your account becoming suspended or banned, and your IP addressed blocked. If you've committed a more serious offense such as hacking, attacking another person or website, or causing another person or company distress, additional action may be taken against you[3],[12].

Overview of the Speech recognition technology:

Speech recognition is the ability of a machine or program to identify words and phrases in spoken language and convert them to a machine-readable format.

The development of speech recognition systems is a multistep process. First, relevant features are extracted from the speech signal. Second, reference models are developed using these features. Models are needed for each sound unit. Third, feature vectors are derived from speech utterances and are presented to all the reference models. The model, which gives the highest confidence measure indicates the identity of the sound unit. The sequence of the identified sound units is validated using language models. In other words, language models are used to convert sequence of sound units into text.

Conceptually, approaches to developing speech recognition systems fall into two types: template and model-based. In a template-based approach, the system is initially trained using known speech patterns. In the model-based systems, suitable features for each sound unit are extracted from the training data[5].

B. Related work

As there is no auto-response system for cyber law, so everything is done manually, and it becomes very difficult to

search for a particular offence or section. Peoples are not aware of the laws and penalties according to that offence. There is no Auto response system is developed for cyber law, but there is an auto response system for the medical consultant system, and we are trying to make it for the cyber laws[1].

At this moment, there are many ways to Develop a Chat-Bot without coding, which makes the development of the Chat-Bot is simple, convenient, and fast.

Currently, the Chat-Bot is utilized in various fields such as Education, HealthCare, Airline services[2]. For Education Chat-Bots are changing the face of education right from personalizing education, helping people learn new languages, spaced interval learning, student feedback, professor assessment, essay scoring, acquaint a student with school culture, and for administrative formalities. For Medical application, the Chat-Bot For hospitals and clinics, Chat-Bots has been saving a lot of money. While one category of Chat-Bots performs tasks for receptionists, nurses, and interns, another category assists doctors with patient progress reports, checking in on post-op recoveries, assessing drug interactions, and so on. It learns common symptoms and provides recommendations for relevant resources. For Airline, services Travel bots used by the airline industry are deployed to send announcements, for ticketing, facilitate web check-ins, personalized search, and purchases, provide flight options, and make other travel arrangements.

The next section shows about design and implementation of the Auto Response System for Legal Consultation.

3. SYSTEM IMPLEMENTATION

A. System Architecture

An Android Application which will solve the problem and to provide a digital guide and that application will have a very specific function that is giving the output of relative offence and its case study[4].

Input: This output will be reflected when the input is given, there are two way to give input,

1. Input by text
2. Input by voice

This will be handled and implemented on the android application(by using the IDE Android Studio)

Database:

1. ONLINE(FIREBASE)
2. OFFLINE(local, cache)

The firebase database is created at the backend to store all the sentences of previous cases and to retrieve it when needed. It is also used to update the database for all the users by updating it centrally. The offline storage is used for fast loading by creating a small local database and cache memory when app is running[11].

Speech Recognition: The unknown voice through the microphone is transformed into an electrical signal on the input of the identification system, the first after the pretreatment. The system establishes a voice model according to the human voice characteristics, analyzes the input voice signal, and extracts the required features on this

basis. It establishes the required template of the speech recognition. A computer is used in the recognition process according to the model of the speech recognition to compare the voice template stored in the computer and the characteristics of the input voice signal. Search and matching strategies to identify the optimal range of the input voice matches the template. According to the definition of this template through the look-up table can be given the recognition results of the computer[5].

Technologies: **Android Studio App:** Android Studio is Android's official IDE. It is purpose-built for Android to accelerate your development and help you build the highest-quality apps for every Android device. Android is a powerful operating system and supports great features such as Improved incremental Java compilation when using annotation processors, Single-variant project sync, Delete unused Android Studio directories, and many more[4].

- create android application
- import PIP library
- executes the final build the .apk file
- android studio

Tensor Flow: It is an open-source artificial intelligence library, using data flow graphs to build models. It allows developers to create large-scale neural networks with many

layers. Tensor Flow is mainly used for: Classification, Perception, Understanding, Discovering, Prediction, and Creation[6].

FireBase: Firebase is Google's mobile application development platform that helps you build, improve, and grow your app. It is a centralized database used to store data[11].

PIP: pip (package manager) is a de facto standard package-management system used to install and manage software packages written in Python[10].

RNN: A recurrent neural network (RNN) is a type of artificial neural network commonly used in speech recognition and natural language processing (NLP). RNNs are used in deep learning and in the development of models that simulate the activity of neurons in the human brain[9].

CNN: A Convolutional neural network (CNN) is a neural network that has one or more convolutional layers and is used mainly for image processing, classification, segmentation, and also for other autocorrelated data. CNN's have been used for understanding in Natural Language Processing (NLP) and speech recognition[7].

B. Implementation process

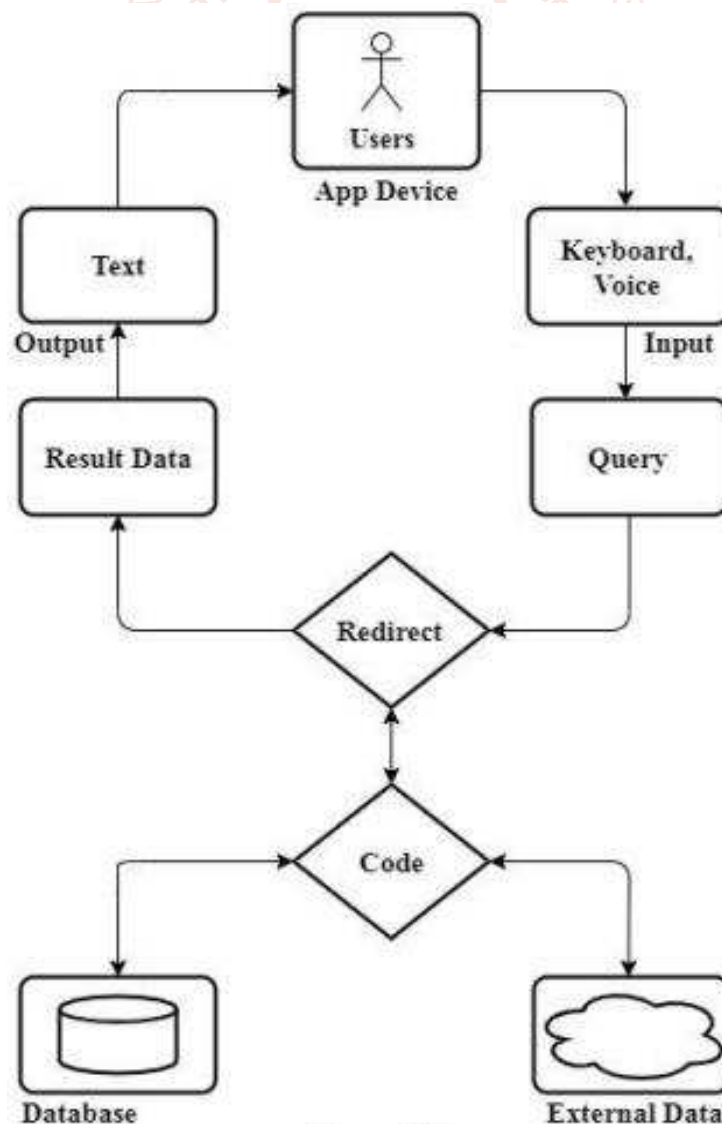


Fig1: Basic Diagram Of Chat-bot

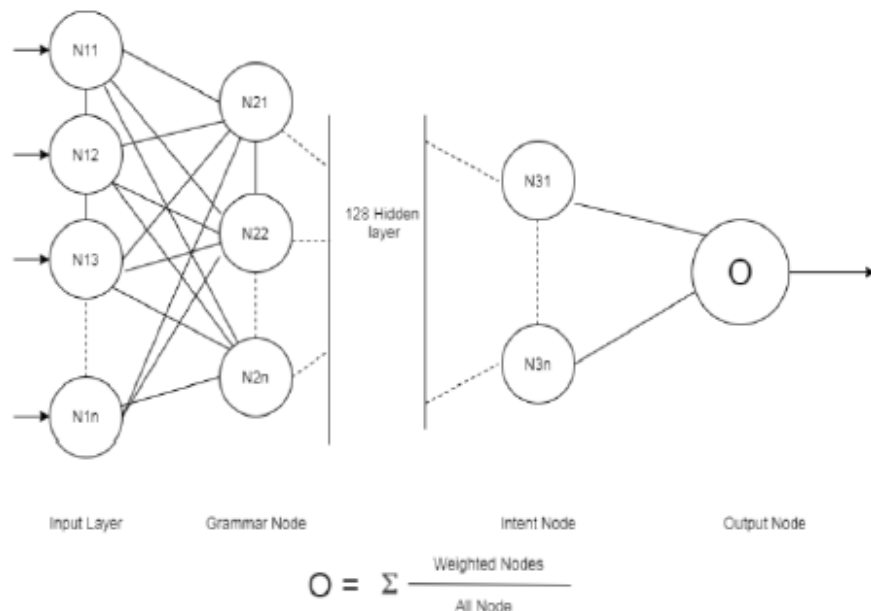


Fig 2: Flow graph

Flow of Auto Response System For Legal Consultation:

Step 1: Take input from the end-user(text/voice) with respect to cyber-crime and cyber offences.

Step 2: Send the received input from the user as the query to the server.

Step 3: At the server-side the dialog flow will check for the existing keywords.

Step 4: If (keyword is found)

- Throw related intents
- Send the most accurate sections with its relevant stored data to the end device.

Else

- DEFAULT_INTENT
- Default messages

Step 5: Display the information to the end device that is received from the server.

Step 6: Update the chat in the local database

Step 7: Update on the server.

Step 8: Display the result on the home screen of chat- bot.

4. CONCLUSION

In this work, the development of an auto-response system for a legal consultation with multiple IT LAWS along with its offenses and penalties which will be used to fetch from the database along with the sentencing of previous cases. A couple of sections, along with their offences are trained to the Chat-Bot. The Chat-Bot can respond the proper answers to the user with the proper guidance for handling the cases threats based on the input inserted via keyboard or voice-based, offenses automatically reducing all the manual work. It can be applied to various government area to help solve pending cases based on cybercrime. This system helps maximize convenience to the users, increase service capability, and decrease the operational cost of cyber lawyers or individual.

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