AUTOMATIC BANK FORM GENERATION SYSTEM BASED ON INTERACTIVE VOICE RESPONSE

A SOCIALLY RELEVANT PROJECT

Submitted in partial fulfillment of the requirements for the award of the degree of

Bachelor of Technology

in

COMPUTER SCIENCE AND ENGINEERING

BY

BATCH – 15B

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CERTIFICATE

This is to certify that the project report entitled **Automatic Bank Form Generation System Based on Interactive Voice Recognition** being submitted by **Md. Imran, K. Harshitha, K. Divya Satya Kumari, M. J. Rohit Varma** bearing registered numbers **20335A0509, 19331A0579, 19331A0592, 19331A05A3** respectively, in partial fulfillment for the award of the degree of "**Bachelor of Technology" in Computer Science and Engineering** is a record of bonafide work done by them under my supervision during the academic year 2021-2022.

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Abstract

Filling a bank form by an illiterate in banks is a very basic problem. This problem is being faced by many people. So to overcome this problem we are going to create a machine.

In our project "Automatic form generator" people can get their forms filled automatically by our machine. First our machine scans the QR code and gives the details of that bank accordingly. Then it asks for which form either 'Deposit' or 'Withdrawal'. Then it gives the form based on the client request (If they want to withdraw, the machine will ask how much they want).

Here in this project we are using " IVRS " model which means Interactive voice response

Interactive voice response or IVR is an automated business phone system feature that interacts with callers and gathers information by giving them choices via a menu. It then performs actions based on the answers of the caller through the telephone keypad or their voice response.

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1. Introduction

Banking system contains the filling forms which can be done easily by a literate but it is a difficult task for an illiterate. People ask help from others to fill the form.

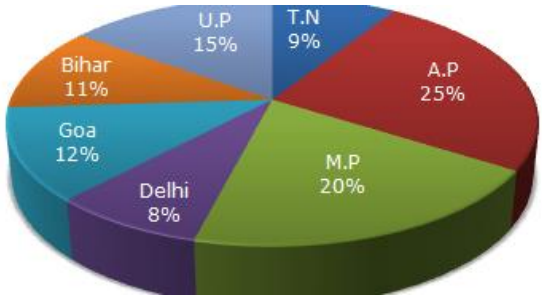

Fig 1.1

According to the census report as shown in Fig 1.1, the literacy rate of AP is 25%. Then illiteracy rate is 75%. By this we can see that how many people are facing difficulty to fill the basic form to deposit or withdraw. So we are going to generate machine which is filling the form automatically according to the clients request. It is the question-and-answer format. This will be checked in our near by banks so mainly we are giving the Telugu language. This machine will contain the following steps.

1. Scans the account number which is in the form of a Barcode/QR code.
2. Fetches the details of account holder using.
3. It will ask if that the person wants to withdraw or deposit
4. It all generate the form according to Client's request.
5. The person will get the required form.

2. Methodology

S/W&H/W Requirements:

To develop/to generate the machine we use the following software requirements-
Python and python packages like opencv, pyzbar, speech recognition, google trans, play sound, gtts, chromedriver_binary.

Speech recognition: Which is used to recognize the voice of the client and their needs.

Fig 2.1

As demonstrated in Fig 2.1, Speech recognition, or speech-to-text, is the ability of a machine or program to identify words spoken aloud and convert them into readable text. ... Speech recognition is used to identify words in spoken language. Voice recognition is a biometric technology for identifying an individual's voice.

Speech recognition technologies such as Alexa, Cortana, Google Assistant and Siri are changing the way people interact with their devices, homes, cars, and jobs. The technology allows us to talk to a computer or device that interprets what we're saying in order to respond to our question or command.

Google trans: It is used to translate the language from any language into clients required language.

Fig 2.2

As demonstrated in Fig 2.2, we use the google trans API to translate the input amount given by the user from Telugu to English so that it can be further processed easily.

Pyzbar: It is a pure Python library that is used to read one-dimensional barcodes and QR codes using the zbar library.

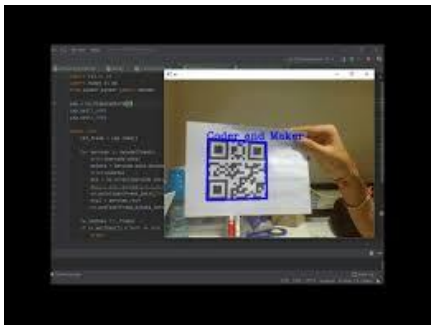

Fig 2.3

As demonstrated in Fig 2.3, reads one-dimensional barcodes and QR codes using the pyzbar library, an open-source software suite for reading bar codes from various sources, such as video streams, image files and raw intensity sensors.

Using pyzbar we can decode the one-dimensional barcode and QR-code.

1.Import cv2.

2.Import decode function from pyzbar.

3.Take the image from the user

4.Decode that image using pyzbar.Locate the barcode in the given Image.

5.Locate the barcode in the given Image.

6.Print the data and type of image.

7.Display located barcode.

gTTS (Google Text-to-Speech): gTTS (Google Text-to-Speech) is a Python library and CLI tool to interface with Google Translate text-to-speech API. We use it to convert text to speech.

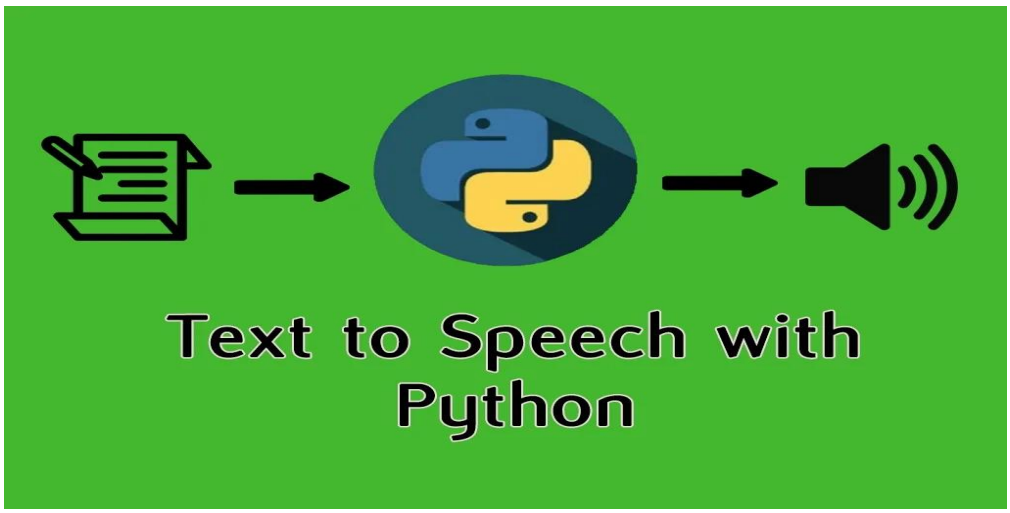

Fig 2.4

We first fetch the name of the user from the database. Then, as demonstrated in the Fig 2.4, the GTTS will convert it into audio which is then further used as per the requirement.

Creating Text-To-Speech with Python and gTTS

Creating Text-to-speech files has been a dream for many of us since we were kids. Now, with Python, those dreams can become true with few lines. Let's see how!

On this lesson you'll learn how to:

- Create an mp3 from a string of text
- Ask the user for a text and create an mp3
- Ask the user for a text file, extract the text and create an mp3
- How to play mp3 with Python.

Chromedriver-binary: It is used for the automation of websites and online forms.

Opencv: It is a great tool for image processing and performing computer vision tasks. It is an open-source library that can be used to perform tasks like face detection, objection tracking, landmark detection, and much more. It support multiple languages including python, java C++

3. OUTPUT

Deposit Form:

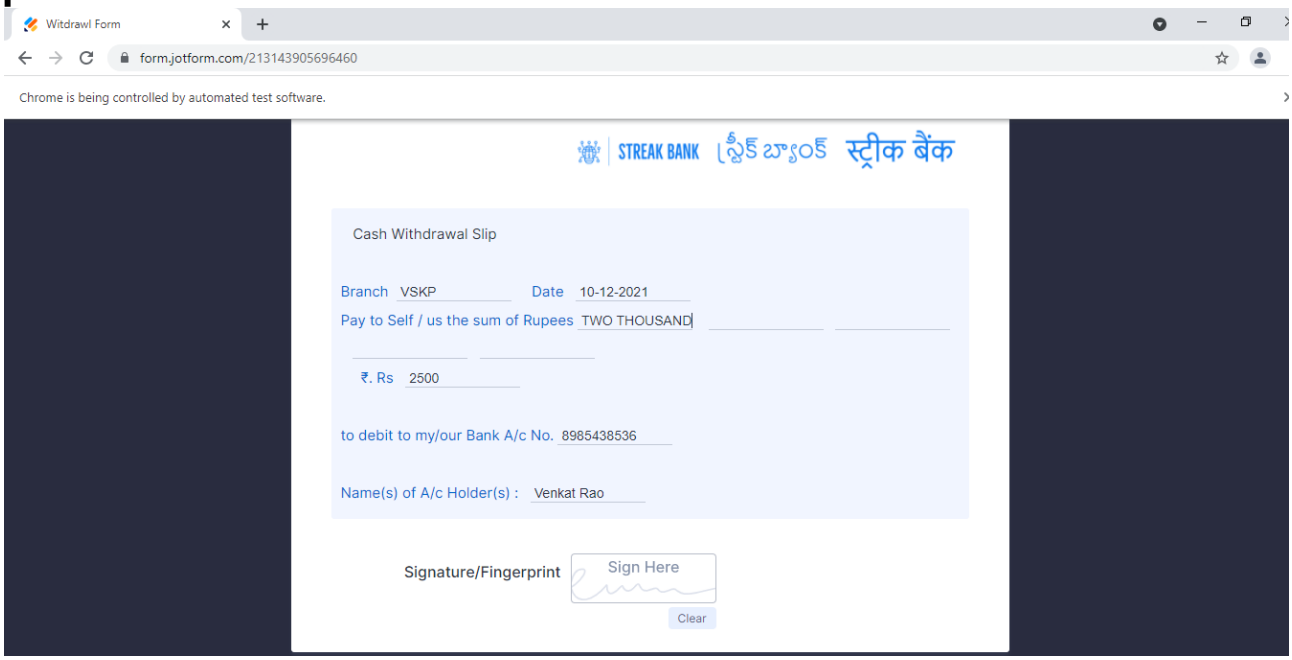

Fig 3.1

According to the instructions given by the user through the IVR System, a deposit form gets generated as shown in Fig 3.1

WITHDRAWAL FORM:

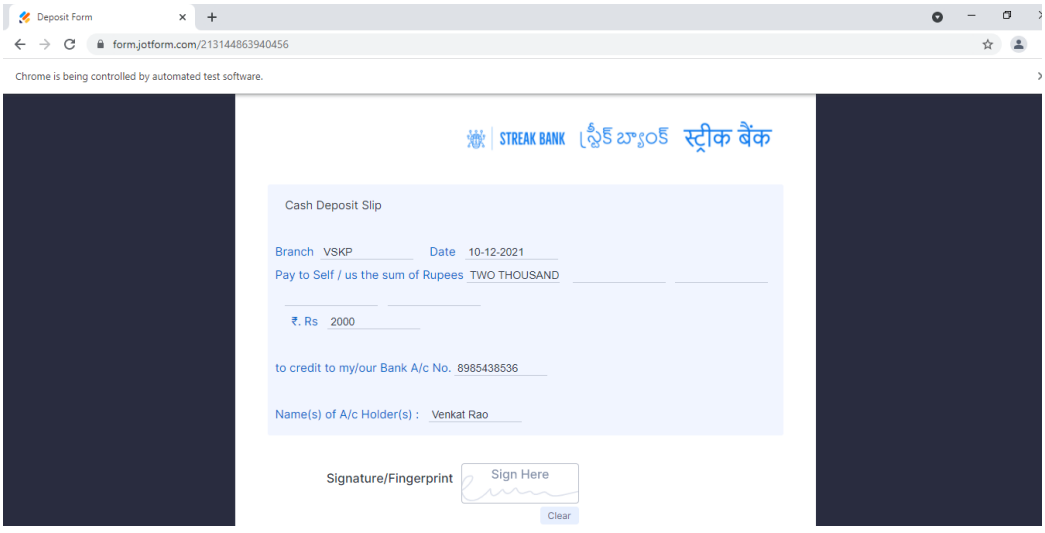

Fig 3.2

According to the instructions given by the user through the IVR System, a deposit form gets generated as shown in Fig 3.1

4. Conclusion

Most of the users in a bank are illiterate people. They do not know how to fill a form for bank operations like deposit, withdraw, etc.

Fig 4.1

As demonstrated in Fig $.1, the purpose of this Automatic form generation is to overcome the problems faced by the many of the illiterate people in the banks.

5. Project Outcome

The purpose of this Automatic form generation is to overcome the problems faced by the many of the illiterate people in the banks to fill the required forms for the deposit or withdrawl transactiions.

During this project, we learnt the usage of several packages/API's and Liberaries available in Python:

- Computer Vision: Using open-CV we scanned the image of the QR/Barcode
- Pyzbar: Using this package, we fetched the data present in barcode in form of text.
- GTTS: We used this package to convert the text(Name) to speech.
- Chrome Driver: We used this package to automate the chrome browser for form generation
- NUM2WORD: We used this package to convert the currency from digits format to word format.

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