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Submitted in partial fulfillment of the requirements for the degree of

BACHELOR OF ENGINEERING

IN

### Computer Science & Engineering

### Artificial Intelligence & Machine Learning

by

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### Department of Computer Science & Engineering

### (Artificial Intelligence & Machine Learning)

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**University Of Mumbai**

**2024-2025**

## A. P. SHAH INSTITUTE OF TECHNOLOGY

## CERTIFICATE

This is to certify that the project entitled “**Title of the Project”** is a bonafide work of Tanisha Chitnis (19203022), Abhishek Bapat (19203020), Shlok Dalvi (19203012), Avantika Aher (19203009) submitted to the University of Mumbai in partial fulfillment of the requirement for the award of **Bachelor of Engineering** in **Computer Science & Engineering (Artificial Intelligence & Machine Learning).**

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## A. P. SHAH INSTITUTE OF TECHNOLOGY

## Project Report Approval

This Mini project report entitled “**Title of the mini project*”*** by **Author Name1, Author name2, author name3 and Author name4**is approved for the degree of ***Bachelor of Engineering*** in ***Computer Science &Engineering***, (AIML) ***2022-23***.

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**Declaration**

##### We declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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#### ABSTRACT

The coronavirus illness (COVID-19) pandemic, which began in the Chinese city of Wuhan, has swiftly spread to other nations, with several cases recorded throughout the world. India, with a population of over 1.34 billion people and the world's second-largest population, will have challenges in preventing the spread of the severe acute respiratory syndrome coronavirus among its citizens. To restrict the spread of the present outbreak, many measures would be required, including computer modelling, statistical tools, and quantitative analytics, as well as the speedy development of a new therapy. To attain this aim, the federal and state governments are adopting a variety of steps and developing a number of wartime protocols.

The large second rise of COVID-19 infections utterly overloaded India's health system in April, May, and most of June in the year of 2020. Beds, oxygen, medical equipment, and personal protective equipment were in short supply at hospitals around the country (PPE). While the number of reported active cases has decreased in recent weeks and the number of persons released has increased, the daily mortality count has not decreased as swiftly as predicted. Rural regions, which lack sufficient testing facilities and health-care infrastructure, and where vaccination reluctance is strong, are of special concern. We'll keep doing what we're doing while also bolstering clinical care skills at the neighbourhood and district levels and supporting vaccination rollout methods.

**Keywords**: Covid-19, Blood storage, PPE, Hospitals

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# CHAPTER 1 INTRODUCTION

### INTRODUCTION

##### COVID-19 was originally found in Wuhan, China, in December 2019, as a respiratory tract infection with symptoms such as fever, chills, dry cough, exhaustion, and shortness of breath. This unusual viral pneumonia has rendered the whole world immobile, resulting in catastrophic health and economic costs. The new coronavirus is related to SARS and MERS-CoV, although the former has a more devastating impact, as seen by the exponential increase in infectious cases. COVID-19 has an incubation period of 1–14 days, with a mean of 6 days, during which asymptomatic carriers of the virus can spread the disease to healthy persons, as evidenced by evidence of human-to-human transmission by droplets or contact. COVID-19 was designated a Public Health Emergency of International Concern by the World Health Organization at the end of January, in accordance with the World Health Organization's International Health Regulations (2005).

On January 30, 2020, India announced the country's first case of COVID-19 in Kerala. The index case was a student returning from Wuhan who was isolated in a hospital. As of 3 February, three cases had been verified in Kerala, with all early cases originating from separate cities. They had been deemed recovered by the 20th of February. Little information was supplied on the early COVID-19 patients in India, therefore it is uncertain if they were contacts of the first case or had a travel history. However, after a month's lag, the number of cases began to rise, hitting more states and union territories by the beginning of March (c.f. Appendix B). According to the Ministry of Health and Family Welfare, COVID-19 transmission is mostly due to travel and local transmission of imported cases; however, minimal community transmission was initially detected on March 30. Klein et al., on the other hand, believe that community transmission in India began in early March.

##### The influence of COVID-19 on India's health system, social, political, and economic systems, as well as the prospective health system, social, political, and economic implications. The study was conducted in a chronological order, with data collected from 30 January to 12 June 2020. Initial containment procedures, such as checks at the point of entry and testing processes, looked to be insufficient. Following the start of a nationwide lockdown, testing capacity was gradually increased. The appearance of cases has varied depending on the infectiousness of asymptomatic persons, with a peak projected in mid-July with around two million cases. Due to containment measures and a reduction in commodities imports, the country also runs the possibility of losing around 4% of its gross domestic product. Due to limited public health spending, a lack of infrastructure, and a poor budgetary response, scaling up the COVID-19 response and management will be difficult. As a result, an emergency readiness and response strategy must be integrated into India's health system. Because of the virus's extraordinary spread, the globe has been put on lockdown, with numerous governments instituting tight screening of possible cases admitted into their territory.

# CHAPTER 2 LITERATURE SURVEY

#### LITERATURE SURVEY

###### 2.1-HISTORY

COVID-19 (Coronavirus) has affected day to day life and is slowing down the global economy. This pandemic has affected thousands of peoples, who are either sick or lost their soul due to the spread of this disease The pandemic is fast-moving, as are the efforts to address it. Hospitals reported that their most significant challenges centered on testing and caring for patients with known or suspected COVID-19 and keeping staff safe. Hospitals also reported substantial challenges maintaining or expanding their facilities’ capacity to treat patients with COVID-19. Capacity concerns emerged as hospitals anticipated being overwhelmed if they experienced a surge of patients, who may require special beds and rooms to treat and contain infection. Many hospitals reported that post-acute-care facilities were requiring negative COVID-19 tests before accepting patients discharged from hospitals, meaning that some patients who no longer required acute care were taking up valuable bed space while waiting to be discharged.

Hospitals reported that shortages of critical supplies, materials, and logistic support that accompany more beds affected hospitals’ ability to care for patients. Hospitals reported needing items that support a patient room, such as intravenous therapy (IV) poles, medical gas, linens, toilet paper, and food. Others reported shortages of no-touch infrared thermometers, disinfectants, and cleaning supplies. Isolated and smaller hospitals faced special challenges maintaining the supplies they needed and restocking quickly when they ran out of supplies.

The other most prominent concerns reported by hospital administrators centered on maintaining facility operations while receiving and treating patients with known or suspected cases of COVID-19. These challenges included concerns about bed availability, particularly specialized beds such as intensive care unit beds, and supplies, as well as maintaining financial solvency given reductions in routine patient care and elective surgeries.

Hospitals anticipated being overwhelmed by a surge in COVID-19 patients, who would need specialty beds and isolation areas for effective treatment. Specifically, hospitals reported concerns about potential shortages of intensive care unit beds, negative pressure rooms, and isolation units. Hospitals also reported that, given the limitations to bed availability, it was challenging to sufficiently separate COVID-19 and non-COVID-19 patients within their facilities.

Hospitals reported they do not have a reliable source for the equipment and supplies they use to support patient care. One hospital reported that, in addition to beds, it needed to source the materials that accompany additional beds and did not know where to order them. For example, hospitals described the supplies that support a patient room, such as intravenous therapy poles, medical gas, linens, and food.

#### 2.2-LITERATURE REVIEW

###### Life Care GPS based Medical Emergency Solution (IEEE EXPLORE 2020) Govinda Gindodia, Deepali Shrikhande

This application, Life Care, will help a patient to find a specialized doctor as per their needs, availability, distance, and consultancy charges. It is designed especially for an emergency and reduce the patient’s time in hunting for a specialized doctor. Life Care will locate the nearby pharmacy store and check the medicines available in the store. This system will digitize the entire medical documentation that can be accessed by doctors and patients from anywhere at any time. Our system provides a link to virtual communication between patients and doctors. The feature of GPS based medical emergency services will help the user to find the closest doctor through GPS.

###### Life Care Careggi Smart Hospital (IEEE EXPLORE 2020) A. Luschi,A

**.Belardinelli,L. Marzi,F. Frosini,R. Miniati, E. Iadanza**

The application is designed for Android smartphones and tablets and it is freely downloadable from the Google Play Store. It provides various useful tools to hospital’s users such as personnel and structures finding, way finding and the possibility to access personal medical records collected on regional electronic health record.

###### Elderly Healthcare Assistance Application using Mobile Phone (IEEE EXPLORE 2017) Andreas Handojo, Tioe Julio, Adrian Sutiono, Anita Nathani Purbowo

As people become older they need special health, especially from the family member or doctors. Therefore, this research try to develop an application on mobile phone that could help elderly people and their family member to supervise and monitor the health of the elderly. This application has feature to monitor the location of the elderly, remainder to take the medication, doctor appointment remainder, medical record records, emergency phone to family number or personal doctor.

###### COWAR An Android Based Mobile Application to Help Citizens and COVID-19 Warriors (IEEE EXPLORE 2020) Tarun Saxena, Prince Anuragi, Gandhali Shinde, Nitesh Yadav, Mayuri Digalwa

In this paper, the design and development an android application to spread awareness and to help the people of the world amid this COVID-19. The COWAR app connects the people with the Doctors and the administration to come together and fight the pandemic. With this app, one can track the spread of the COVID-19 epidemic, check live statistics, check for symptoms, browse an interactive map, and also get prevention details.

###### Blood Donation And Life Saver App (IEEE EXPLORE 2017) Annish Brislin M R1, Albert Mayan J2 , Aroul Canessane R3, Anish Hamlin M R4

It can check for blood donor nearby by using GPS. Once the app user enters the blood group which he/she needed it will automatically show the donor nearby and send an alert message to the donor. In case if the first donor is not available it will automatically search the next donor which is present in queue. If the donor accepts the request, then a onetime password (OTP) will be sent to the donor to verify. Blood donation app provider list of donors in your city/area.

###### Inside Me: A Proposal for Healthcare MobileApplication (IEEE EXPLORE 2016) Sarawut Busssadee, Sittipong Suwannatria Arnon Chonrawut, Ek Thamwiwatthan Kitsuchart Pasupa

In this paper, we proposed mobile application for health monitoring-Inside Me-which can help users to become more aware of their health. This application aims to track user's workout activities and monitor and analyze user's health condition. It also gives some instructions and suggestions to the user for maintaining and improving his or her health. Moreover, it provides an assessment of the risk that the user may have one of these two diseases: coronary disease and diabetes. Input data are collected from several sources such as questionnaire, medical check-up record, and wearable device.

###### Health Channel A Health Care Support App(IRJET JOURNAL 2018) Mr. Sujith JohnMs. Dhikhi TMr. Karthikeyan S. Mr. Advait N. Menon

The developed a web app that stores patient and hospital records online on a cloud server accessible to both the doctor and patient. It provides various useful tools to the hospital’s users such as personnel directory, access to personal medical records collected on regional electronic health record. The web application keeps track of the doctor’s prescription and reorders the

medicines for the patient so that the patient does not go out of stock ever and the doctor can make changes to his prescription.

###### Mobile App to Search for Nearest Hospital and Healthcare Management System (IJATIR 2016) Pallavi R, Kumar Rajat

The proposed framework finds closest accessible doctor's facility, contacts its rescue vehicle crisis framework, gets to an Electronic Wellbeing Record of crisis patient that can fundamentally help with pre-clinic medicines. The framework will recognize accessibility of the closest accessible particular clinic every through CMS server which gives constant data about the approaching patient to the doctor’s facility. This paper proposes Android Based Following for CMS (Crisis Medicinal Framework) on cloud

###### Developing a mobile COVID-19 prototype management application

**(IEEE EXPLORE 2020) Mouna Berquedich, Amine Berquedich, Oulaid Kamach, Malek Masmoudi, Ahmed Chebbak, Laurent Deshayes**

COVID-19 is a novel coronavirus that has affected an unprecedented number of people to date. Patients typically present with a combination of fever or cough and have a history of exposure to either a close contact with COVID-19 or travel to an affected geographic area. The applications implemented are used to early recognition and isolation ofa patient with COVID- 19 at home and in the ED may help decrease exposure to other patients and healthcare personnel. Future research is necessary to expand our collective knowledge of COVID-19 and optimize patient outcomes.

###### Health technology management: A database analysis as support of technology managers in hospitals Roberto Miniatia, Fabrizio Dorib, Ernesto Iadanzac, Mario M. Fregonarad Guido Biffi Gentilie

Technology management in healthcare must continually respond and adapt itself to new improvements in medical equipment. Multidisciplinary approaches which consider the interaction of different technologies, their use and user skills, are necessary in order to improve safety and quality. An easy and sustainable methodology is vital to Clinical Engineering (CE) services in healthcare organizations in order to define criteria regarding technology acquisition and replacement. This article underlines the critical aspects of technology management in hospitals by providing appropriate indicators for benchmarking CE services exclusively referring to the maintenance database from the CE department at the Careggi Hospital in Florence, Italy.

# CHAPTER 3

# Problem Statement

#### Problem Statement

Nowadays, everyone is trying to focus in on their wellbeing in their everyday occupied lives. The Covid flare-up has additionally featured the dire need to return to existing worldwide medical care and make it more secure, undeniably more comprehensive, and generally around open. A large portion of the countries were affected by the infection. During the Second and Third wave India have endured a great deal like lack of beds, ICU beds, Oxygen Cylinders. A large portion of individuals couldn't get beds at clinics couldn't get any information about hospitals like what they provide how many beds are available they at their place.

However, this isn't the one problem that we as a whole are experiencing According to the National Crime Records Bureau, almost 24,012 individuals kick the bucket every day because of a postponement in getting clinical help. Most patients have suffered these situations like moving one hospital to another due to some lack equipment in a particular hospital or couldn’t find the perfect hospital for a patient. The Foundation found — from national crime, birth and death records in January 2014 that heart attacks, at 19% of the total, are the leading cause of death, while brain haemorrhage is fourth on the list.. Early adjustment of a cerebrum discharge patient is basic in saving his life. Mishaps are tenth on the rundown - almost 4,40,042 cases are accounted for the nation over every year, of which 1,39,091 individuals lose their life. The main hour after the episode, or the Golden Hour, is basic. Numerous mishap casualties sit tight for help at the site, and a postpone costs them their life.

# CHAPTER 4

# Experimental Setup

#### Experimental Setup

#### 4.1 Hardware Setup

#### In this description students have to write Configuration of computer system to run the software.

#### 4.2 Software Setup

#### All software tools along with packages are need to be included here.

# CHAPTER 5

# Proposed System & Implementation

#### Proposed system & Implementation

#### 5.1 Block diagram of proposed system

#### Students have to draw block diagram of proposed system. Flow chart can be added at this point.

#### 5.2 Description of block diagram

#### Explanation of block diagram.

#### 5.3 Implementation

#### Implementation of proposed system must be included here. Students can explain implementation using screen shots of output.

#### 5.4 Advantages/ Application/ result table can be included in this subsection.

# CHAPTER 6

# Conclusion

* + 1. Conclusion

Students have to include conclusion here. Future scope can be include in next subpoint.

# References

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