Kammavari Sangham (R) - 1952
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## Department of Computer Science & Engineering

## Project Phase 1 + Seminar (17CSP78)

# Voice Based E-Prescription

## 2020_CSE_25

Guided by:
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# Introduction

In this proposed system,

- The patients will be able to book appointments based on the doctor's availability. (IVR)
- Formatted prescriptions are generated based on voice commands from doctor
- The prescription is then sent to the patient as a file or an SMS to his / her phone.
- The audio version of the prescription can be accessed either through the application/IVR.

## PATIENT

- login/Signup
- Accessibility for reports/Prescription/ Recordings.
- Use **CHATBOT** service to book diagnostic tests.

## DOCTOR

- login/signup
- View/Modify patient Records
- Schedule bookings.
- Send Prescription

# Doctor's Opinion Survey (Number of Responses - 33)

## Survey for the usability of the app

* Required

**Description**

We plan on creating an app to automate the procedure of forming a prescription and sending it. Please let us know your inputs as we will be using them to improve our app to make it more feasible and usable for you.

Do your patients sometimes keep calling you to ask about their medications again and again ? *

- ◯ Yes
- ◯ No

Would you like an app which would listen to your voice commands and form a prescription and send it as well to your patients ? *

- ◯ Yes
- ◯ No
- ◯ No Preference

Do you think an application like this will help you consult patients easily ? (Check form description for a brief on the working of the app)

- ◯ Yes
- ◯ No

What were some problems which you faced while consulting patients during COVID-19 pandemic ?

Your answer

What other features would you like to have besides forming a prescription by voice and sending them as well ?

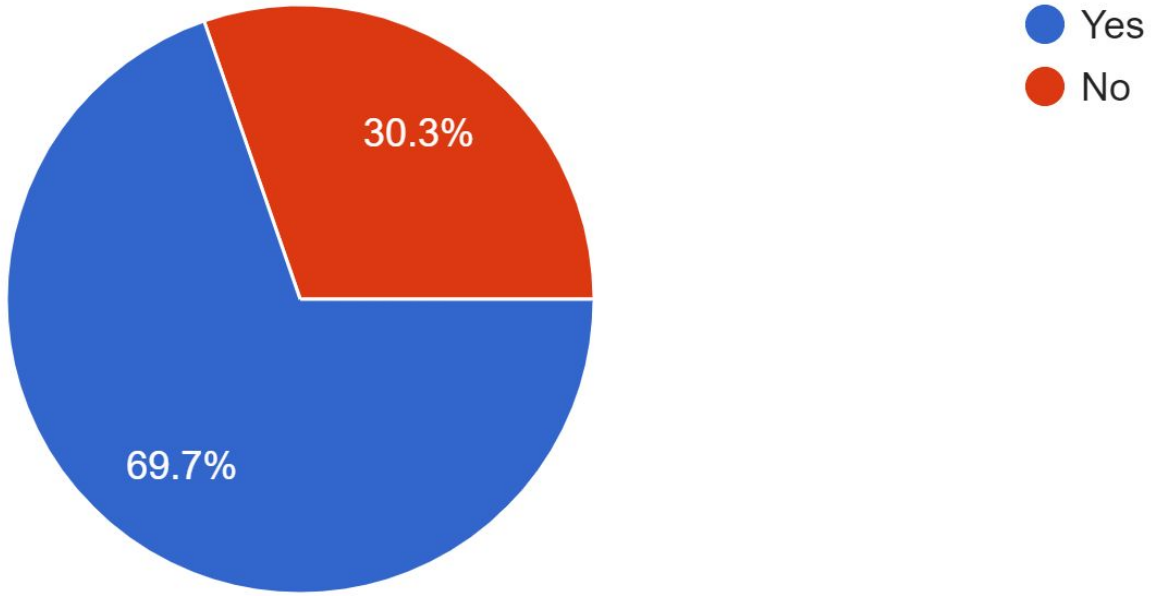
Your answer

Submit

Never submit passwords through Google Forms.

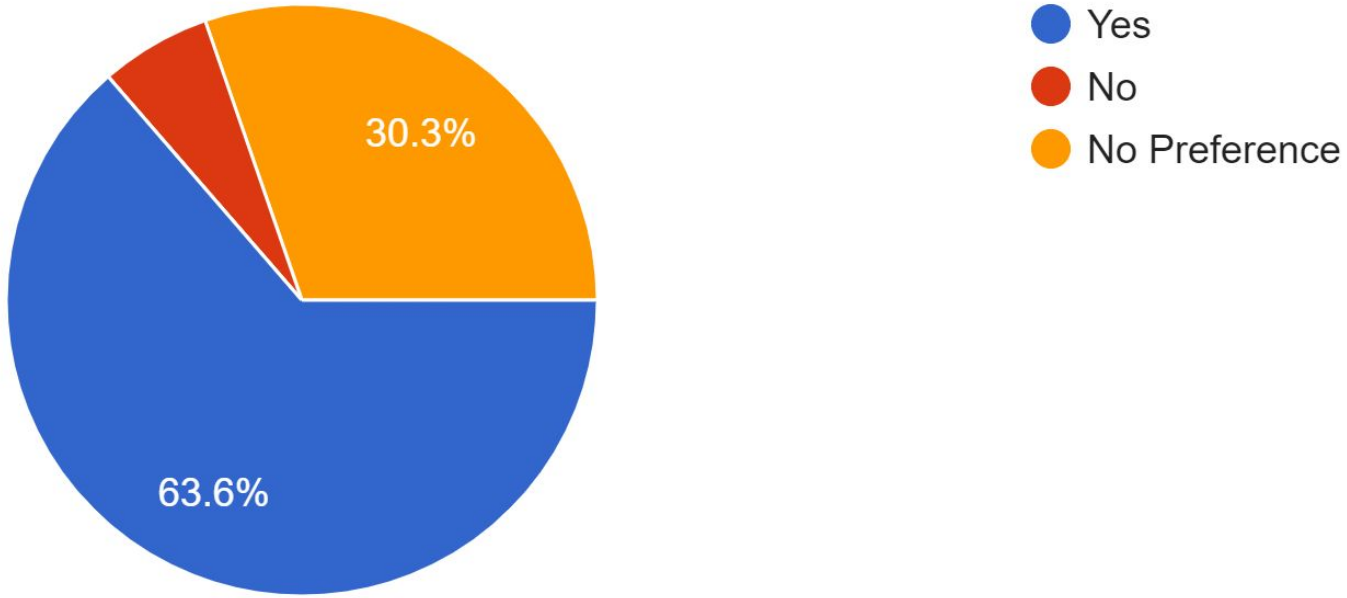
Do your patients sometimes keep calling you to ask about their medications again and again ?

33 responses



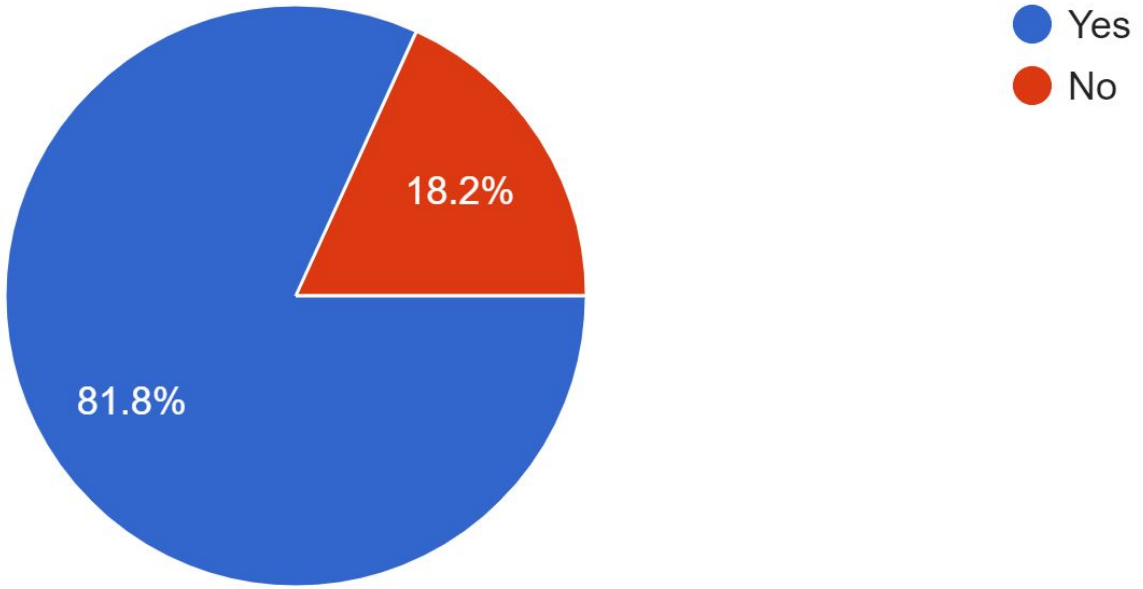
Would you like an app which would listen to your voice commands and form a prescription and send it as well to your patients ?

33 responses



Do you think an application like this will help you consult patients easily ? (Check form description for a brief on the working of the app)

33 responses



What were some problems which you faced while consulting patients during COVID-19 pandemic ?

27 responses

I wasn't able to meet my patients face to face which would be better than a voice call or a video call.

No problem faced

Throat pain for some cold n some took immunity boosters for prevention n running nose

Could not examine the patients

As a Physiotherapist, certain musculoskeletal issues needed to be treated hands-on.

Due to wearing mask and face shield, they are not able to hear us properly, so we need to keep repeating many times the same thing.

Telephonic consultation was prevalent during the Pandemic and had to tell them everything about the medication including the spelling and finally I had to type out a message in the end to clear confusion, it use consume extra time for me .

Physical checkup of patients was not possible specially in Paediatrics patients

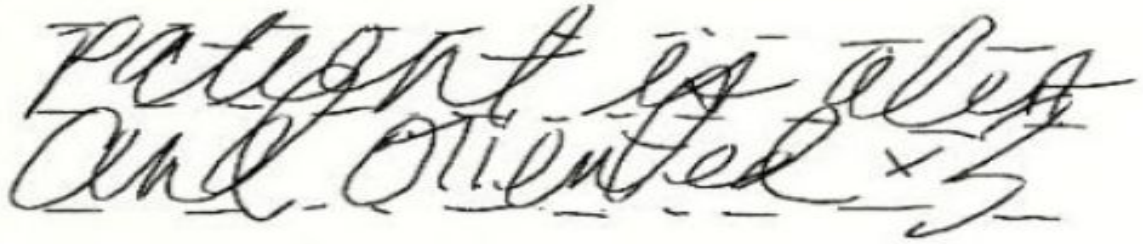
# Problem Identification

Due to the current covid-19 situation most of the consultations are done online/over a phone call due to which there are chances of having miscommunication in the medicines prescribed. Our idea mainly focuses on eliminating these errors and helping the doctors generate prescription by voice commands send the same to the patient as SMS/PDF.

# Death by prescription: Doctors' handwriting causes 7,000 deaths a year

EVERY 4TH WORD LEGIBLE:

EVERY WORD MUST TOUCH LINE MARGINS:




TEENY TINY:

# Modi govt wants to define e-prescription format to regulate online sale of medicines

Government to examine laws in developed countries and their format of designing online prescriptions before formulating policy.

HIMANI CHANDNA 14 June, 2019 12:04 pm IST

Like 91

*Medicines | Representational image | Pexels*

Text Size: A- A+

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# Methodology

- ➔ User Registration
- ➔ User Login
  - ◆ Book appointments
  - ◆ View prescriptions
  - ◆ Hear the audio version of the prescription

<u>General Procedure -</u>

- Converting the audio file to Text format and sending it as PDF/SMS to the patient.
- Storing the audio file of prescription in the database.

# Block Diagram

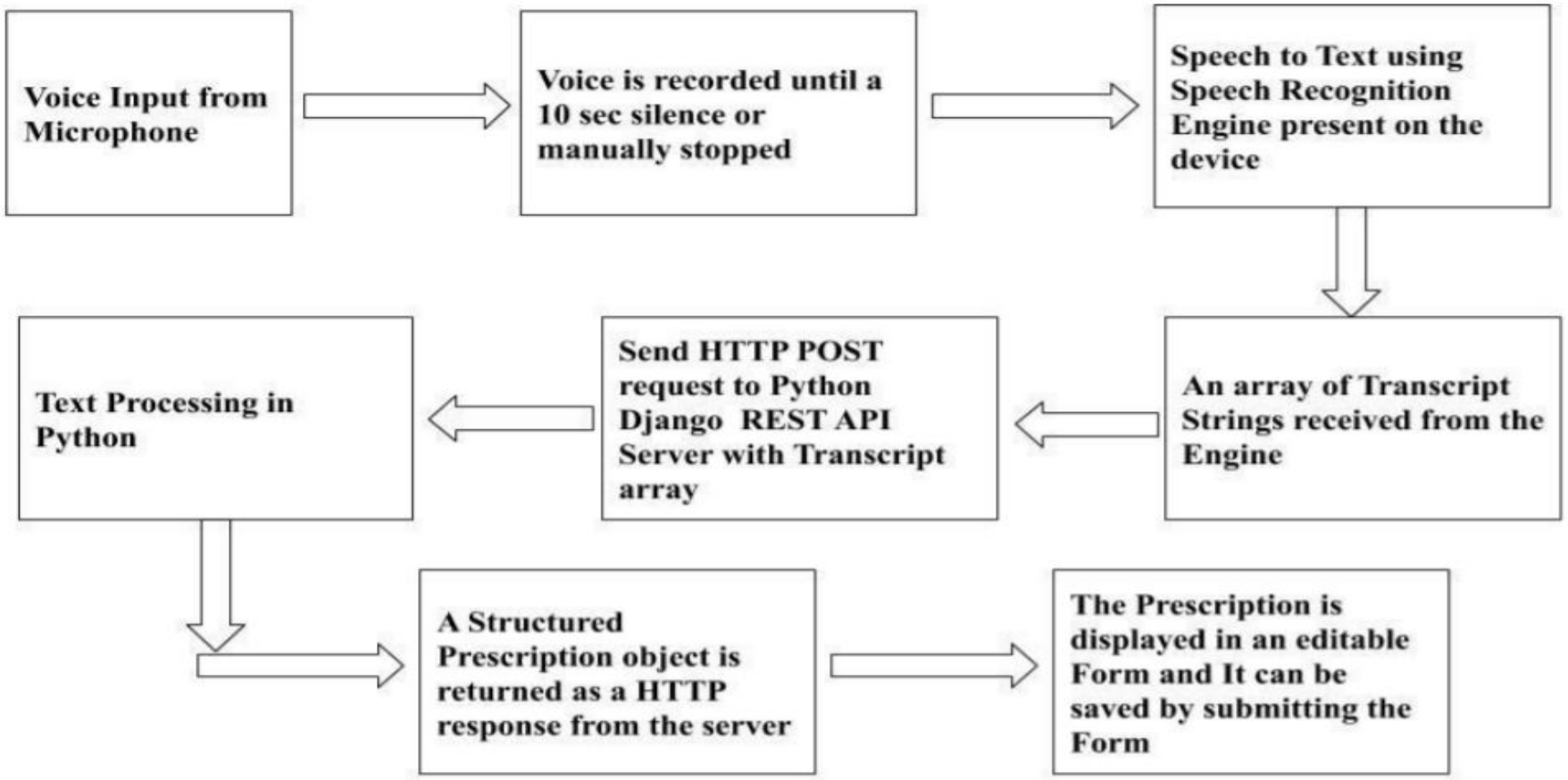


Fig1:Voice Prescription Frontend Process

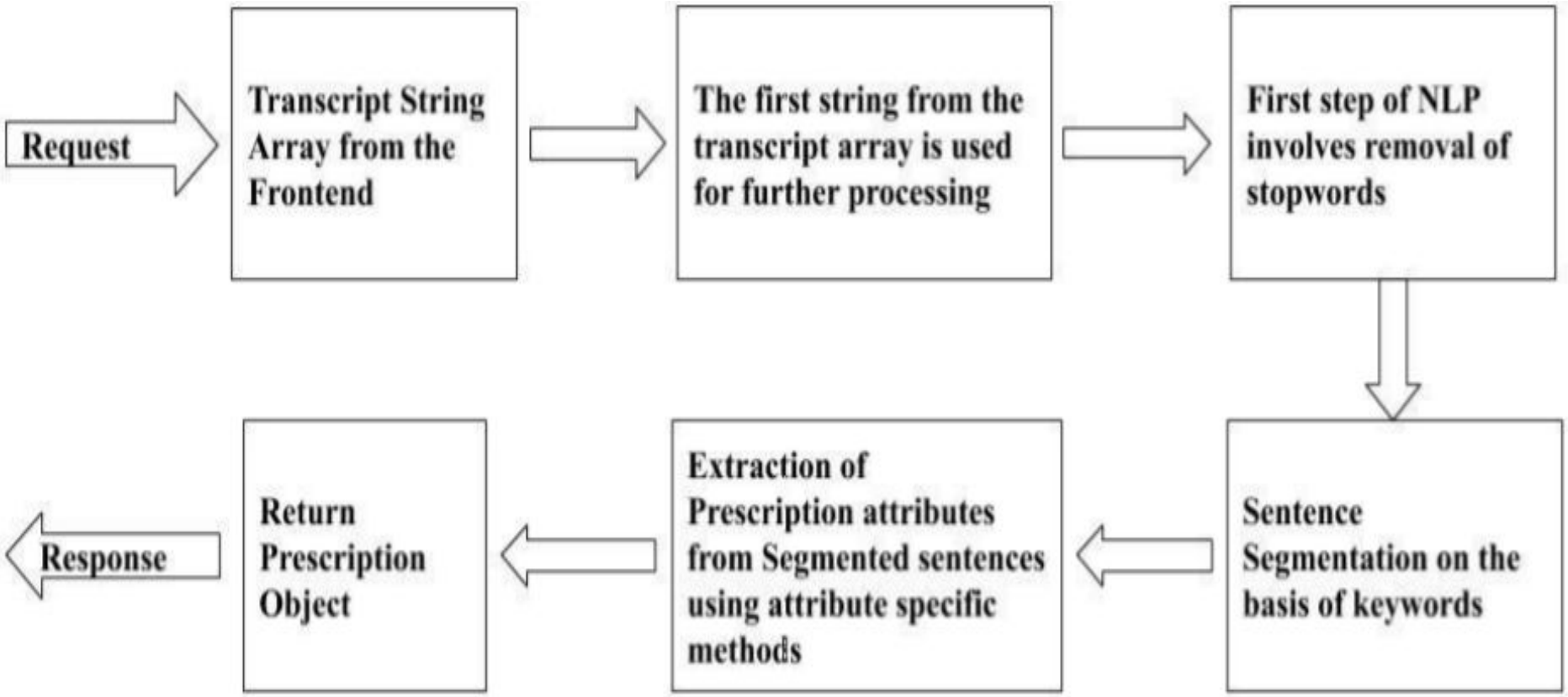


Fig2: Voice Prescription Backend Process

## Mr. Philip John, 42/M

Patient Id: 16507

23 Mar 2018

Prescription Id: 4195-12

| Ht: 180 (cm) | Weight: 72 (kg) | RR: 66 (per min) | Temp: 90 (F) |
|---|---|---|---|

| | |
|---|---|
| Current Diagnosis | Asthma - COPD Overlap Partially Controlled |
| Known Diagnosis | Acute febrile illness - URTI - (J06.9) Partially Controlled |

| | Rx | Frequency (MN - AF - EN - NT) | Duration | Qty |
|---|---|---|---|---|
| 1 | **SALBAIR TRANSHALER INHALER**<br>*Levosalbutamol 50mcg*<br>To be inhaled as per instructions found in the instruction booklet | 1 – 0 – 0 – 1<br>Before food | STAT | 1 |
| 2 | **MOXCLAV 625 TABLET**<br>*Amoxicillin 500mg + Clavulanic Acid 125mg* | 1 – 1 – 0 – 1<br>After food | 5 days | 15 tablet(s) |
| 3 | **MAXITHRAL 500 TABLET**<br>*Azithromycin 500mg* | 1 – 0 – 0 – 0<br>After food | 3 days | 3 tablet(s) |
| 4 | **MONTEK LC TABLET**<br>*MONTELUKAST 10mg + LEVOCETRIZINE 5mg* | 0 – 0 – 0 – 1<br>After food | 5 days | 5 tablet(s) |
| 5 | **SOMPRAZ 20 TABLET**<br>*Esomeprazole 20mg* | 1 – 0 – 0 – 1<br>Before food | 5 days | 10 tablet(s) |

| | |
|---|---|
| Special Instructions | |

Next Review Date (மறுமுறை வரவேண்டிய நாள்): Mon, 23 Apr 2018 05:30 PM

| | |
|---|---|
| Investigations for next review | 1. Sputum AFB smear 2. USG Chest |

Dispensing details (for Pharmacy use only):

DO NOT REFILL MORE THAN ONCE

(Sign & Seal)

# Goals & Objectives

- Contactless consultation-helps reduce human contact which results in safer experience.
- Sending prescriptions to people with or without smartphone.
- Helping people with hearing aids.
- Work processes become more efficient.
- Reduces paper usage.
- Ease of access to retrieve previous reports/prescriptions.

# Expected Outcomes

- We will help doctors prepare formatted prescriptions using voice commands.
- Our project would help to increase reachability between patients and doctors.
- We plan on helping the clinics streamline the process of booking appointment and tests.
- Since the consultation is contactless it eliminates the risk of the virus spread during covid.

# Literature Review / Survey

| Attributes | Tata health | E-sanjeevini | Proposed System (Voice Based E-Prescription) |
|---|---|---|---|
| **E-Prescription generation (by Voice/system)** | System | System | Voice |
| **Appointments** | Yes | Yes | Yes |
| **IVR Service** | No | No | Yes |
| **Lab service(via chatbot/app)** | In App | No | Chatbot |
| **Access to E-prescriptions and audio prescriptions** | E-prescription | E-prescription | E-prescription and audio prescription |
| **Video Call** | Yes | Yes | No |
| **Prescription sending format** | In App | Link | SMS / Social Media App |

# Contribution to society

- The proposed system not only helps a lot of people with basic cell phones, but also people with hearing aid.
- Helping the doctors treat their patients in a hassle free way.
- Reduces risk of consultation during a pandemic.
- Facilitates easy access to **case history** of patients.
- Eliminates the need for travel which in turn decreases cost of travel and waiting time for the patient.

# References

[1] Paper on “Paperless prescription using voice” by Mohammed Abrar Ahmed and Tirumala Shravika. October 2020.

[2]“Speech to text and text to speech recognition systems”-Areview Ayushi Trivedi,Navya Pant, Pinal Shah,Simran Sonik and Supriya Agrawal Dept.of Computer Science, NMIMS University,Mumbai,India. Corresponding Author:Navya Pant, Published on Mar-apr 2018.

[3] Suman K. Saksamudre, P.P. Shrishrimal, R.R. Deshmukh, A Review on Different Approaches for Speech Recognition System, International Journal of Computer Applications (0975 8887) Volume 115 No. 22, April 2015.

[4] Removing stop words with NLTK in Python - GFG (Article)

[5]”Modi govt wants to define e-prescription format” - ThePrint (Article)

# THANK YOU!