# SYNOPSIS

## MAJOR PROJECT REPORT

**ON**

## TELEMEDICINE SYSTEM

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**SUBMITTED TO**

MS ARATHI CHANDRAN R I

ASSISTANT PROFESSOR

DEPT OF COMPUTER APPLICATIONS

**SUBMITTED BY**

CHANDANA A J (Regno: 33218825021)

DEVIKA A P (Regno: 33218825022)

SUHANA A K (Regno: 33218825052)

VRINDA VINEETH (Regno: 33218825054)

S5 BCA

**UNDER THE GUIDANCE OF:**

MS ARATHI CHANDRAN R I

ASSISTANT PROFESSOR

DEPT OF COMPUTER APPLICATIONS

**DEPARTMENT OF COMPUTER APPLICATION**

**CHRIST NAGAR COLLEGE**

**MARANALLOOR**

# 1. INTRODUCTION

The Telemedicine System project focuses on solving problems of bringing quality health care measures to patients from the safety of their homes. The ongoing pandemic situation has mandated everyone to practice social distancing and restricts people from leaving the safety of home meanwhile the majority of the world population is troubled by new or existing ailments. Under such circumstances, the health care sector must adapt to the new norms and come up with innovative solutions to tackle these problems. Proposed system involves developing a platform from which a registered patient can book an appointment with a health practitioner at a convenient time. If the health practitioner accepts the time slot by the patient, both parties may get into a live video conference to discuss ailments and corresponding treatment. After each session, there are options for medical practitioners to record their views on the patient's condition which gets saved as the medical history of the patient. Both patient and health practitioner have access to the above medical history which allows them to make informed decisions about the required treatment in the future.

## 2. OBJECTIVE

The main objective of the Telemedicine System is to tackle the challenges faced by the health care sector and create a new status quo in imparting treatment during pandemic situations and extend it to the future. Healthcare sector across the globe is under tremendous pressure due to the rise of patients due to various pandemics. Treating a large population with a limited number of bed spaces became the greatest challenge of modern times. Additionally, there was already a huge percentage of the population who needed continuous medical attention even before the pandemic started gripping the global population. They were the elderly population, people with life-style diseases, pregnant women, infants, patients who were already under medication for pre-existing diseases and the population that attended regular counselling for mental health. While the government focused on taming the highly infectious diseases, treatment for the above mentioned categories took a hit and were marginalized. And it is not advisable to visit hospitals and clinics during a pandemic situation as it could prove to be fatal for the elderly and people with pre-existing medical conditions. This project aims at creating a platform where the above mentioned population can seek help from their preferred health practitioner while keeping themselves safe and socially distant. Regular consultation using this platform will allow them to continue treatment from their home. Also the platform enables them to track their medical history which will help the health practitioners to make informed decisions about their patients' health.

# 3. EXISTING SYSTEM

Existing system of health care involves people personally visiting clinics or hospitals of their choices and meeting the health practitioners in person. They discuss their ailments face to face and health practitioners advice treatments to patients. Individuals need to be physically present for them to get advice from their health practitioner.

## 3.1 LIMITATIONS OF EXISTING SYSTEM

- Patients needs to be physically present at hospitals or clinics to get medical advice
- For elderly people or patients with pre-existing medical condition its a risk to visit hospitals during a pandemic
- Meeting patients face to face exposes health practitioners to higher risks
- Limitation in bed space at impoverished locations leads to denial of better treatment for patients
- Getting regular medical attention becomes difficult when health practitioners are busy taming infectious diseases

# 4. PROPOSED SYSTEM

Proposed system aims at creating a new status quo health care sector which not only covers the limitations of the existing system but has the scope of changing the face of treatment in the foreseeable future. The scope of the proposed system involves developing a platform from which a registered patient can book an appointment with a health practitioner at a convenient time. If the health practitioner accepts the time slot by the patient, both parties may get into a live video conference to discuss ailments and corresponding treatment. After each session, there are options for medical practitioners to record their views on the patient's condition which gets saved as the medical history of the patient. Both patient and health practitioner have access to the above medical history which allows them to make informed decisions about the required treatment in the future.

## 4.1 ADVANTAGES OF PROPOSED SYSTEM

- Patients doesn't have to be physically present at hospitals or clinics to get medical advice
- For elderly people or patients with pre-existing medical condition can get medical attention from safety of their home
- Platform helps the patient and health practitioner to meet face to face through video conferences
- People can consult doctors virtually across the country and physical distance between them doesn't matter

# 5. PROJECT DESCRIPTION

This section describes the various modules within this project.

## 5.1 REGISTER PATIENT

This module allows patients to register in the system by providing their email id and setting up a password.

## 5.2 PATIENT LOGIN

This module allows patients to login into the system using their email id and password.

## 5.3 PATIENT DASHBOARD

Once the patients are logged in, they will be directed to a dashboard. This dashboard allows patients to create new appointments with their health practitioners. The dashboard also shows patients future appointments and also has links to patients' profile pages.

## 5.4 PATIENT PROFILE

This module shows the personal details of the logged in patient.

## 5.5 CREATE APPOINTMENT

This allows the patient to search for a health practitioner and choose a day from a calendar to create an appointment based on their convenient time.

## 5.6 MEDICAL HISTORY

This module shows the medical history of a patient based on his previous appointments added by health practitioners in reverse chronological order.

## 5.7 VIDEO CONFERENCE

Patients and their health practitioners can participate in a video conference on a scheduled appointment. This allows both parties to have a face to face meeting with each other and there by creating an open forum for discussion about ailments and their corresponding treatments.

## 5.8 PRACTITIONER LOGIN

This modules allows the health practitioner to login to the application by providing their email id and password

## 5.9 PRACTITIONER DASHBOARD

Practitioners will be able to see appointments requested by their patients and which can be accepted or rejected. Also practitioners can see patient details and their health records.

### 5.10 PRACTITIONER PROFILE

This module shows personal details of the practitioner and his qualifications.

### 5.11 PATIENT LISTING

This module allows practitioners to see the list of their patients. Also it provides the ability to search for a patient and update his medical history.

#### 5.11.1 PATIENT SEARCH

This module allows practitioners to search for a patient from a list.

#### 5.11.2 PATIENT DETAILS

This module allows practitioners to view and update each patient's medical records.

### 5.12 VIDEO CONFERENCE

This module allows practitioners to participate in video conferences scheduled by their patients. This allows both parties to have a face to face meeting with each other and there by creating an open forum for discussion about ailments and their corresponding treatments.

# 6. TECHNOLOGIES USED

This section describes the software and hardware requirements of this project.

## 6.1 SOFTWARE REQUIREMENTS

- Front End : React JS
- Backend : Node JS
- Database : MongoDB
- Server : Ubuntu
- Cloud Hosting : Amazon Web Services (AWS)
- Video Conference Engine : Twilio Programmable Video
- IDE : Visual Studio Code
- Browser : Chrome/Firefox/Safari
- Operating System : Windows 7/Mac OS 10.15/ Ubuntu 14 (above)

## 6.2 HARDWARE REQUIREMENTS

The basic hardware requirement requirements in order for our application to run are:

- Processor : Intel Pentium C2D/AMD
- RAM : 1GB / Above
- Hard Disk free space : 10 GB
- Display : LCD 18”, 1024x768 / Above
- Monitor :19 inch
- Keyboard :108 keys

## 7. FUTURE SCOPE

Future enhancement of this project involves integrating health data from wearable devices like smart watches and electronic devices like smartphones. Nowadays, smartphones and wearable devices and smartphones come with motion trackers, step count, heartbeat monitor, calorie monitor, exercise tracker and several health related applications. Collating this data into our web application will enable the user to see a qualitative dashboard of his overall health. These key points will further help health practitioners to make much more informed decisions and suggest changes to the lifestyle of their patients. Future enhancements may also involve health related alarms which may be triggered and sent to respective family members and health practitioners during an event of emergency for the patients.

## 8. CONCLUSION

Telemedicine system creates a new status quo in the health care sector by providing a digital platform for both patients and practitioners. The scope of this project aims directly at the present day challenges of the health care sector and creates a fitting solution by using modern day technologies. With the enhancements mentioned in the future scope section, this project has the potential to grow into a full blown industrial solution.

## 9. REFERENCES


https://nodejs.org/en/

https://www.twilio.com/

https://reactjs.org/

https://www.mongodb.com/