AI Healthcare Chatbot

Basic Components

- Data Fetcher
- Data Interpreter (Data -> Knowledge -> Text Alert -> Storage)
- Chat Agent (to handle communication)
- Improving accessibility in terms of language options

Data Fetcher

Our goal is to convert this unstructured data to a structured data.

IoT Device Signals

MRI Scans/X-rays/CT-Scans and other image related scans.

Medications taken

Checkup Reports

Medical History (A detailed initialization process is required)

Data Interpreter

Structured data to Text Agent

Should have external knowledge (i.e. the machine should have a medical "experience")

Main Functionality -> alerts(interpreting data)

Casual Alerts (drinking water, walk indicators, stretching indicators, improving body posture)

Serious Alerts (anything that could lead to a serious problem such as increase in heartbeat and so on.)

Chat Agent

- A chatbot-cum-Q/A Agent
  - Should be able to converse and answer any personal (using modification of data interpreter) or generic doubts (open world IR agent).
- Main task ->communication(sense of personalization)
  - Giving user Comfort
- Important auxiliary task -> detection of mental health problems
  - Being able to sense depression using voice and text processing can be a very important sub-module.

Improving Accessibility

- Two key directions
  - Indian languages
  - Handling Code-mixed Data
- This is just an expansion of the project.

Next Steps

- Prepare a visual pipeline
  - It would be helpful for anyone who'll be working on this project.
  - Aim would be to clearly indicate the vision of the project.
- Doing a literature survey to prepare a reading list.

Features that can be added in the Chatbot

Taking Input from the patients

Taking inputs as questions and answers such as:

Name

Age

Any common habbit such as smoking, drinking

Create a complete profile of the patient

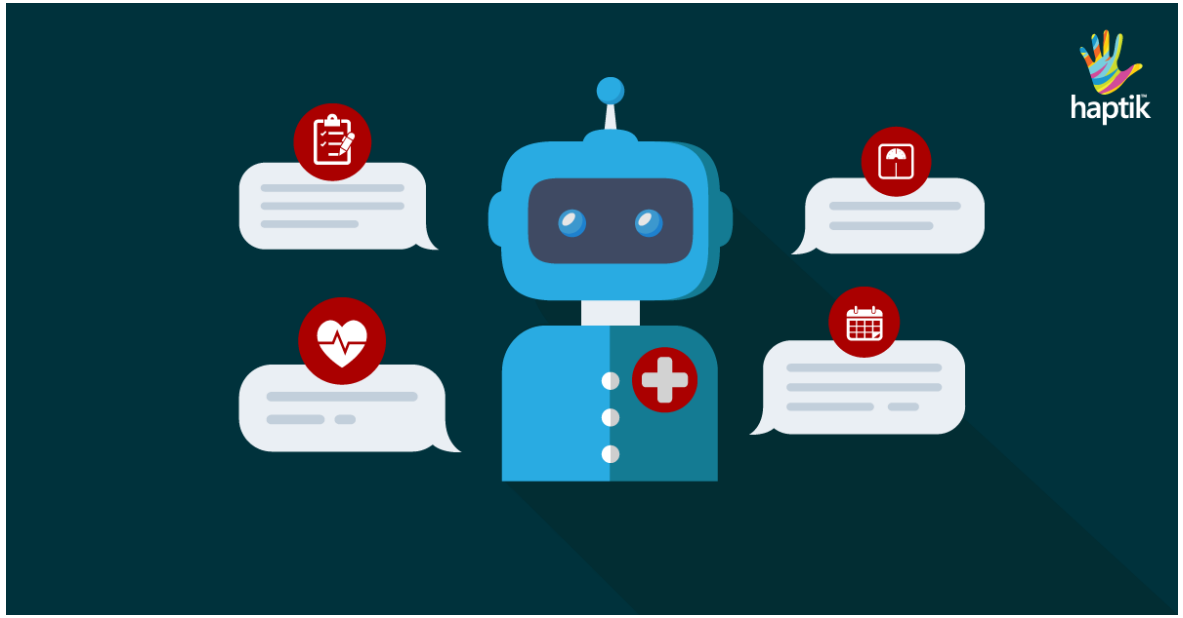
- Patients are allowed to upload any reports in the system such as Prescriptions by the doctors and so on and a complete profile could be created so that it can be referenced in future.

Suggest a Doctor

- With the uploaded reports and inputs from the patient, an initial diagnosis can be performed and then the patient can be asked to consult a doctor.

Integrate the system with the doctors nearby

- We can integrate the system to track on the doctors available related to the disease on the nearby area based on pin code.



Enough Reference for diagnosed disease

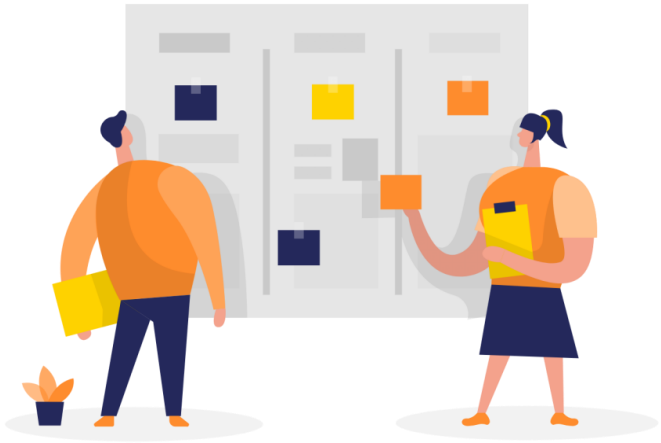
- Based on the final diagnosis, patient should be given enough reference of diagnosed disease from medical literature over the internet.

Create a unique patient ID

- A Unique patient id could be created so that we can retrieve the medical history of the patient.

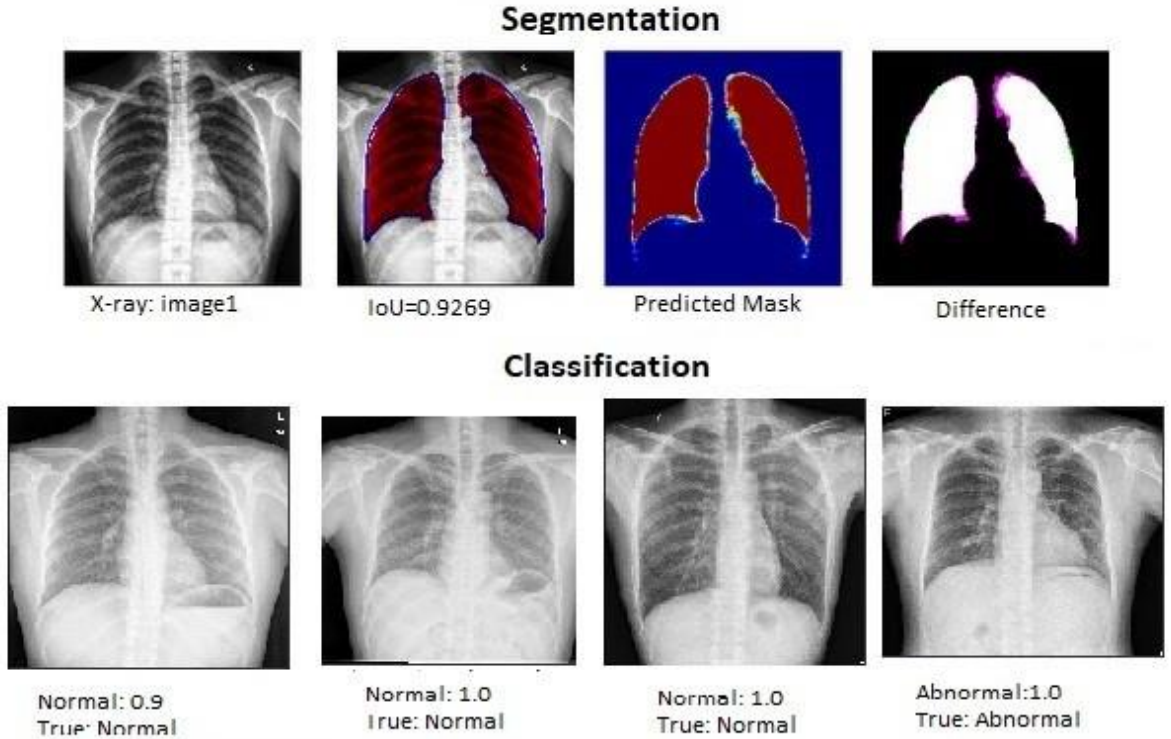
Allow the chatbot to take images from camera

- The chatbot application should allow to take snapshot of images taken from mobile camera to get uploaded in the system.
- The images could be medical reports such as prescriptions from doctors, X-ray/ECG/Scan Reports.



Classifying the images of the reports using image classification models

- We can fairly integrate our chatbot with image classification or segmentation model so that we can give initial diagnose of the disease based on the images uploaded to the system.



Integration of chatbot with various other devices

- The chatbot application could also be integrated with various IOT devices such as smart watches, BP monitor, Diabetic indicator etc.

Thank you!