BAYMAX

AI based MedBot to diagnose diseases and prescribe medicines in health care centres.

THE SEMICOLONS

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INTRODUCTION

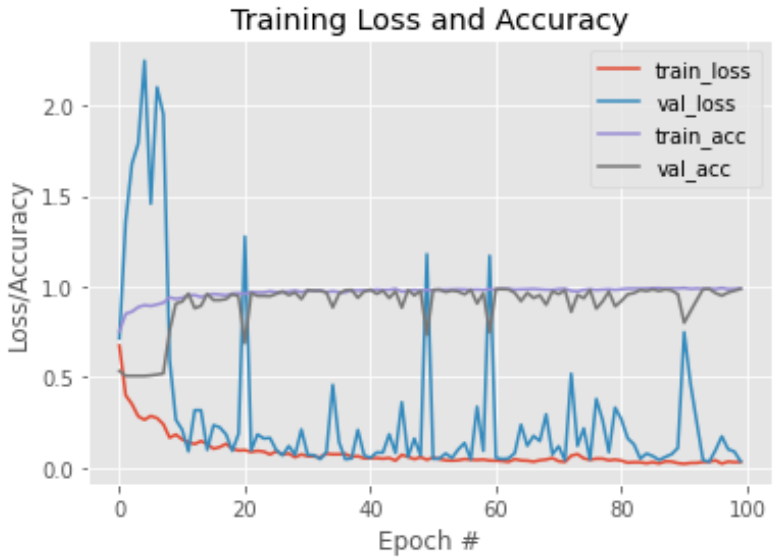
In a country like India where the population is approximately 3.17 billion, there are just few more than 11.5 lakh doctors, registered allopathic doctors. It means that for every 1457 patients, there is just 1 doctor. This number is lower than the World health organization norm. Also, when we talk about rural areas, the doctors over there are in single digit. So, obviously it becomes very tough for them to treat multiple patients at the same time. To combat this serious issue, we have made a medbot. Even in the present situation when we are in the mid of a pandemic, already the medical facilities are less. So, this medbot cum health care assistant would be prescribing medications to patients after diagnosis. It is capable of laying out a solution to an ailment on its own. It's Competent of saving time, both for the doctor and the patient

THE TECHNOLOGIES WE USED

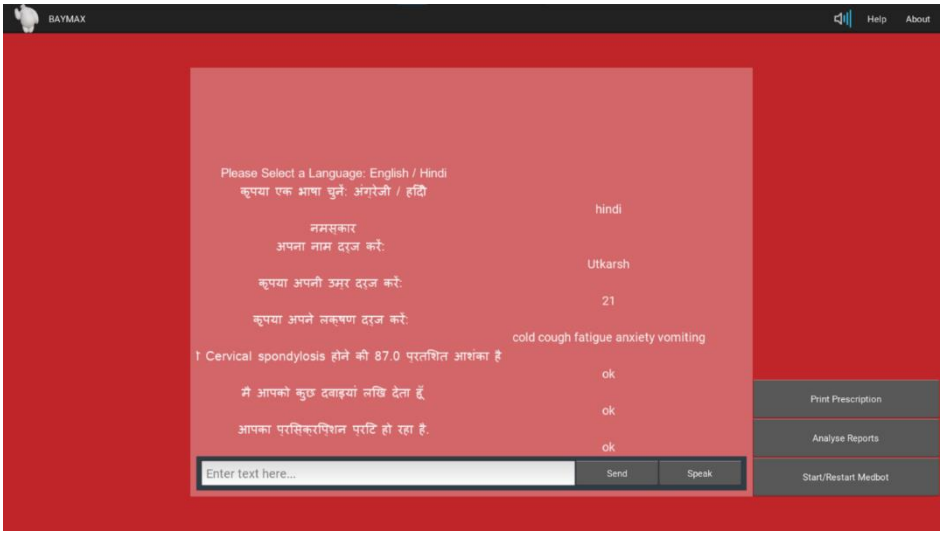
- Programming Language: Python
- AI Framework: TensorFlow, Keras
- GUI Framework: Kivy
- Computer Vision: OpenCV
- Language Processing: NLTK
- Speech Processing – pyttsx3, PyAudio, SpeechRecognition
- Database – Oracle MySQL

APPROACH

- Boosted Tree algorithm has been used. It is a decision tree algorithm attached with AdaBoost algorithm.
- NLTK, Natural Language Tool Kit has been used for Language Processing.
- Gender recognition model has been trained using Keras, TensorFlow and OpenCV on a dataset of 5000 different images.



- Baymax thus changes its voice according to the predicted gender of the patient.
- User friendly Graphic User Interface has been created using Kivy framework



- The major pro of using Kivy is that it allowed the developed application to run on multiple platforms.
- After the diagnosis of disease and suggesting medicines to the patient, the prescription is printed. The format used for printing is .pdf
- The PDF would contain the primary details of the patient along with the predicted disease and the prescribed medicines.

Baymax

Date and time - 2021-02-20 19:16:00

Name - Srishti Sharma Sex - Female

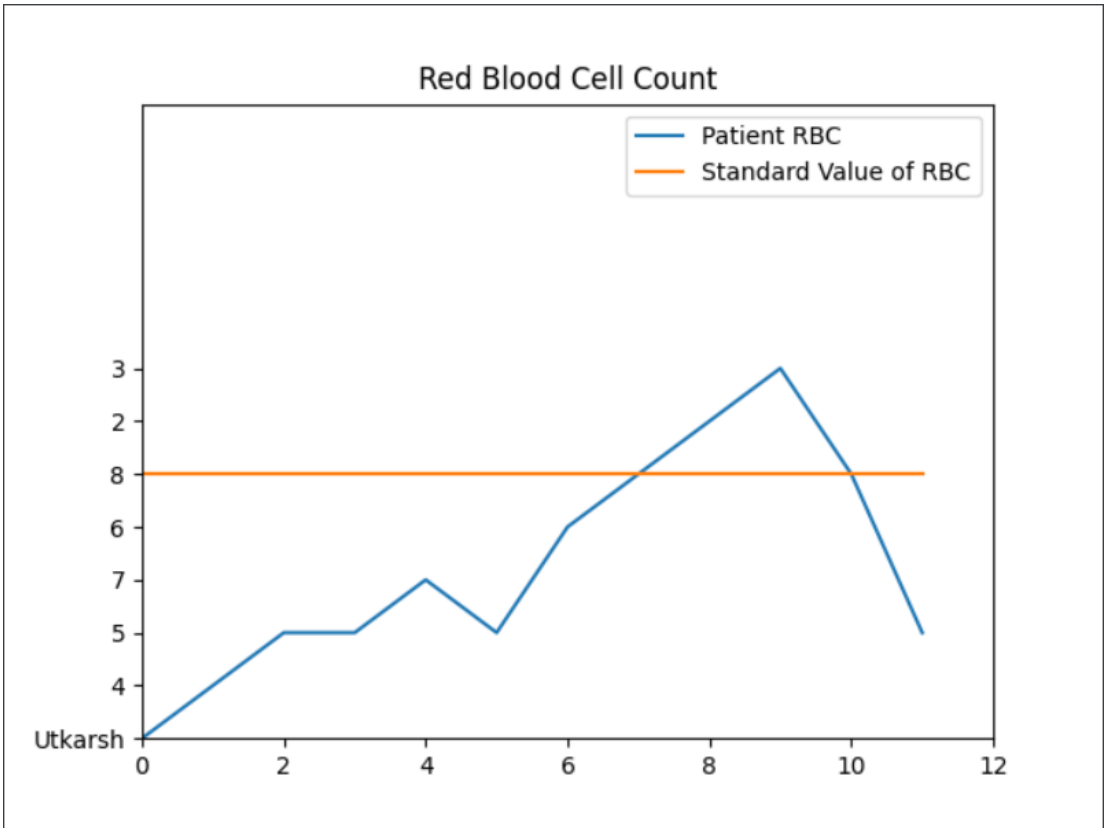
Age - 40

Symptoms - Pain, Headache, Cough

Predicted disease - Viral Infection

Prescribed medications - Crocin
Paracetamole
Anacin
Volini
Balm

- Analysis of report is done after comparing it with patient's previous medical report. The data has been obtained from mysql database.



- Google API has been used for conversion of text to speech.
- The voice of the user is recorded and processed resulting in recognizable text.
- Trained a CNN model with an accuracy of 97% for detecting the sign language

WHAT MAKES BAYMAX UNIQUE?

- Gender recognition
- Voice/Text input
- Cross platform application
- WhatsApp API
- Web based deployment
- Multilingual
- Sign Language
- Highly beneficial in rural areas