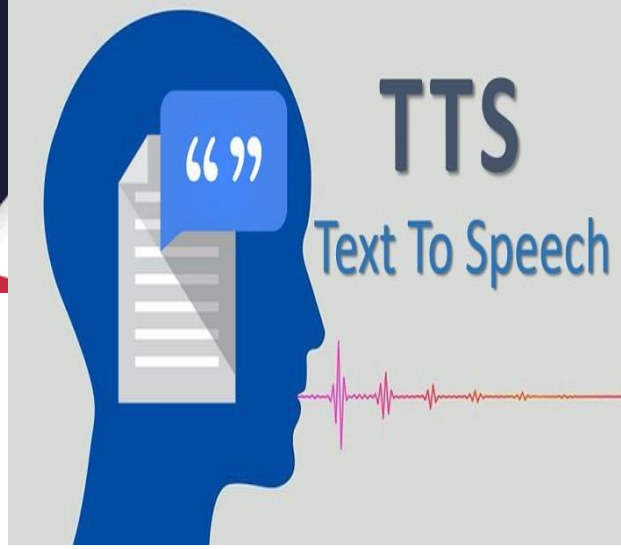


A conversational Artificial Intelligence powered Attendance System Based On Face Recognition and a corresponding voice output.

Developed
By

FRANKBOTICS

A demonstration and presentation made during the second edition of the annual artificial intelligence and robotic summit of the

Nigeria Computer Society

held in

Jos, Plateau state.

Frankpolics


Frankbotics
August 1, 2022
Price: N 2000
Frankbotics
Centre for Adaptation of Technology
Robotics
IoTs
artificial Intelligence
19 Robotic giants
10 AI is the future
today's research is tomorrow's reality


Centre for Adaptation of Technology
AI
11 Digital Economy
18 Smart Hospi
Second Edition

Frankbotics

1. Introduction
2. Aim
3. The building blocks that make the new system
4. Flow chart (explanation)
5. Functional Block Diagram
6. Results
7. Limitation
7. Conclusion (explanation)
8. Future Work

INTRODUCTION :

Every conference requires a robust and constant system to register and admit participants during a conference. The registration of attendees during a conference can be maintained in two different forms namely,

- **Manual conference registration Management system**
- **Automated (AI powered conference registration System)**

Frankbotics

Traditionally, conference registration of attendees is done manually by NCS official attendants stationed at three service points or more, and they must make sure arriving conference participants are registered for the conference, their tag numbers, seat numbers, hotel rooms* e.t.c are assigned manually while their dues are checked from the society's database, printed and issued to them.

This whole process wastes some of the conference time.

AIM:

To have a contactless based attendance system-

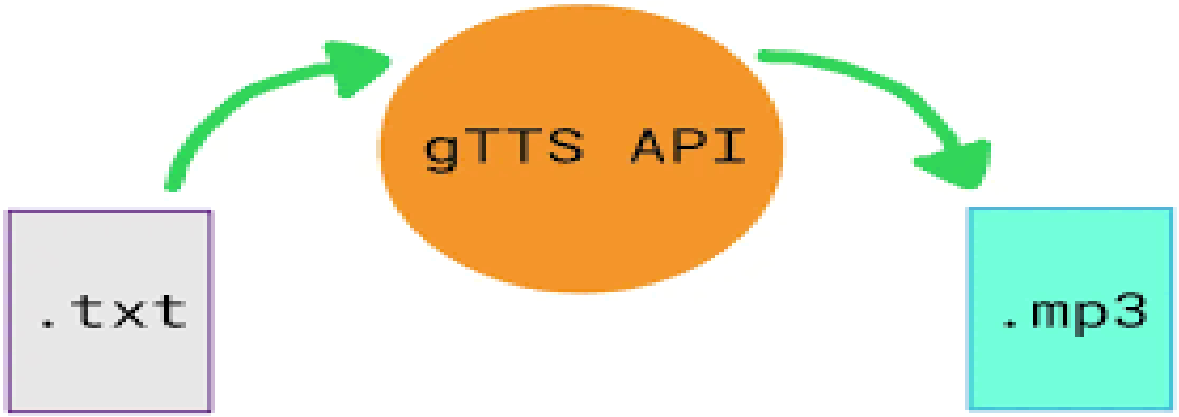
a contact free, fast and automated attendance registration process during an NCS national conference

(Using NCS conference registration as an example)

What is text to speech. Text to speech is also known as TTS, read aloud, or even speech synthesis. It simply means using artificial intelligence to read words aloud be; it from a PDF, email, docs, or any website.

gTTS (Google Text-to-Speech), a Python library and CLI tool to interface with Google Translate's text-to-speech API. Write spoken mp3 data to a file, a file-like object (bytestring) for further audio manipulation, or stdout .

http://gtts.readthedocs.org/

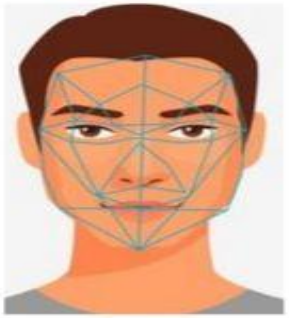


How Facial Recognition Systems Work

1

Capturing and scanning

2



Extracting Facial Data

3

Comparing database

4

Matching and Identifying

FACIAL RECOGNITION

Facial recognition is a way of identifying or confirming an individual's identity using their face. Facial recognition systems can be used to identify people in photos, videos, or in real-time. Facial recognition is a category of biometric security. Other forms of biometric software include voice recognition, fingerprint recognition, and eye retina or iris recognition.

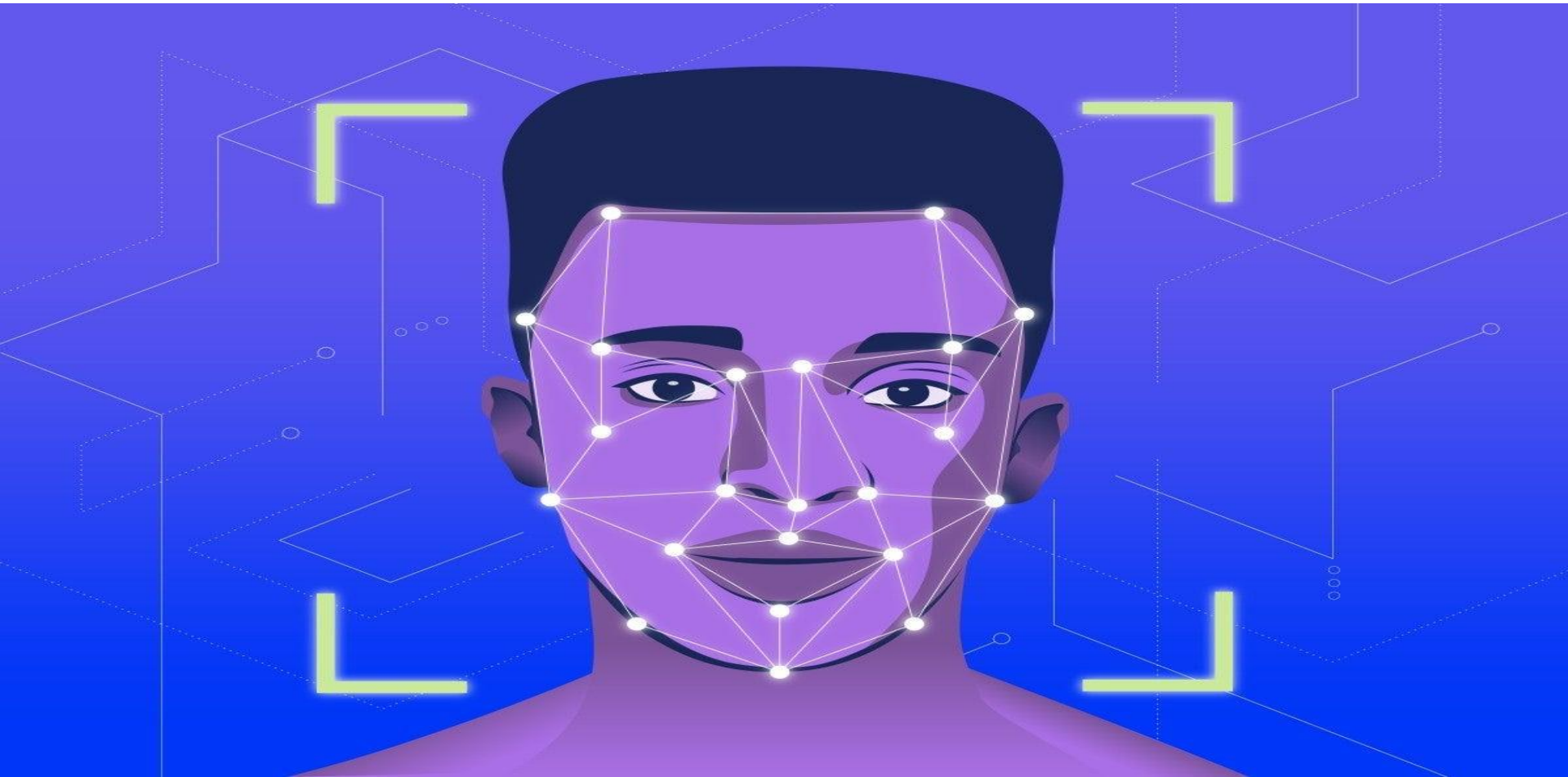
Step 1: Face detection

Step 2: Face analysis

Step 3: Converting the image to data

Step 4: Finding a match

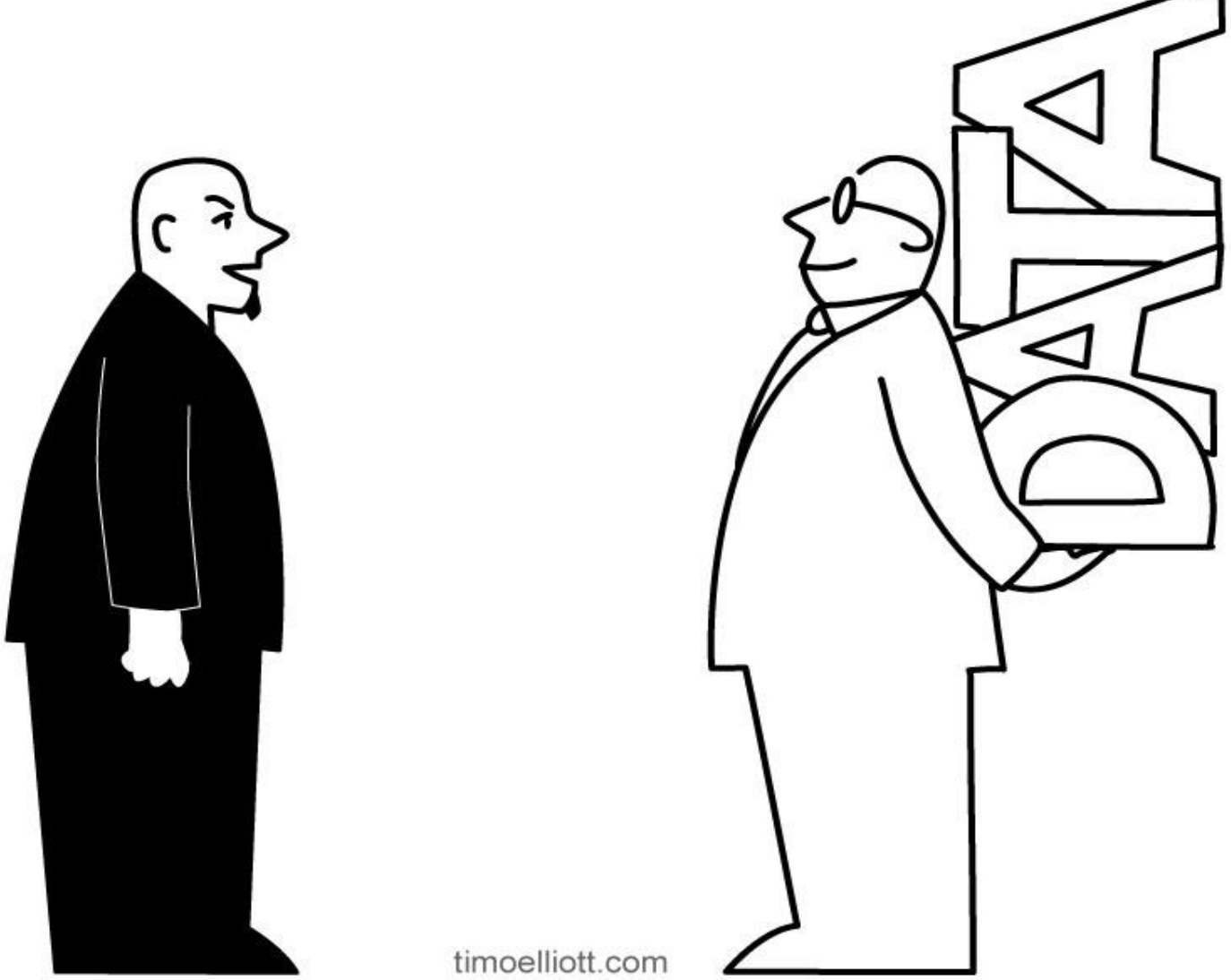
On carrying out the recognition process, feature comparison takes place with respect to the features stored in the database. The queried face is displayed along with corresponding matched face and the name of matched face is identified and the corresponding audio output which is generated through a text-to-speech algorithm initiates an interactive and humorous conversation. Through this conversation, the attendee's tag number, seat number, hotel room number e.t.c would be assigned to him/her.



An NCS conference participant enters in the reception chamber.

DATASET CREATION

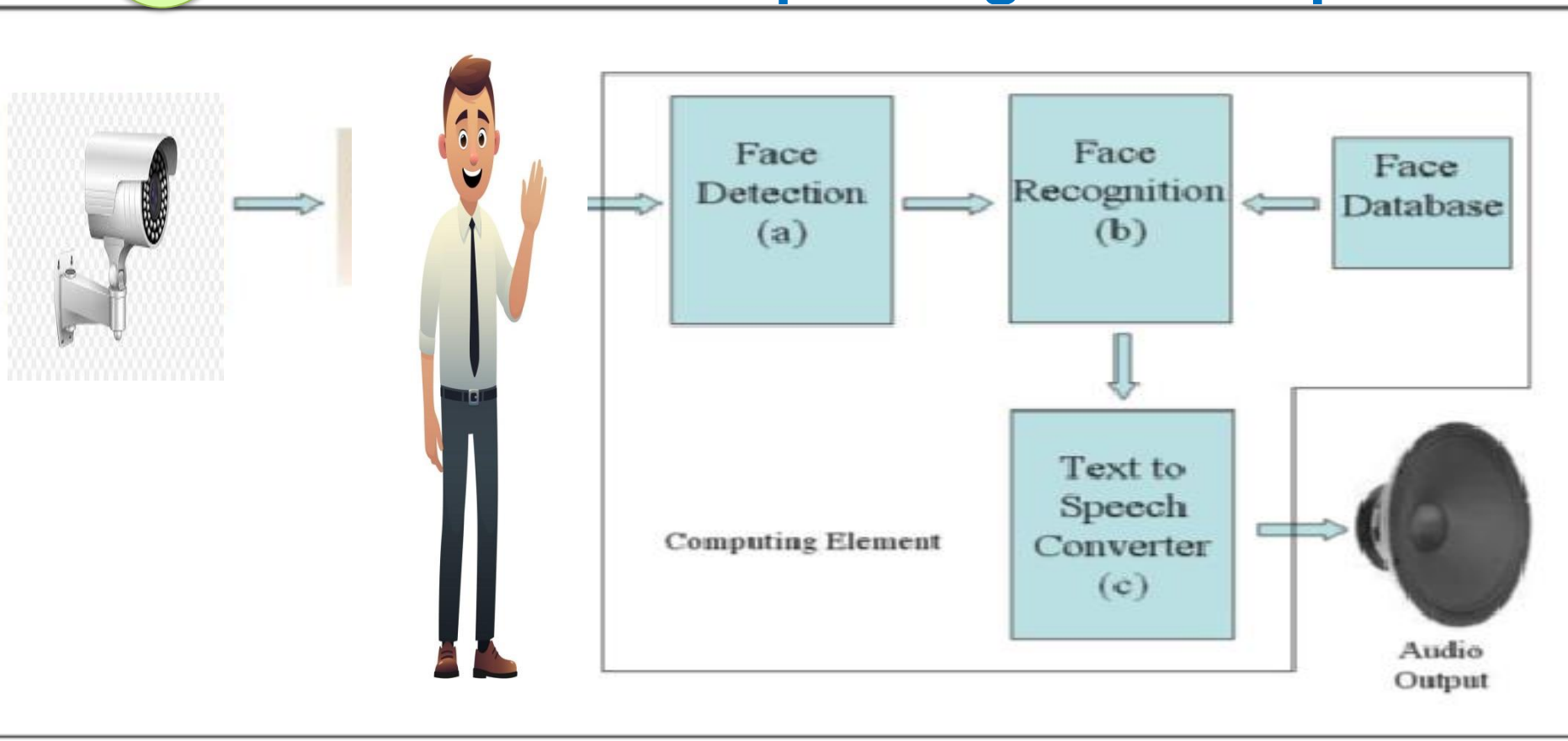
Data collection for facial recognition falls under image data collection and involves gathering face images to train and improve. Face images are taken of different people, annotated, and then fed into a machine learning model, which uses them to identify a participant when he appears in front of the CCTV.



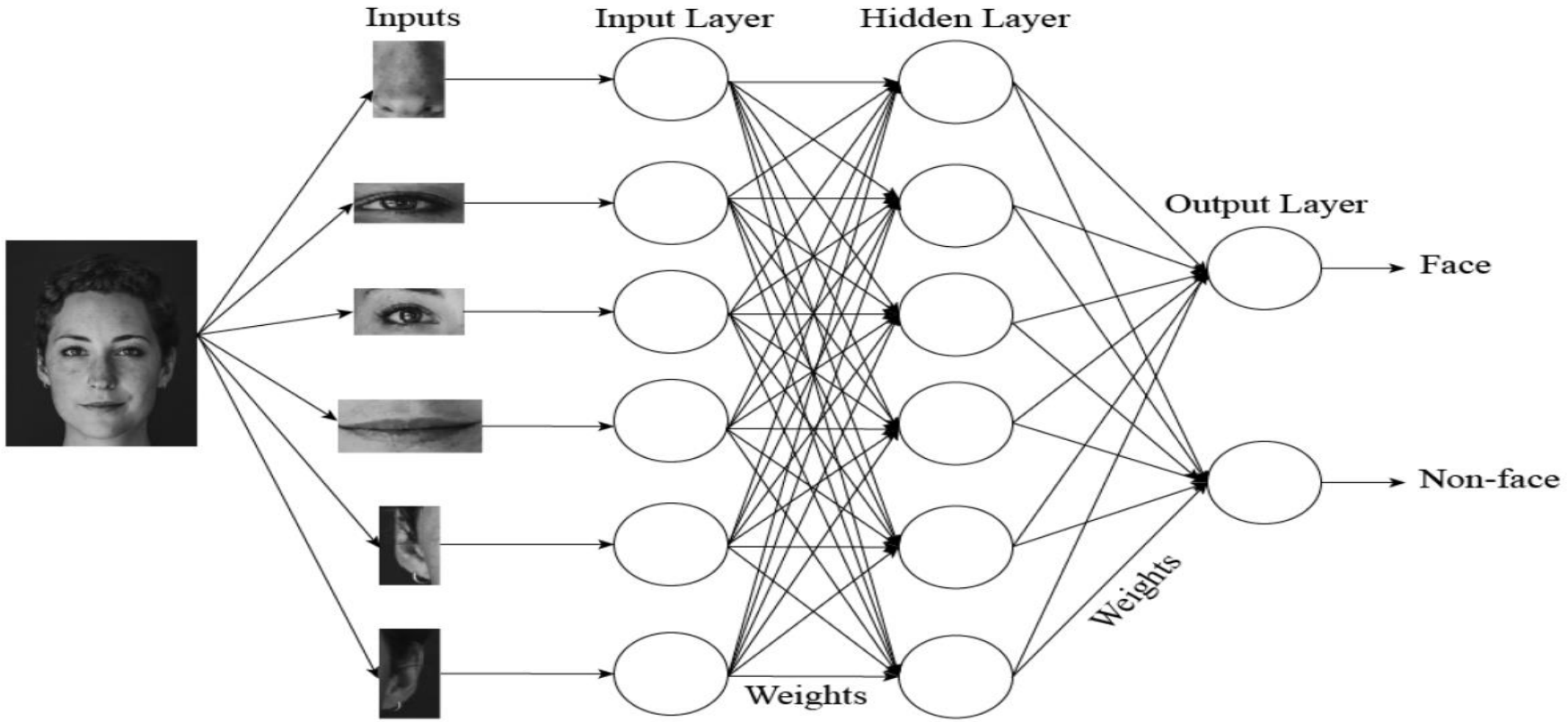
"What makes you think you can compete against AI startups like us!?"

Functional Block Diagram:

The flow process of AI attendance system with a corresponding voice output.



The most common type of machine learning algorithm used for facial recognition is a deep learning Convolutional Neural Network (CNN). CNNs are a type of artificial neural network that are well-suited for image classification tasks



HOW DO WE OBTAIN THE DATABASE

Frankbotics

Database is the collection of face images and extracted features. And the database includes images and names of NCS participants who have done pre registration formalities online & the data captured will be used to train the model prior to the conference proper and the arrival of the participants at the venue.

We created the database for 9 attendees prior to their arrival. We captured their images, assigned names and other data needed to train the model by using pi model 2 cam, these images were taken at different times and with variations in illumination, facial expressions, and facial details.

PYTHON RESULTS

By using a PYTHON code, we defined five variables, like *"seat_number"*, *"tag_number"*, *"name_of_attandee"* and *"food_reg"*.

When a we run this code, the gTTS will initiate an artificial intelligence conversation for every participant and stores the output of the generated audio file **(unstructured Data),** to a path or directory which can be used to improve the model during subsequent conferences.

Note: That the food recommendations for each participant differs from one participant to another this is as a result of an AI system known as **"find patterns in data and make predictions"**

THE LIMITATIONS

In our project we encountered many limitations:

1- . Access to compatible hardware

2- . Limited access to data

3- .

CONCLUSION:

From our system, we noticed the face recognition was sensitive to face background, light, and head orientations. This technique described the accurate and efficient method of automatic registration system of conference participants in the NCS national conference which could replace the traditional method. An automatic registration and admittance of attendees has many advantages, most of the existing systems are time consuming and has been prone tonterference from lecturers, our system seeks to solve these issues by using face recognition in the process to save the time and administrative over head. And No need for installing complex hardware for this sytem, in classroom, all we need is a camera and laptop. We used algorithms that can detect and recognize faces in the image.

FUTURE WORK

Automatic attendance system can be improved by increasing the number of features which can be extracted to increase accuracy of face recognition. Once the software is developed and tested properly, it could be improved to cover the full Nigeria Computer Society's conference registration process such as querying the database of the society's financial details of a member, and print out the voucher and others .

Thank you